

SOLARIA

SITE PROPOSAL FOR TOXIC AND HAZARDOUS

WASTE TREATMENT IN WESTERN AUSTRALIA

May 2004



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TREATMENT FACILITIES FOR WESTERN AUSTRALIA

Solaria Proposal by WESTRALIA.net (May 2004)

The Core Consultative Committee (3C) public forums held in November 2003 (Technologies) and March 2004 (Site). The key issues established were the need for totally new methods of management, transport, and processing of controlled waste in Western Australia, along with appropriate siting of treatment facilities.

The general perception in the community was of no confidence in the State's management after a devastating toxic chemical fire at Bellevue, treatment of hazardous materials outside licensing provisions at Brookdale, and on-going contamination of various sites around the state without adequate enforcement of existing regulations. There were obvious and perceived threats to public health due to poor processing techniques and thoughtless locations of plant.

From the State Government's own agencies' perception, they were required to manage an increasing amount of hazardous waste while being without sufficient funding to provide adequate management expertise, and without clear long-term policy. As time progressed treatment solutions have been compromised and less than ideal locations have been a result of adaptation of existing facilities for purposes for which they were not originally designed or sited.

This situation has also been compounded by various political ideals. Confusion of commercial enterprise and public accountability appeared to be a result. Business is required to maximise investment return, while public management attempts to balance the needs of a commercially viable operator, ensuring on-going treatment facilities, against the costs of enforcing safety and health regulations that drive up costs.

The third party is the producers of the controlled waste. In many instances this is treated at the site of origin, but often substances require specialised processes that are far removed from the producers core business, so the waste must be treated elsewhere.

With the establishment of superior facilities, the costs of processing will rise and if these costs are excessive the waste producer will find other and illegal methods of disposal that will present risks to themselves and the community. The approach of hefty penalties for offenders as a deterrent is

not considered an option. People will always take a calculated risk, and also effectively increasing business costs is a disincentive to enterprise and the local economy. The issue of treating controlled waste must be cooperative from producer to end. This is good for business and the community.

Quite clearly, what has evolved from the current lack of firm public policy direction and dedicated plants, has been the accidents and contamination of sites and surrounding areas that we have today. All parties involved know this ad hoc approach can not continue.

This proposal looks at achieving an equitable result for all parties in Western Australia.

That is to provide mechanisms for public accountability, not bear undue cost on industry, and restore confidence in the community that controlled and hazardous wastes from our own industries are being treated in a responsible manner.

The first 3C forum indicated the desired criteria for the technologies to be used in any new facility.

In a nutshell, it was generally believed that given the opportunity of building a purpose built facility, also dictated that we acquire state of the art proven technology for waste processing with health, safety, and environmental factors being absolutely essential criteria.

For some this was seen as a pie-in-the-sky proposal, simply due to the economics.

Despite some of the hysteria that has been suffered due to the past public mismanagement of genuinely toxic waste products, apart from mining process waste, WA does not produce vast amounts of treatable waste. Therefore it is fair to question what level of subsidy would be acceptable to burden the State public purse, so we have the luxury of fully functional and safe process?

This may be stating the obvious, and one would assume the only option is absolute assurance, at any cost.

The fact is, without the Bellevue fire and the Brookdale fiasco, WA would continue operating a wholly dysfunctional and unsafe controlled waste management operation.

The essential criteria cited at both 3C forums of:

- a) State of the art technological processes with world's best practices,
- b) Sited far enough away from residential and environmentally sensitive areas to satisfy the population who have already suffered at the inept practices and now harbour deep distrust of State Government controlled waste policy management,
- c) Involve suitable transport arrangements that do not increase the costs to business and industry.

During forum discussions the question of economic viability of the process was frequently raised. Westralia.net does not consider this essential, desirable, or relevant. Although the aim of this proposal is to be cost neutral, and indeed there exists ample scope to operate fully at an economic surplus, this proposal is submitted as a solution to Western Australia's controlled waste areas of responsibility.

This is not proposed as a business model, and to extrapolate the submission beyond WA's own requirements may be seen by many as being a disservice to this community.

SOLARIA WASTE TREATMENT FACILITY

The proposed Solaria facility represents many of Westralia.net's own philosophies. We will sell anyone the Sydney Harbour Bridge if it is good for Western Australia.

We put Western Australia first, because someone has to.

With that being our primary criteria, we seek creative solutions that can be as close to win/win as possible for all WA parties involved. We see opportunities and the challenge of creating a positive result from a negative perception.

- The Solaria Proposal is located remotely.
- The remote location will not increase overall costs.
- Built and maintained to the highest world standard.
- The plant will be economically viable.

The following issues are discussed:

- | | |
|-----------------------|--------------------------------|
| • Locality | • Employment |
| • Transport | • Environmental Monitoring |
| • Logistics | • Public v Private |
| • Financial Viability | • Long-term Scope of Operation |

1. Locality

Solaria's location reflects the primary nature of its operations.

Westralia.net believes nobody wants to have this facility close to his or her town, despite any assurances of safety.

It is of utmost importance that this viewpoint is respected and to demonstrate this, the Solaria facility will be located as close to our eastern border as possible. This recognises the prevailing westerly weather pattern and is a clear political statement of not compromising our own citizens. This will place it close to transport routes just south of Deakin, and well north of Eucla.

The topography is flat, geologically stable, and reasonably easy to seal the base terrain as required.

Although the remoteness of this location may seem unreasonable in the first instance, it will be demonstrated further into this proposal that this alleged disadvantage would place WA at the leading edge of global treatment facilities.

There may be some compromise on this location, by siting the facility closer to Kalgoorlie. However in doing so, there is a demonstration of loss of political will to place the care of WA citizens first, and also short-sightedness in failing to recognise future possible developments in the area.

The Solaria proposal is considered to be a long-term facility and entirely open-ended on time scale. Therefore this is the opportunity to select the best location with the only question being, "What is good for WA?"

Construction of the remote plant is not viewed as problematic. WA has a long history of constructing state of the art processes in remote locations.

2. Transport

Given the remote location of this proposal, one would assume transport logistics would be costly and problematic. Not so.

2.1 Rail: The site will be fed from its own spur line from close to a rail siding at Deakin, heading south a number of kilometres, as determined feasible by closer site assessment. Back-loading rail freight west to east is cheap. The site will be fully equipped for container and rail handling, with its own crane and shunting.

2.2 Container Return: Most material will arrive at the site in containers of the collapsible type that may be returned economically west to Perth several at a time. Material of extremely hazardous nature will require purpose-built high strength burst-resistant containers.

However, from WA industry these loads will not be as frequent as general controlled waste and return trips of empty containers will be minimal. There will be some inert and treated waste for return also. Transport costs for these products will depend on volume.

- 2.3 Road: The site will also be accessed from the Eyre Highway to the south.
- 2.4 Air: The Solaria facility will require its own airstrip or the service of another if close by.
- 2.5 Sea: Any shipping service will be via rail or road from Fremantle or Esperance.

3. Logistics

The facility will require a self-contained infrastructure. Again, WA has long history of providing full logistical support to remote projects.

- 3.1 Accommodation: Full accommodation, messing, and support services will be located in the dormitory centre some kilometres from the processing facility. Railed containers will service consumables. The relevant location will depend on site survey, water, climatic conditions, and other considerations.
- 3.2 Electricity: The plant will be designed with co-generation capacity of the process. It is anticipated that WA controlled waste sources in the untreated state will not provide sufficient bulk for generation, therefore provision is required in the co-generation process to supplement with bulk feedstock combustionables. This will be sourced from Kalgoorlie or Perth by way of a local baling plant for combustible stock. The overall electrical supply is supplemented by photovoltaic and/or wind, with diesel generation for emergency requirements.
- 3.3 Process Water: Process water may be available from subterranean sources. It is an important requirement that the site has adequate process water supply and this may ultimately affect the site location more than any other factor. The quality requirement for Process water has yet to be determined, as this will depend on the various technologies used. Whatever the quality requirement, water conservation will be a key issue of the Solaria facility and large reservoir tanks will be incorporated.
- 3.4 Potable water: Potable Water may be available from subterranean sources, directly or treated. It may also be produced utilising heat from the plant and the process water as raw feed.

4. Financial Viability

The prime purpose of the Solaria facility is to provide a safe and responsible controlled waste treatment plant for WA waste that does not compromise public health and safety, while providing a service to local industries that they are unable to undertake themselves. This must be done in a manner that does not penalise business or the public.

- 4.1 Service to Western Australia: As a stand-alone facility servicing only WA controlled waste, we can foresee a dramatic increase in costs, a) From implementing state of the art technology and, b) Siting the plant remotely as the Solaria proposal suggests. If we ask ourselves, without cost considerations, what is the very best solution? The Solaria proposal is the best. It demonstrates responsible treatment of waste, and demonstrates that care for WA community is top priority, without any compromise.
- 4.2 Cross-subsidised Operations: Firstly, WA is not alone with a controlled waste treatment problem. All over Australia and the industrialised world, countries are faced with similar issues. Nearly all these states and countries have the same mentality, “Not in our backyard”. Industries produce and society is faced with waste products, some more hazardous than others. Although establishing industry and a strong economy is sensible, storing, treating, and taking associated risks within your own community may be responsible, but not sensible. Especially when the whole country is only the size of an Australian farm. If we want the very best for WA, we must have the very best plant, and we must have the very best location. The Solaria proposal is best. We can have the world’s best facility at no cost to ourselves. Other communities outside WA will find the Solaria facility an expedient solution to their own requirements.
- 4.3 Western Australia Not a Dumping Ground: The first round of paranoia about the Solaria proposal needs to be addressed. This is not a Pangea style business enterprise. Westralia.net proposes the Solaria facility, because we genuinely believe this is the best result for our community. If we produced no hazardous wastes ourselves, we would not have our own problem. WA does produce these substances, and it is our problem, and requires a solution. Westralia.net’s proposal simply allows others to cover our costs.
- 4.4 Western Australia versus the World: WA’s output of hazardous waste is small, but we still need to manage this responsibly. To cover the establishment and ongoing costs of the Solaria facility, we only need to accept a limited amount of outside work. This may only be from other Australian states. It may be from outside Australia, such as Europe, Japan, or Singapore. It is a global problem and we should have the luxury of being able to accept the type of waste at our discretion. The amounts of waste accepted are only limited to cost balancing and contractual obligations. That is the first priority.

The prime and only objective is to provide the very best facility for Western Australia. The Solaria proposal is simply accepting some outside subsidisation for a problem that we must deal with regardless.

- 4.5 Temptation of the Cash Cow: The largest risk associated with the Solaria facility is accepting more outside work into the plant than the locally produced waste requires to balance the operating costs. This proposal is only to allow an opportunity for the WA community to never again repeat the past practices that has threatened its own citizens. The Solaria proposal will provide in WA a total treatment facility (not storage) that is the world's best, without compromise.

Should the Solaria or similar facility be established, the WA voting public will need to educate themselves on what quantity and what type of waste is treated at their facility from outside WA.

5. Employment

The Solaria plant will provide employment opportunities, but due to the nature of the plant, will likely operate as a commuter plant, with fly in / fly out operational staff.

- 5.1 Regional Base: It is highly desirable that a regional centre is used to source personnel for the sake of regional development. This centre could be Esperance, as it offers a favourable lifestyle while staff are off duty. This also needs to be balanced with the quality of staff involved. If it is found necessary to source from Perth, prospects should be advised that relocation to Esperance would be expected. Westralia.net is very much pro regional development and believes the Solaria proposal is consistent in these aims. Fly in / fly out from Perth is contrary to these objectives.

- 5.2 Personnel Standard: Staff will be required to be of a high standard. Process Operational staff should be of a similar educational standard to petro-chemical process technicians and salaried accordingly. Senior management will be tertiary qualified in a related discipline, (chemical engineering preferred) and would also be based in Esperance.

6. Environmental Monitoring

The first 3C stakeholder forum in 2003 highlighted the requirement for transparent monitoring procedures of throughput and emissions.

- 6.1 Full Public Monitoring of Processes: From past experience, the WA public have learned that "official" figures can not be relied on. This is the only reason why participants in each forum have demanded this transparency of process. In order to reverse this

perception and create trust in the community the Solaria facility will include a www-based public monitoring site. From this site any member of the public may scrutinise process outputs and trends of all measured components.

- 6.2 Full Public Monitoring of Throughput: In addition to the process monitoring, a summary of all inputs will be available from the website. This will be updated daily or weekly, as deemed suitable.
- 6.3 Commercial Confidentiality: Some waste producers may believe public disclosure of the type and quantity of waste will threaten commercial confidence. This is contrary to the transparent operations of the Solaria proposal. Such producers will be at liberty to export (with ministerial approval) their waste elsewhere and carry the costs.

7. Public versus Private

At each of the 3C forums there was no scheduled discussion on the question of the facility being either publicly run by the State government or operated by private enterprise. This proposal is based on the assumption that the plant will be State-run. The argument for a privately run facility appears primarily based on ideological grounds, in debating that the government is running a business.

- 7.1 As a State Operated Plant: This proposal is based on zero profit objectives. To seek profit relies on greater importation of waste from outside WA. The reality of this proposal is that if the operator had carte blanche on state importation of waste, the plant could be extremely profitable. By being a state operated facility the onus is only to import the amount of waste as is necessary to balance the operating costs of treating WA's own hazardous waste. In this scenario, there exists an upper limit to the imported component. Operating efficiently and successfully, the maximum amount of state imported waste would allow all WA produced hazardous waste to be transported and treated free of charge. This is a positive result for WA industry. Conversely, there also exists a very valid argument for locally produced waste that the polluter pays for treatment, thereby actively discouraging further WA production of hazardous waste.

Going beyond the required financial balance raises the issues as discussed at 4.5 (Cash Cow scenario) of this submission.

- 7.2 Scope for Private Operators: There will exist some *controlled waste* that is currently treated by private enterprise with their market located within populated areas, such as waste oil recovery and refining, worm and biological processing, etc. These opportunities will continue under licence.

The Solaria proposal is for the treatment of Hazardous Waste that presents an unacceptable public and environmental risk during the treatment process.

8. Long Term Scope of Operation

The Solaria proposal is aimed at a long-term and permanent solution to WA's controlled waste treatment requirements.

There exists ample scope by virtue of Solaria's location to increase capacity as WA industry grows.

Also the remote site coupled to the localised infrastructure allows for other equally undesirable industries that may eventuate in the future to operate in a dedicated remote precinct, free from civil impact.

In conclusion, part of the strategy in locating the Solaria facility as close to the WA's eastern border as possible is not only a political statement of the government, demonstrating that the care for WA citizens are first priority, but also a message to the rest of Australia.

This takes into account the predominantly westerly weather pattern, and the likelihood of much of the imported hazardous waste originating from eastern Australia. By volume this may be much higher than the relatively small amount WA produces.

Although the proposed treatment technology will be state of the art and will not produce significant dangerous emissions, there will always be a public and environmental risk perceived.

The Solaria plant answers this with an unwritten message to the nation; "Minimise production of Hazardous waste, and the emissions coming your way will be minimal."

**MOST IMPORTANTLY, THE STATE GOVERNMENT WILL BE
DEMONSTRATING THAT THE SOLARIA SITE PLACES
WESTRALIANS FIRST.**

Relevant details about the authors:

A. Fraser Hobday is CEO of Westralia.Net, a lobby and educational group aiming to improve quality of life, business, and environmental awareness in Western Australia.

He has previously worked in the mining and processing industry preparing and collecting data for Environmental Impact Statements utilising meteorological measurements, including acoustic radar for temperature inversion study. He also has several years' experience in the materials salvage and recycling field.

Geoff Pain is Science Officer of Westralia.Net, and is a research scientist specialising in organometallic chemistry. He was a member of the Ministerial Appointed Expert Panel advising the Brookdale Community Reference Group, supervising the closure of Brookdale Waste Treatment Plant. Dr. Pain has also been an air adviser to Kwinana and Yarloop communities in relation to alumina treatment emissions.