



The Bendigo & District Environment Council Inc
P.O. Box 557 Bendigo 3552

Registration No A0017439S, (Incorporated 30/11/1988)

BDEC is a community based not for profit organization with a broad experience and depth of knowledge of environmental issues and the social problems surrounding these issues. BDEC's membership boasts a diverse background that has formulated many community based submissions for proposals that have significant community impact. Our membership includes tertiary qualifications and post tertiary qualifications in:

Environmental science
Zoology
Ecology
Land development
Biology
Botany (particularly with regional focus)
Physics
Engineering
Mathematics
Medicine
Law

Most of our members have lectured at a tertiary level on the above specialities. We have members who are currently employed or have been employed in environmental projects by:

- * Local Councils (including City of Greater Bendigo)
- * State governments
- * Environment Victoria
- * The former Land Conservation Council
- * UNESCO
- * many private environmental reports and also
- * 3 Local Field Naturalists / Ecologists with 30+ years experience



Bendigo - Heart of the Box - Ironbark Forest.

ii) BDEC would like to submit that the EPBC Act has been an abject failure

WOODVALE EVAPORATION PONDS

In the little community of Woodvale (pop. 300) there is a paddock with 100+ Tonnes of Arsenic and an estimated 200,000 Tonnes of salt lying on a one square kilometer patch of "farmland". These are the Woodvale Evaporation Ponds (W.E.P.) which hold 800 megalitres of water. The 100 Tonnes of the carcinogen Arsenic was concentrated on this site by deposition of vast quantities of Arsenic containing mine water from Bendigo. That water has been piped into this rural community over the past 30 years. Arsenic is America's No.1 toxic hazard and is a known Carcinogen. By way of comparison Asbestos is ranked No 94 on this priority listing. These "Ponds" are known to leak into the Aquifer. (snake-like underground water body on the North side of Ponds) and are traversed by a flood zone on the South (see above diagram). Both the Aquifer and the flood plain are connected to the Murray Darling Basin and the Ramsar Wetlands of Northern Victoria via Myers Flat Creek.



A Report commissioned by the Victorian Department of Environment, Land, Water & Planning (DELWP) titled "**Water Tank and soil sampling Woodvale**" was released in September 2015. That report revealed 42 of 53 (78%) domestic drinking water tanks, within 1 kilometer of these Ponds, contained some Arsenic. Of the 11 tanks containing no Arsenic, 10 had imported water. Woodvale is NOT a naturally high Arsenic area - the average subsoil Arsenic is 7mg/kg and is not readily soluble. Local natural Arsenic could not achieve Arsenic levels seen in some water tanks without mud exuding from taps.

The Report also revealed an increase of 8mg/kg of Arsenic in the top soil surrounding these Ponds, compared to the subsoil concentrations. When extrapolated to the 1 km radius of the report area it appears **8 Tonnes** of Arsenic has deposited over the surface soil, presumably by airborne spread. This is an unprecedented contamination event. No State Minister (Mining, Health or Environment) has yet responded to this site contamination report. Under the National Environment Protection Measurement (NEPM) Act these preliminary findings should trigger a Definitive Ecological Risk Assessment. Instead on the DELWP website we are offered "DHHS reviewed the final report and concluded that: "The testing found there were no rainwater tanks that had arsenic above the Australian Drinking Water Guidelines level. Soil tests at properties found no public health risk.". When challenged with the above information the four primary regulators (EPA, Bendigo Council, Earth Resources Regulation and DHHS) have simply repeated the website mantra) despite legislative obligations to abide by the "Precautionary Principle".

Six of the 53 rainwater tanks tested had Arsenic levels of 3 micrograms per Litre. Current literature would suggest lifetime exposure to 3 micrograms/Litre of Arsenic in drinking water is associated with a 16% increase in urological cancers (Saint-Jacques et al, Environmental Health 2014, 13:44) and a 30% increase in Lung Cancers (Santelli et al PLOS ONE I doi:10.1371/journal.pone.0138182, September 18, 2015).

The ONLY plausible explanation for the contamination seen at Woodvale is airborne spread arising from the Ponds themselves. According to EPA Victoria Guide SEPP 1194 to "Air Quality" the intervention limit for Arsenic is 0.003 µg/m3 whilst the intervention level for Asbestos is 60 times higher at 0.2 µg/m3. Imagine the community distress if the equivalent of (8Tonnes times 60) 480 Tonnes of Asbestos had been allowed to drift over a community near you. This appears to be the level of contamination that has occurred at Woodvale.

Please Turn Over for a Summary of the other health effects of Chronic Arsenic Exposure.

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Other Health Effects of Arsenic

These health effects appear to occur regardless of route of exposure (inhaled, water, food), are dose dependent, with carcinogenic effects delayed for 10 years after exposure. Peaking at 25 years.

Yuan et al, Environ Health Perspect 114:1293–1296 (2006) (1mg/L As in drinking water)

If exposed as child your chance of dying from;

LUNG cancer risk before 50 years old is increased X 7.

BRONCHIECTASIS (lung disease) before 50 yo risk is increased X 12.4, in utero risk is X 46

EMPHYSEMA before 50 yo risk increased X 2

CORONARY ARTERY DISEASE before 50 yo risk is increased X 2.7 in men, X1.3 in women

KIDNEY cancer before 50 yo risk is increased X 3, if also exposed in utero X 7

Ferrecio et al, Health Population & Nutrition 24(2): 164–175 (2006)

If exposed as child your chance of dying from BLADDER cancer before 50 yo risk is increased X 8

If exposed as child your chance of dying from LIVER cancer before 50 yo is risk is increased X 1.5

If exposed as child your chance of dying from SKIN cancer before 50 yo is risk increased X 3

The 2015 “**Addendum to the toxicological Profile for Arsenic**” published by the USA Agency for Toxic Substances and Disease Registry Division of Toxicology and Human Health Sciences has added **Hypertension** in children and adults, **Myocardial Infarction**, **Stroke** as well as the **prenatal exposure** risks of **congenital abnormalities** (heart and neural tube defects) and **premature cancers** in offspring. Other effects of Arsenic exposure include **impaired immunity**, impaired neurological function and **impaired intellectual development** in children.

Pearce et al (Journal of Exposure Science and Environmental Epidemiology 2012) demonstrated an association between areas of high soil Arsenic in the Goldfields region of Victoria and the incidence of the following cancers; Melanoma X1.3, Colon X1.2, Prostate Ca X1.3 and possibly Leukeamia X 1.3. There are now clear pathological pathways to explain Arsenic's ability to induce and enhance cancers (Wenzhen Yuan, Xiangkai Li et al, Advances in Understanding How Heavy Metal Pollution Triggers Gastric Cancer BioMed Research International Vol. 2016, Article ID 7825432).

The risk of both Cancer and Death resulting from chronic Arsenic exposure is clearly dose dependent. One heaped teaspoon of the dry crust (or dust) from these WEP's, somehow ingested via food, contaminated water tanks or inhaled as dust at Woodvale over an entire year will probably exceed the safe threshold (0.3ug/kg/day) determined from the above studies. Unlike nuclear waste, Arsenic is forever, it does not breakdown.

The Woodvale Ponds site must be rendered harmless by the complete REMOVAL of the Arsenic to a safer location away from people and waterways connected to the Murray Darling Basin.

Written by Dr. Simon Perrin on behalf of the Bendigo & District Environment Council Inc.

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WOODVALE EVAPORATION PONDS TIMELINE TO ASSIST ENQUIRY

Relevant DSDBI files

Part 1 -> 2000 MAL 38

Part2 -> 2000 -> Min 5364

1979 International Agency for Research on Cancer (IARC) declares Arsenic a carcinogen with susceptible organs skin and lung.

1980 World Health Organisation accepts IARC recommendation

1985 Western Mining Corporation (WMC) purchased 160 hectares at Woodvale

1986 Marong Council gives planning permission for Woodvale Evaporation Ponds (WEP).

1987 IARC adds Liver and Bladder and Prostate to susceptible Arsenic induced Cancers

1988 WMC Bendigo Gold Environmental Effects Statement (EES).

WEP was excluded from examination in that EES document see Section 3, page 7.

“Where specific Aspects of the proposal are adequately covered by other approvals (for example EPA Works Approval) the Amendments seek to avoid unnecessary duplication of detailed controls and conditions. WMC had applied AND received an Amendment to EPA license in Feb 1988, 3 months prior to the actual Panel Hearing.” At the actual Hearing WMC misrepresented the amount of Arsenic present in various lines of reef by (? accidentally) swapping data. This “swapping” reduced the average concentration of Arsenic from 8mg/Litre to 5mg/Litre. Without this “adjustment” WMC had no chance of mathematically working within EPA’s Arsenic discharge guidelines of 2mg/Litre.

The issue of

mobilizing and concentrating a human carcinogen is not raised by Western Mining Corporation, the EPA, Department of Health or Dept. of Mines or any other Regulators. One Bendigo & District Environment Council member attempted to raise a concern (Mr. Alf Hooley). He was not granted leave to present because Woodvale Evaporation Ponds were already licensed by the EPA.

Admendment L2

The Planning amendment L1 to be adopted by the 4 participating Councils after that EES was NOT adopted by the Marong Council. Marong was the overriding Responsible Authority for the Woodvale Pond component of the L1 Amendment. The EES panel recommendation for Woodvale went far beyond the presented EES documents and discussions appear to have been conducted “in camera” between the Panel, Western Mining and the Mine’s Department with no input allowed from community. No mention is made in the Panel Report to the Planning Minister regarding the presence of a carcinogen.

This EES has been used at every subsequent EES to thwart discussion of the Woodvale Site..... “because it was discussed at the 1988 EES”.

WOODVALE EVAPORATION PONDS (WEP) TIMELINE TO ASSIST SENATE ENQUIRY

1989 Another EES is submitted by a local consortium who also excluded WEP from scrutiny / assessment as Planning Permission and Discharge License were apparently already in existence.

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Woodvale Timeline cont.

March 1991 Department of Manufacturing and Industry Development receives a report "Arsenic in the Environment" which notifies the then Mines Department that Arsenic is a human Carcinogen.

1991-95 Mining lease changes hands several times. Unknown (unmonitored) amount of mine dewatering to Woodvale occurred during this period.

1996 Williams United EES (Eaglehawk). Again WEP excluded from scrutiny. During the Consultative Committee phase of that EES a letter was sent to the Minister for Planning and the Minister for Mining from the Alliance for Responsible Mining (ARM) requesting WEP be included in the EES process. Request was denied.

1997 During the Williams United Hearings around 24 July 1997 it was revealed that approximately 3 tonnes of Arsenic and 9,000 tonnes of Salt would be sent to the WEP's as a consequence of dewatering and similar amounts would be necessary if the Deborah project proceeded. The EPA recommended a Salt and Arsenic Management Plan be drawn up and WEP be examined at any future EES.

On July 30, 1997 at this same EES proceedings the Department of Human Services acknowledged Arsenic was a known carcinogen in humans but failed to make recommendations other than suggesting dust emissions be kept to a minimum. DHS submitted "Generally, there is considerable data about the toxicity of arsenic to people, animals and plants (terrestrial and aquatic). While arsenic can be toxic to people in large doses, in smaller doses taken over a long period of time it can be associated with cancers (skin and some internal organs). It has also been associated with damage to blood vessels and some internal organs."

October 1997 The Consultative Committee of the 1998 Deborah EES convened. A letter was sent by Ms. Shelley Cohn (BDEC) to Mr. Peter Wilkinson (EES coordinator, Dept. of Planning) requesting WEP and New Moon be included in the 1998 Deborah EES "process" as was suggested 6 months earlier at the Williams United EES by the EPA. This request was denied.

1998 Panel Hearing itself acknowledges WEP as an issue of concern raised by the community especially following representations by BDEC, however it refuses to allow scrutiny because it is dealt through planning and EPA licensing processes. May '98 Panel Report completed.

June 1998 Minister Hon. Pat McNamara releases report with Ministerial Response. Page 122 of that report states; "The Panel is satisfied that any changes to these existing operations will be properly examined and considered by the appropriate authorities - the EPA in the case of Woodvale and the City of Greater Bendigo in the case of New Moon". When the Panel eventually requested a Water Balance Table for the Project, the volume of mine water to be discharged to Woodvale was clearly above that permitted in license EX219. However only the Bendigo Council and NRE were given the opportunity to respond to the Water Balance Table presented. Arsenic was not discussed.

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Woodvale Timeline cont.

1999 July EPBC Act passes through Senate

1999 September EPA license EX 219 amended to allow increase in flows to WEP from 0.77 megalitres per day to 3.56 megalitres per day.

2000 July 16 The Commonwealth EPBC Act is Proclaimed

July 24 EPA license EX219/10 was discharged.

Responsibility for WEP handed to DSE. Under a new DSE Work Plan for WEP the Arsenic concentration allowed for discharge increases from 2mg/L to 13.1 mg/L. This significant change in land use and impact was not recorded in the Environmental Review Committee (ERC) Minutes and if mentioned but not minuted the significance of such a change was clearly not emphasised.

Several infringement notices were issued during 2000 by local mining inspectors for breeches of conditions (pond leakage) at WEP. The Melbourne office (?Minister's office) instructed local Mine's Inspectors NOT to proceed with prosecution. This could have the effect of suggesting to local Mining Inspectors just "how" they should approach their task of regulation. During 2000 problems arose at Woodvale with too much water. Water containing 8 mg per Liter sprayed into the air to "enhance" evaporation. The mist created was allowed to drift over Woodvale.

6.5+ milligrams per Litre

Yes, you read correctly. The resultant mist containing 8 milligrams per Litre of Arsenic, a known carcinogen, was allowed to drift over nearby occupied residences.

2004 Supplementary EES is performed to expand the mine to the south of Carsharlton. Page 116 of the Panel report's; "A number of submissions presented information relating to the performance of the evaporation ponds at Woodvale ponds and the potential for leachate to contaminate local waterways.

1.7 megalitres / day

It appears this Panel had been led to believe that 1.7 megalitres had been approved in the 1998 Panel hearing. As seen above, the 1998 EES Hearing did not publicly examine that volume of discharge despite multiple community requests to do so. The 2004 Panel was also being advised that EX 219 was still active. That Panel simply failed to notice the contradictory Water Balance Tables submitted by the proponent compared to the EPA Licence.

The Responsible Authorities also failed to correct the Panel's misconception. Consultants for the Mining Company (SKJM) submitted to the the EES Panel that Woodvale and the examination of the extra water load created by this mine extension was "outside the scope of the EES". This was not challenged by Panel members NOR the Regulating Authorities. This was the fifth(!) occasion where scrutiny of WEP was denied to the public. That lack of scrutiny has allowed the accumulation of 100 Tonnes of Arsenic and 200,000Tonnes of Salt at this site.

As an aside each major political party bear equal culpability for the failure to oversee the Responsible Authorities behaviours under their administrations.

This ends the relevant timeline. The many Regulatory failures beyond 2004 are not presented.

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Summary

BDEC believes an overriding environmental body is required that can adjudicate when there is prima facie evidence that Regulatory Failure is occurring at mine sites, particularly if that failure has the potential risk of contaminating waterways.

Waterway contamination or the potential for such contamination would seem an almost constant feature of mining contamination. The risk of dust and smelting discharges tend to vary in a site specific manner and may not be as useful as an indicator of contamination. Assessing the potential for any waterway contamination as an initial key indicator of significant risk for mining related contamination would appear a simple modification to expand and enhance the ecological protection lacking in the current EPBC Act.

iii) BDEC WOULD OFFER THE FOLLOWING SUGGESTION to resolve this apparent regulatory impotence in the face of actual or anticipatable environmental harm - The "water trigger" as outlined Section 24D EPBC Act (2013 amendment) "**Requirement for approval of developments with a significant impact on water resources**" be amended to include any current, or past, mining sites and that each mine site is assessed as to its potential to contaminate any waterway downstream. Potential risk to the beneficial use of such downstream water should serve as the yardstick to invoke examination under the Act.

The Legislation should be drafted to shift the emphasis onto the mine site caretaker whether state owned or privately managed to establish the absence of such risk to any waterway under the Act.

Such emphasis should not automatically be applicable to Native Title Landholders, who may not have primary oversight capability. Such exclusion would prevent malevolent "transfer of risk" by Mining Companies to unsuspecting, under-resourced remote communities.

iv) Finally, any Act is only as good as its ability to deliver compliance with its Articles of Legislation.

This may require the amalgamation of Department of Environment with the National Environmental Protection Council (NEPC) with a focus shift to managing compliance within the extended legislation.

The "Efficiency Dividend" of such amalgamation could be achieved by the current standard setting role of NEPC being replaced by the simple adoption of USEPA regulatory standards for toxic substances AND USEPA processes of site assesment.

The adoption of USEPA standards should free up an entire Department to concentrate on adherence to those standards.

The events described here occurring around both EES hearings and in day to day regulation could only have occurred if the Regulators charged with protecting the Community and the Environment had seemingly no interest in assessing the actual risks faced by areas surrounding mine sites. This lacksidasical (negligent) approaches to regulation is seen across the Goldfields of Victoria in particular Woodvale, Stawell and Costerfield.

For Costerfield the Issues have been documented here see;

<http://costerfieldantimonyissues.blogspot.com.au/p/costerfield-antimony-issues-homepage.html>

BDEC believes the Stawell contamination issues will be presented in a separate submission. Costerfield appear to have struggled to pool resources to lodge a submission. I hope the committee will examine the above website in lieu of that inability.

BDEC will end this submission with a question.

How do communities of low socio-economic status without access to Legal Services address the recurring failure of Due Process by Regulators who have NO desire to correct that failure?

This failure has occurred despite the **known** health risks of such exposure to carcinogens and other toxins; at Woodvale (Arsenic), at Stawell (Arsenic & Cyanide) and at Costerfield (Aerosolised Lead and Antimony).

This completes BDEC's submission.

Yours Sincerely

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Mining Spokesperson,



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Postscript; Whilst every attempt has been made to minimise typographical errors some will have undoubtedly slipped through. We request permission to correct those should they become apparent. Like many community submissions to this enquiry, BDEC is a self funded, not for profit, completely voluntary community organisation with all expenses paid from after-tax membership fees. We have no access to pro-bono or tax deductible secretarial or stationary services .