

GVEPA submission to DOP



Executive Summary

1. Under section 5A of the New South Wales Environment Planning and Assessment Act 1979, a “test of significance” applies to major developments. Known as the seven-part test, this method assesses the potential impact of an activity on threatened flora, fauna, ecological communities and endangered populations (listed as either “Vulnerable” or “Endangered” in the NSW Threatened Species Conservation Act 1995).
2. Furthermore, the well-established precautionary principle states that if an action or policy has a suspected risk of causing harm to the public or to the environment, the burden of proof that it is *not* harmful falls on those proposing the action.
3. The Gara Valley Environment Preservation Association, Inc. (GVEPA) submits that the Armidale Dumaresq Council’s (ADC) proposed regional landfill off the Waterfall Way, 12kms east of Armidale fails central elements of both the seven-part test and the precautionary principle. In this submission we will focus on the following key issues:
 - Environmental impact;
 - Governance;
 - Economic and social considerations; and,
 - Alternatives and other matters.

4. Given the risk for potential harm to the environment and human health, which the Proponent has been unable to sufficiently address, GVEPA maintains there is no alternative but to situate any new landfill outside the World Heritage catchment. Accordingly, we call on the NSW Department of Planning to find that the Proponent's Environmental Assessment (EA) fails to adequately address the environmental risks at the proposed site.

Introduction

5. Central to GVEPA's analysis and concerns regarding the proposed landfill is the potential impact on the Gondwana Rainforests of Australia World Heritage Area. This concern was recognised in 2007 by the Australian Government's Environment Protection and Biodiversity Conservation (EPBC) committee when it determined that the proposed landfill as outlined in the Preliminary Environmental Assessment (PEA) "will, or is likely to, have a significant impact on the World heritage properties and the National Heritage values of National Heritage places."¹
6. While the EA purports to be an impartial, technical document, we suggest it is more of an advocacy piece; based on ideal assumptions, old data (1998 – 2004) and improbable environmental safeguards. Throughout the document, future prudent action is asserted without substantiation, detailed plans or budget. While various individual elements in the EA may give the impression of a benign, holistic result; when considered in aggregate, the proposal is not realistic or credible. GVEPA notes particularly the following general concerns with regard to the EA's quality:
 - Inadequate detail to justify conclusions
 - Lip service inclusion of key design and remedial issues
 - Key physical data used is subjective and contradictory in places
 - No project detail on design, construction, operation and maintenance costs (see below for detail)
 - No analysis of better waste disposal alternatives (see below for more detail and alternatives)
7. A very recent review of ADC by the NSW State Government ("Kibble Report") indicates that it has low levels of governance; is in precarious financial condition; and has poor community relations. The EA proposes 11 management protocols and plans that require high standards of implementation and monitoring. Yet, in light of Council's current circumstances, it is improbable that it would be able to successfully implement all the mitigation measures it considers necessary to achieve "stringent" standards of management and operation.

GVEPA and its objectives

8. The Gara Valley Environment Preservation Association Inc. (GVEPA) was formed in late 2002 to protest the then proposal by the Armidale Dumaresq Council to construct a putrescible landfill on "Ballantrae" (site 9) in the Gara Valley approximately 2 km from, and draining into, the Gara Dam which is the backup drinking water supply for Armidale. This proposal was eventually abandoned only to be replaced by the current, though equally unsatisfactory, proposal.

¹ Australian Government, DEWR 2007: *Notification of Referral Decision – Controlled Action*, Statement of Reasons, p.5.

9. GVEPA's objectives specific to the landfill are to:
- protect the Oxley Wild Rivers National Park, part of the UNESCO-listed Gondwana Rainforests of Australia World Heritage area;
 - preserve threatened species (both flora and fauna) and habitats, including migratory birds; and,
 - prevent pollution of the environment, in particular leachate and greenhouse gas emissions.

Environmental Issues

Sensitive water catchment area: World Heritage impact

10. The biggest threat from the proposed landfill is from leachate-contaminated water entering the World Heritage sites. The Proponent admits leachate containment within the landfill facility cannot be guaranteed.² The EA does not provide any proposal to detect and manage leachate contamination of groundwater when it does occur. Taken together, the implication is that contamination of the Gara River will occur. The Gara flows into the Gondwana Rainforests of Australia World Heritage Area. Given Australia's obligations under the World Heritage Convention to "protect and conserve" such areas, the potential for damage to waterways, such as the Gara River, which flow into the World Heritage site must be considered.
11. The Gara River is already under stress due to factors such as eutrophication and poor river structure. This is acknowledged in the EA (Section 8.3.1, p. 143) with reference to *The Southern New England Tablelands Region State of the Environment Report (2004)* and *Supplementary Report (2004/05)*, as well as *The Stressed Rivers Assessment Report 1998*, produced by the former Department of Land and Water Conservation (DLWC), which gave the Gara River the highest overall stress classification.
12. Further stress on the Gara River comes from ADC's current Sewage Treatment Plant and the existing Armidale Landfill, both of which release leachate into the waterways. GVEPA's understanding is that leachate generation can be expected to continue for many decades after closure of any landfill, therefore leachate pollution of groundwater must be assumed to be on-going and possibly increasing, even after a landfill is shut down. While these impacts will continue for years to come, Council currently has the opportunity to reduce stress on the Gara, by locating any new landfill in a location that does not drain into it, and consequently into the World Heritage areas.
13. These problems are exacerbated by the restricted flow rates in the Gara during times of low rainfall. Release rates from Malpas Dam to improve flow to the river are controlled by a combination of State and Council authorities, none of whom have responded favourably to the repeated requests of Gara Valley landholders for additional flows. Restricted flow rates will magnify the possibility of environmental degradation from groundwater that is carrying leachate by limiting its dilution once it joins the river.

Class 1 solid waste facility (putrescible fraction) resulting in toxic groundwater leachate

14. Council has stated that it will seek to use the proposed landfill as a Class 2 (non-putrescible or inert) facility as soon as possible. However, this remains an aspirational statement. The

² EA, page 158.

reality is that for licensing purposes, the proponent has sought consent for a Class 1 (general solid waste) landfill. GVEPA's review of the literature suggests that such "General Solid Waste" can be expected to generate leachate of a potentially toxic nature.³ As noted above, this process may continue to pose an on-going threat to groundwater well beyond the active lifespan of the landfill.

15. GVEPA also notes the Proponent's acknowledgement that there is no landfill liner technology currently available to guarantee the prevention of long-term leachate pollution into groundwater. Even the most advanced landfill liner systems have a recognised limited protective lifespan due to, *inter alia*, the degrading effects of leachate upon the clays and/or plastics comprising liner systems; manufacturing faults and difficulties encountered during installation.
16. Indeed, the landfill design being proposed by ADC is one that has already been discredited in the USA and has been replaced by the "dry tomb" design, which adds a top liner in an effort to keep moisture out of the waste to minimise leachate generation. However, even this design only extends the timeframe before the inevitable liner degeneration, resulting in leachate escape and groundwater pollution.⁴
17. Leachate is most likely to escape through the bottom of the landfill where detection is very difficult. Even if detected, remediation is almost impossible. Therefore, groundwater pollution by leachate is essentially uncontrollable. While the potential for groundwater contamination due to liner failure over time is acknowledged by the Proponent, the Leachate Management Plan in the EA does not address how ADC proposes to prevent or manage the issue.⁵
18. The Gara River is a major feeder to the Macleay River, which ends up as Kempsey's drinking water supply. GVEPA believes that the potential for groundwater pollution, subsequent contamination of the World Heritage sites and the risk to human water supplies alone constitute grounds to refuse the application.

³ For a meta-analysis, see Lee, GF & Jones-Lee, A, 2010 *Flawed Technology of Subtitle D Landfilling of Municipal Solid Waste* <http://www.gfredlee.com/Landfills/SubtitleDFlawedTechnPap.pdf>.

⁴ For an overview of the evolution of US EPA design requirements see Lee GF & Jones-Lee 2010 *Flawed Technology of Subtitle D Landfilling of Municipal Solid Waste* <http://www.gfredlee.com/Landfills/SubtitleDFlawedTechnPap.pdf>, pp. 3-8

⁵ EA, Appendix I, p.9.



Illustration1: Photo Showing flooding on the 26th Feb 2007 at adjoining property following a storm of 28mm. Looking towards Waterfall Way adjacent to site entrance near Western boundary of proposed landfill site.

Biodiversity/habitat loss

19. GVEPA believes unconsolidated rubbish will find its way into the World Heritage Area, Gara River and nearby properties. Increased numbers of predatory wildlife will be attracted to the dump changing the biodiversity of the area. Containment of disease, weeds and insects has not been satisfactorily addressed by the EA.
20. The site is located in a treed valley, the habitat for a number of endangered species. It is part of a wildlife corridor linking Imbota Nature Reserve to the eastern side of the Gara River. The entrance and possibly the site contain White Box, Yellow Box, Blakely's Red Gum Woodland, which is listed as a Critically Endangered Ecological Community (CEEC) under the EPBC Act; and as an Endangered Ecological Community (EEC) under the Threatened Species Conservation Act 1995 (TSC Act).⁶
21. In addition to those above, the EA acknowledges an array of negative impacts upon flora and fauna, such as:
 - Narrow-Leaved Black Peppermint (*Eucalyptus nicholii*), listed as vulnerable under both the NSW TSC Act and the Commonwealth EPBC Act;
 - Bendemeer white gum (*Eucalyptus elliptica*), a Rare or Threatened Australian Plant (ROTAP) species;

⁶ EA, p. 197

- Two threatened bird species: the Speckled Warbler (*Chthonicola sagittata*) and the Diamond Firetail (*Stagonopleura guttata*), which is listed as vulnerable under the TSC Act;
 - Three species currently being assessed for probable listing under the TSC as vulnerable: the Little Eagle (*Hieraetus morphnoides*), Scarlet Robin (*Petroica boodang*) and Varied Sittella (*Daphoenositta chrysoptera*).⁷
22. In addition to the above identified threatened or endangered species, the landfill site is recognised as 'suitable habitat' for a further 10 flora species and 14 fauna species that are recorded within a 20 km radius of the proposed site.^{8,9}
23. These were acknowledged at the PEA stage and no new mitigating measures have been identified by the Proponent since then. As the DEC noted in 2006: "... it is clear from the nature of landfilling that impacts to biodiversity are intense and that they will span time scales that are at least inter-generational, if not permanent. Furthermore, the losses that will occur at the landfill site also contribute to the already significant level of cumulative loss that has occurred at a regional scale on the New England Tablelands."¹⁰
24. Furthermore, the Proponent's own consultants state (as they did in the 2007 PEA), that: "...the proposed action will involve clearing which will result in a reduction in the area of woodland and grassland habitat that supports native flora and fauna, including five threatened species, one Rare or Threatened Australian Plant (ROTAP) species and one EEC. Hollow-bearing trees will be lost in the Box Gum Woodland in the TSR."¹¹ As noted above, the Box-Gum Woodland has been recognised as a CEEC. GVEPA understands that the practice of Habitat Compensatory Offset is *not* permissible where CEECs are involved.¹²
25. As in 2007, the Proponent claims that there will be no adverse impact downstream of the landfill. However, as noted above, leachate security is not guaranteed; and there is no data in the EA regarding the riparian and aquatic communities in the Oxley Wild Rivers National Park, thus making it impossible to fully assess what risks do exist.

Greenhouse gases (GHG) and other air emissions

26. The EA does not deal satisfactorily with risks associated with gas emissions (either GHGs or toxic emissions) from the proposed landfill. Landfill gas resulting from anaerobic degradation of organic material is about 40-60% methane, with the remainder mainly carbon dioxide. The former can cause explosions and both are GHGs. About 1% of landfill gas contains varying amounts of hundreds of contaminants, most of which are known as non-methane organic compounds, or NMOCs. These include toxic chemicals, such as benzene, toluene, vinyl chloride, carbon tetrachloride, 1,1,1 trichloroethane and chloroform. Usually, about 40 halogenated compounds are present in NMOCs. When combusted in the presence of hydrocarbons, these recombine into highly toxic carcinogenic compounds, such as dioxin

⁷ EA, Appendix E, pages 23 to 29.

⁸ EA, Appendix E, p. 45

⁹ EA, Appendix E, p. 54.

¹⁰, EA, Appendix E, Appendix A: NSW Department of Environment and Conservation, 2006, Offset Proposal, 9.2 See also, PEA, 2007, Appendix B, p. 32

¹¹ EA, Appendix E, page 31.

¹² TDA Environmental Consulting, 2007, Advice to EDO, Northern Rivers, p.2

and furan. Similarly, mercury cannot be destroyed through combustion and so poses a potentially serious health hazard.¹³

27. Consequently, the EA's proposal to "flare" the landfill gas to remove the combustible methane component would likely result in a much greater, localised human health hazard. Well designed landfills have gas collection systems that filter out toxic contaminants which are then treated with a non-burn technology. The remaining gas is then captured to provide energy, or the methane converted to methyl alcohol.¹⁴

Amenity issues and impact on Waterfall Way

28. The proposed landfill location will have a negative impact on the iconic Waterfall Way, which has been identified by the NRMA as "One of the Ten Best Drives in NSW" and by *Australian Traveller* magazine as the third best drive in Australia (after the Great Ocean Road and the Great Tropical Drive). The Waterfall Way is promoted by both local government and tourist groups due to the numerous famous waterfalls and scenic landscapes in its nearby National Parks and World Heritage areas. The proposed landfill site will be visible to drivers and passengers for well over a kilometre of the Waterfall Way's length. For visitors approaching Armidale, it will be the first significant landmark they encounter, and for those departing, it will form the last thing they remember about our community.
29. Odour and dust impacts have been understated by the proponent. The modelling is based on ideal management practices, assumptions and commitments. Furthermore, the EA acknowledges that only a 50m property buffer zone exists, indicating that an unacceptable stench will be generated off site.¹⁵ Taken together, these facts undermining the assertion elsewhere in the EA that; "off-site odour impacts would be at an acceptable level".¹⁶ GVEPA notes the evidence from Coffs Harbour Council that landfill odour has negatively impacted residents up to 2.5 km away.
30. The Proponent states in the EA that: "noise levels generated by the proposed landfill would generally comply with environmental criteria".¹⁷ However, GVEPA contends that "generally comply" recognises that full compliance is impossible. The admission by the proponent that the proposal is reliant upon "engineered noise control" highlights the inappropriate location and inadequate buffer zones proposed by Council.¹⁸ Indeed, direct and real noise impacts from the chainsaws, trucks and drilling rigs that have been on site during the investigation phase have been already noted by neighbouring residents.

Other potential hazards (fire, explosions, oil, etc.)

31. Other potential hazards from the proposed landfill include fires and explosions from combustible waste or the proposed methane flare. There have been three significant bushfires during the last 10 years in the project area, the most recent of which destroyed almost 800 acres of grassland. Any increase in this risk is unacceptable given the ecological

¹³ BDA Group: *The Full Cost of Landfill Disposal in Australia*, prepared for the Department of the Environment, Water, Heritage and the Arts, 2009.

¹⁴ Energy Justice Network, *Landfill Gas Factsheet*, 2007.

¹⁵ Air Quality Impact Assessment, Figure 22: "Maximum Odour Levels OU Due to Landfill Operation"

¹⁶ EA page 171.

¹⁷ EA, Executive Summary, page xxvii.

¹⁸ Noise Impact Assessment, page19.

fragility and vulnerable economic activities in neighbouring areas. The EA does not address this risk.

Need for 25 years' post-closure monitoring and remediation

32. GVEPA notes the legislated obligation of any landfill licensee: “[t]o ensure that the landfill continues to be non-polluting and does not cause environmental harm after site closure...”¹⁹ Therefore, post-closure monitoring and maintenance will need to be an indeterminate, ongoing commitment, given the likely release of leachate into the environment.
33. As noted previously, once groundwater pollution is detected, damage will already have been done, which is virtually impossible to reverse. Principle Three of the NSW Groundwater Quality Protection Policy states: “...there are no quick or cheap solutions for groundwater clean up once contaminated. In many cases it is unlikely that contaminated groundwater systems can be returned to pre-contamination conditions. ... Contaminated groundwater can take tens or even hundreds of years to move from the pollution source to the discharge site. Remediation of polluted groundwater can cost millions of dollars to achieve water quality objectives. In the past, the effectiveness of remediation has been poor.”²⁰
34. It is therefore GVEPA’s view that any “Closure Plan” to meet Council’s declared objective of a landfill that “will not produce an adverse environmental legacy for any future generations” would be virtually impossible to devise.²¹
35. Finally, we note that there are no details provided about the Closure Plan, rather these will not be provided until “closer to the completion of the landfill operation.”²² Given this could be some 50 years hence; there seems little intergenerational equity in handing future generations the responsibility and cost of remediation.

Governance issues

AECOM conflict of interest preparing EA

36. GVEPA has serious concerns over the role played by AECOM in the landfill application development process. We note that AECOM has been engaged by Council to project manage the proposed landfill site until commissioning and undertake the Environmental Assessment on the new landfill site. We therefore believe that a significant conflict of interest exists, given AECOM’s financial incentive to pursue a landfill option, rather than explore options that may not require their future services. AECOM is unlikely to provide impartial assessment, given the remainder of their funding is reliant on approval to proceed to the next stage.

Site selection process

37. GVEPA notes that the proposed site is owned by Ken Waters, who was a sitting Councillor at the time of site selection; and Derry Crisp, a local real estate agent, who was involved in the initial identification of sites for Council.²³ Council was obliged to obtain legal advice

¹⁹ EA, Appendix B, p.81

²⁰ DLWC, 1998, *The NSW Groundwater Quality Protection Policy*. pp. 19,20

²¹ EA, p. 267

²² EA, Appendix B, page 81.

²³ Mr Crisp has since sold his local real estate agency and Mr Waters is no longer a Councillor.

regarding the nature of the arrangement with the vendors. To the best of GVEPA's knowledge, neither these relationships and pecuniary interests, nor the existence or content of this legal advice, has been disclosed to the community.

38. The selection process included a "workshop" session and a committee to decide the final site. The vendor Derry Crisp was allowed to present to the Council workshop on behalf of Cr Waters and himself (at which there is some dispute as to whether interests were properly disclosed). The vendor, Derry Crisp was also selected by Council to sit on the Landfill Committee. No other site owners were selected. In an e-mail to the former GVEPA President, the current ADC General Manager acknowledged that: "it has been demonstrated that committee members have been able to influence change on selection criteria". GVEPA questions whether this constitutes best practice governance.
39. Furthermore, GVEPA draws the Department's attention to the manner in which data was collected and analysed to support Council's selection of the Waterfall Way site as its preferred location. AECOM did not visit some of the shortlisted sites. For example, the data used to ascertain flora and fauna on site 6 was from a 1998 desktop study. While the initial site selection criteria included objective quantitative factors such as slopes <5%, distance to adjacent dwellings >1km, etc., these were subsequently modified and subjected to more subjective "weighting" and re-ranking of sites, which resulted in such factors as "local amenity and environmental considerations" accounting for less than 10% of the total score. At one point in the process, Site 9 (Ballantrae) was being described by Council consultants as being 10% better than all other sites in almost all respects. However, after the "reweighting", AECOM announced that Site 7 (the current site) was better by 10% than all other sites.
40. GVEPA has requested access to the proposed site for independent consultants to collect their own data; however, this request has been denied by Council.

Council's inadequate/deceptive community/stakeholder consultation

41. Despite the following statement appearing on ADC's website: "there is no way that Armidale Dumaresq Council will support or allow any landfill site to be constructed, should it be any risk to the World Heritage areas, or damage the environment", GVEPA notes with concern Council's lack of transparency in communicating with the community about the landfill.
42. Examples of Council's inadequate approach to information dissemination include:
 - The Chairman of ADC's Waste Management Committee, Cr Herman Beyersdorf, resigning from the committee in 2008, saying he was "being kept in the dark" about the landfill project.
 - Council released information via its website in 2004 to the press stating that Council would be operating a Class 2 Inert Landfill, with all putrescible material removed.²⁴ Yet ADC has submitted a proposal for Class 1 Putrescible Landfill.
 - ADC has not informed ratepayers through media release, website or newsletter of the EPBC decision making the submission a controlled action, given the concern that the project was "likely to have significant impact" on World Heritage sites.

²⁴ ADC Press Release, also sent to Kempsey Council: "New Tip to be Eco-friendly as Council Seeks High-Tech Alternatives".

- GVEPA has been restricted in its efforts to promote community awareness of the project. GVEPA members have been threatened with legal action and attempts to obtain information from Council have been thwarted. A FOI request required intervention by the FOI Ombudsman and took over a year to resolve, thus effectively enabling Council to close the door on future FOI efforts.

Economic and social issues

No financial and economic cost-benefit analysis

43. GVEPA is concerned that the EA provides no information on capital, operating or, importantly, closure and post closure costs. Nor does it appear that any detailed engineering, site operating or closure plans have been prepared. Even basic information, such as site acquisition or potential compensation costs, is not provided. Without such information, ratepayers cannot determine if they are getting value for money.
44. Nor are costs at the proposed site compared with those at other, more environmentally suitable, sites. There is also no financial comparison with Alternative Waste Technologies (AWT). Given the EPBC concerns and the Proponent's acknowledgement that the proposed site is fundamentally unsuitable, both geologically and environmentally, GVEPA believes such comparisons to be desirable.²⁵

GVEPA estimate of real costs using BDA and Council data

45. In 2008, ADC advised GVEPA of the following broad cost estimates (excluding closure costs):

Capital	\$
Design costs incurred	600,000
Approval costs incurred	400,000
Design costs budgeted	526,000
Land purchase (2003 valuation)	500,000
Close existing facility	2,000,000
Design & construct cell 1 ²⁶	16,000,000
Design & construct cell 2	4,250,000
Design & construct cell 3	4,250,000
Design & construct cell 4	4,250,000
Design & construct cell 5	4,250,000
Plant	1,000,000
Total capex	38,026,000
Operating (50 years)	
Salaries inc on-costs and training	28,000,000
Plant operating costs	6,000,000
Materials and contracts	91,350,000
Total opex	125,350,000
GRAND 50 YR TOTAL (ex closure)	163,376,000

²⁵ Volume 2 page 395/520; Conclusion of the Regional Landfill Siting Study, page 93.

²⁶ Cell 1 includes access road and Waterfall Way re-alignment, 3x leachate ponds, site fencing, biodiversity offset planting, truck wash and staff facilities. These costs were estimated to be between \$12m and \$18m, with \$16m being nominated by Council staff as the most likely outcome.

46. Based on the above costs, the facility would cost \$218/tonne of waste. Using BDA's data, GVEPA estimates that a medium landfill depositing 15,000 tonnes per annum (as per Council's proposal) should cost \$80/tonne.²⁷ GVEPA considers that some of the large difference between the two costs may be attributable to the Materials and Contracts cost including a waste collection component. If the Materials and Contracts is halved to eliminate the estimated waste collection component (which would be common to any proposal) then the facility would cost \$157/tonne. GVEPA is concerned that this cost is approximately twice the \$80/tonne indicated by the BDA report.

Council's financial and managerial capacity to manage project

47. In May 2010 a NSW Government report ("The Kibble Report") noted the proponent's poor record of managing its finances.²⁸ The report notes: "ADC's outstanding rates and annual charges over the last three financial years...highlight a poor record of debt control."²⁹ Kibble noted that ADC has recorded operating deficits after capital grants in three of the last five financial years with a cumulative loss of \$10.134 million. In 2008/09 alone, ADC recorded an operating deficiency of \$1.223 million.
48. In 2009 the financial sustainability review of Armidale Dumaresq Council by Fiscalstar Services rated Council "financially unsustainable" and noted: "The Council's existing policies are financially unsustainable...[t]he stability and predictability of the council's rates, fees & charges are therefore at risk, and its ratings burden presently does not seem to be shared fairly between the council's present and future ratepayers."
49. Council's capacity to borrow is limited; therefore it is not clear how the project will be financed. Given Council's operating deficits there is no capacity to reduce existing debt let alone service the extra debt such a project would incur.
50. Taken together, these matters raise concerns about Council's long-term ability to adequately safeguard environmentally-responsible operations at the proposed landfill, both during and after its operating life. GVEPA is most concerned that the proponent will be under such severe financial pressure that it will "cut corners" and therefore increase operating risk at the proposed landfill. As the EA notes at page 226: "[t]here are potential environmental impacts should the landfill operator not have the financial means within which to carry out...adequate environmental safeguards. Financial assurance of the landfill operators is an important aspect relating to the ongoing viability of landfill operations." GVEPA is also concerned to note that ADC appears to be considering the possibility of passing financial and operational risk to a third party.³⁰
51. In addition to financial mismanagement, Armidale Dumaresq Council's past environmental record, and in particular the management and operation of its current landfill site raises serious concerns about its ability to manage the proposed new landfill site. The NSW EPA's *Industry Sector: Rural Waste Landfill Facilities Compliance Audit Report 2002* noted that 28 of 30 audited landfills failed to prevent water pollution. The Final Compliance Audit Report

²⁷ *The Full Costs of Landfill Disposal in Australia*, prepared by the BDA Group in July 2009 for the Department of Environment Water Heritage and the Arts. This document was peer reviewed by Dr Joe Pickin of Blue Environment Pty Ltd in December 2009.

²⁸ Government of NSW, *A Proposal for the Creation of a New England Regional Council*, prepared by Gabrielle Kibble AO, May 2010, Section 5.

²⁹ *Ibid*, page 18.

³⁰ EA, page 76 .

into the Armidale City Council Solid Waste Landfill in December 2000 noted: “The findings of the audit indicate that the enterprise was not complying with a number of conditions attached to the Environment Protection Licence issued under the Protection of the Environment Operations Act 1997. Issues of concern identified through further observations include:

- The collection of uncontaminated surface water in the leachate collection system, increasing the quantity of leachate contaminated water that requires disposal
- Scouring of the landfill batter located in the south eastern corner of the premise, allowing infiltration of surface water into the landfill.
- The inadequate collection of surface water, contaminated by landfilling activities, likely to cause pollution of groundwaters.
- The degradation of local amenity through inadequate litter controls and inadequate covering of waste.”³¹

Impact on household waste removal rates

52. While GVEPA is unable to precisely estimate the impact on ratepayers, given the lack of information in the EA; there will clearly be an increased burden if the proposed landfill is developed. GVEPA’s best estimates of an increase are in the table below.

Possible Rate Increase (in 2010 prices)	
Interest rate	6.50%
Principal (staggered for cell construction)	\$38,026,000
Interest cost (50 year loan)	\$36,508,095
Total principal and interest	\$74,534,095
Annual cost for principal and interest	\$1,490,682
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Rateable households	8,648
Current waste levy (est.)	\$145 ³²
Rate increase/household	\$172
Percentage increase	119%
New waste levy	\$317

53. The above analysis, however, does not take account of any differential in operating costs between the current facility and the proposed facility. As the proposed facility is environmentally risky it may be that there will be further increases due to the extra mitigation costs involved.

Alternatives and other matters

AWT and other relevant alternative technologies

54. While the Proponent states it is committed to ongoing evaluation of AWT, there is no rigorous analysis of current AWT options in the EA.³³ Indeed, it appears Council last evaluated AWT in February 2002.³⁴ Only four alternatives were identified and there are now

³¹ Which was assessed in the 2002 report. GVEPA has been unable to locate any more recent information in this respect.

³² Waste levies vary among households.

³³ EA, section 4.1.3, page 42.

³⁴ EA, section 4.1.1, page 37.

many more options available. While GVEPA recognises that not all AWT options would be applicable, the separation and processing of the organic fraction is relatively simple and devoid of risk. This can be via an in-vessel, tunnel (as used at Port Macquarie/Hastings) or bay system (as used at Coffs Harbour) or the SITA facility at Kemps Creek (SAWT). The EA makes no reference to these systems successfully operating in nearby Councils.

55. GVEPA believes that AWT costs would be economically competitive with landfill disposal. GVEPA does not have the resources to properly evaluate AWT costs but a 2008 trade publication suggests that AWT costs are in the order of \$75 to \$125/tonne.³⁵ The table below demonstrates that the economic arguments in favour of AWT are increasingly strong, as new technologies emerge.

LANDFILL v AWT COSTS	
ARMIDALE LANDFILL	
Estimated Cost per Tonne	\$157
Cost per tonne 2010	\$157
ALTERNATIVE WASTE TECHNOLOGIES (AWT)	
AWT Cost per Tonne	\$100
Residual percentage to landfill	20%
Cost per Tonne to landfill	\$157
AWT landfill cost (20% x \$157/t)	\$31
Total AWT Cost per tonne 2010	\$131

56. GVEPA is very concerned that the EA dismisses one AWT option due to its high capital cost (\$10m in 2002) without comparison to the capital cost of the landfill. Given that Council do not offer any cost figures for the landfill proposal such an argument is without logic. If one option is dismissed on cost grounds then the alternative option should be demonstrated as being more cost effective. The EA does not do this.
57. No waste levy is currently applicable in the Armidale Dumaresq local government area. The existence of a waste levy would further skew the economic argument in favour of AWT. GVEPA notes that the Sydney metropolitan area currently has a waste levy of \$70.30 per tonne of material deposited to landfill. NSW coastal councils (Regional Regulated Areas) are currently levied \$20.40/tonne and this is scheduled to increase to parity (\$70.30) with Sydney by 2015. GVEPA contends that a prudent council would anticipate the possible introduction of state wide waste levies and give serious attention to AWT options (as other neighbouring councils have).

Alternative sites (western fall)

58. When he became aware of the EPBC decision about the proposal in 2007, the former Chairman of the ADC Waste Management Committee, Cr Herman Beyersdorf, urged that the current proposal be abandoned and the search for another, less environmentally sensitive site, commence.³⁶

³⁵ *Inside Waste*, July/August 2008.

³⁶ *Armidale Independent*, 13 August, 2008, p.10.

Rehabilitate existing site

59. As noted above, the EPA's 2000 Compliance Audit Report indicated poor management of the existing ADC landfill at Long Swamp Road and stated that "it was likely to cause pollution of groundwaters"; therefore, GVEPA believes the current facility requires remediation.

Impact of Council amalgamation

60. The Kibble Report was a wide-ranging review of local government services currently provided by Armidale Dumaresq Council, Guyra Shire Council, Uralla Shire Council and Walcha Council. It recommended the forced amalgamation of Armidale Dumaresq, Guyra and Uralla Shires and recommended that an Administrator be appointed to oversee the implementation of the amalgamated Council. This amalgamation process may lead to other landfill options becoming more feasible, as well as increasing the catchment area for any new landfill. In particular, the new Local Government Area comprising the proposed new Council will include a much wider range of land draining to the west, and so away from the World Heritage properties located in the eastern fall country. Such options probably mean that the environmental threat that the EPBC identified in 2007, and which GVEPA believes is just as likely to emerge from the current proposal, could be prevented. Therefore, GVEPA believes the new Administrator will need to re-visit the current proposal and "begin from scratch".

Apparent Design Error

61. Council has designed a facility with a capacity of 1,056,000 m³. There are no calculations in the EA to show how this figure was arrived at. Using the volume data from Table 5 section 2.4.1 of the EA the average annual volume requirement is 28,700 m³ meaning that a 50 year facility would require a volume of 1,435,000 m³ which is 36% more volume (equivalent to an extra two cells). Alternatively the facility only has a life of 37 years.
62. Although it is not clear how the volume has been calculated, Council appears to infer that deposition from three recent "one off" events should be ignored. GVEPA contends that the three events mentioned would not have contributed significant volumes and that over a fifty year period it would be normal to have a number of such "one off" events. Further Council has assumed zero growth in the region. While this is supported by recent figures, growth in regional areas is often characterised by irregular spurts as new industries become established. With a reliable water supply Armidale is a likely candidate for some sort of growth so it seems sensible that growth should be allowed for.
63. GVEPA also notes that both the Guyra and Uralla landfills have relatively short lives and that any material from those centres will further exacerbate the shortage.
64. On the basis of some growth and the requirement to include material from Guyra and Uralla, GVEPA contends the proposed facility is approximately 40% smaller than required.
65. The consequences of this major design error are:
- The EA does not address the actual project; it addresses a much smaller project.
 - All calculations in the EA are questionable - if such a large error can be made on such a fundamental issue and remain undetected through the peer review process then it is reasonable to infer that other more complex engineering elements are flawed.

- It goes to the heart of competence. If this basic parameter is flawed then does the Council have the capacity to implement and manage the myriad “best practice management plans” it contends are necessary to manage the facility.
- All remediation measures are under engineered by 40%
- Leachate volume, traffic volumes and gas generation will all be 40% higher.
- Total costs will be higher but not by 40% due to scale economies.
- Extra cells will be required and these are not included in any proposed plan.
- Presumably more real estate will be required (or otherwise presumably buffer zones must be reduced).
- Post closure costs and monitoring requirements will be higher.
- Management plans will require revision to adjust for higher volumes.
- Any environmental spills will be commensurately larger with the potential for a much greater environmental impact.
- Any environmental spills will require commensurately more response resources.

Abbreviations

ADC	Armidale Dumaresq Council
AECOM	AECOM Australia Pty Ltd
AWT	Alternative Waste Technology
BDA	BDA Group
CEEC	Critically Endangered Ecological Communities
DEC	(the former) NSW Department of Environment and Conservation (now DECCW)
DLWC	(the former) NSW Department of Land and Water Conservation (now DWE)
EA	Environmental Assessment
EBPC	Commonwealth Environmental Protection and Biodiversity Conservation Act 1999
EEC	Endangered Ecological Communities
FOI	Freedom of Information
GHGs	Greenhouse Gases
GVEPA	Gara Valley Environment Preservation Association, Inc.
NMOCs	Non-methane organic compounds
NRMA	National Road Motorists Association
PEA	Preliminary Environmental Assessment
ROTAP	Rare or Threatened Australian Plant
TSC	Threatened Species Conservation Act 1995
UNESCO	United Nations Educational, Scientific and Cultural Organisation

Glossary of Terms

Biodiversity	The variation of life forms within a given ecosystem, biome, or on the entire Earth; often used as a measure of the health of biological systems.
Gara River	To be completed (e.g. length, start, end)
Gondwana Rainforests of Australia World Heritage Area	To be completed
Imbota Nature Reserve	To be completed
Landfill[ing]	Also known as a dump or rubbish dump is a site for the disposal of waste materials by burial.
[Proposed] Landfill Site	As per AECOM, the entire section of land encompassing the proposed landfill to which the EA applies. Total area is c. 86ha and incorporates c. 20ha for the actual landfill site, with site access from Waterfall Way and a biodiversity offset area of c. 61ha.
Leachate	To be completed
Putrescible	Putrescible wastes are wastes that are subject to putrefaction (i.e. liable to decay, spoil or to

become putrid) and includes the following:

- food waste (including meat, fish, poultry, fruit, vegetables and their cooked or otherwise processed by-products).
 - waste consisting of animal matter (including dead animals and animal parts).
 - grease trap waste.
 - biosolids (as categorised as Stabilisation Grade C in accordance with the criteria set out in the EPA's Biosolids Guidelines), including manures and animal materials.
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