



SUBMISSION COVERSHEET



**NUCLEAR
FUEL CYCLE
ROYAL
COMMISSION**

investigating opportunities and risks for south australia

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Name/organisation: UPPER SPENCER GULF COMMON PURPOSE GRP

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I TAKE AN OATH / MAKE AN AFFIRMATION AND SAY:

1. I am:
 - ▶ the person named as the author of this submission; or
 - ▶ authorised on behalf of the organisation named to make this submission;
 and the information and/or views expressed in this submission are true and correct to the best of my knowledge and belief
2. I believe that this submission is suitable for publication on the Internet.
3. I understand that the Royal Commission may contact me should it require further information.

Sworn/affirmed at _____

by _____

this _____ day of _____ 20 _____

Signed: _____

Witnessed by _____

Name: _____

Authority: _____

(For example, Commissioner for taking affidavits/ Justice of the Peace)



UPPER SPENCER GULF COMMON PURPOSE GROUP

Rear Admiral the Honourable Kevin Scarce AC CSC RAN (Rtd)
 Royal Commissioner
 Nuclear Fuel Cycle Royal Commission
 GPO Box 11043
 Adelaide SA 5001
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30th June 2015

RE: SUBMISSION – NUCLEAR FUEL CYCLE ROYAL COMMISSION

Dear Commissioner,

Thank you for the opportunity to provide a submission to the Nuclear Fuel Cycle Royal Commission.

The Upper Spencer Gulf Common Purpose Group is an alliance of local government, regional development and education representatives focussed on facilitating economic and social growth across the South Australian regional centres of Port Augusta, Whyalla and Port Pirie.

The Group was formed in 1998 as a forum for the three cities to share information, jointly implement initiatives, provide a united voice and work with Government, industry and other stakeholders in the interest of improving the long term sustainability of the region.

In particular, as we work towards transformation of the Upper Spencer Gulf to cleaner, more innovative, liveable and economically diverse cities our current priorities include:

- Economic diversification of the Upper Spencer Gulf by realising our potential for clean technologies, renewable energy and innovation in arid-smart technologies, minerals processing and agricultural value-adding.
- Improving higher education and research capabilities to support these emerging sectors in the Upper Spencer Gulf by linking the needs of local industry with access to a collaborative network of universities, research institutes and training providers.
- Improving coordination and streamlining of land use planning and development assessment to improve both developer certainty and conservation outcomes.
- Strategic infrastructure including expanding existing, under-utilised port facilities in Port Pirie and Whyalla, duplication of the gas pipeline duplication to Pt Pirie and Whyalla and providing a national transport solution for the gulf crossing at Port Augusta.
- Improving city attractiveness and liveability through strategic sporting, cultural/arts facility upgrades, mainstreet redevelopment and activation and increased and improved buffer zones between heavy industry and city centres.

Whilst it is understood the Royal Commission is not considering specific locations as part of its terms of reference, it is likely that any potential change to the current involvement in South Australia with the nuclear fuel cycle will impact on the Upper Spencer Gulf and the broader hinterland.

Additional mining, potential for processing, electricity generation, transport of materials via road, rail or sea-port, research and development, industry workforce planning and skills development, storage and waste disposal are likely to provide both opportunities and risks for the region.

Whilst the 56 questions posed within the Nuclear Royal Commission Issues Papers one to four have been considered by our organisation and are all highly relevant, we simply do not have the academic, technical or practical expertise to make an informed response or recommendation.

Indeed, the Upper Spencer Gulf Common Purpose Group has deliberately abstained from taking any position of support or opposition to South Australia's further involvement in the nuclear fuel cycle.

Rather, as a key leadership alliance, the Upper Spencer Gulf Common Purpose Group is specifically interested in ensuring that its member organisations and the Upper Spencer Gulf community have timely access to the resources and expertise to help make an informed decision on future involvement of the region in any part of the nuclear fuel cycle.

Whilst the issues papers released by the Commission provide a solid background, it is important that a more in-depth, facilitated engagement process is undertaken with the likely impacted communities, either as part of the Royal Commission's investigations or the South Australian Government's response.

In addition, it will be important for current investigations by the Australian Government to develop a national radioactive waste management facility to hold Australia's intermediate level waste and dispose of low level waste to be seamlessly integrated into any such community discussions and engagement to avoid confusion, duplication and inefficiency.

The Upper Spencer Gulf Common Purpose Group would be very pleased to work with both levels of Government along with associated technical experts, as part of such a multi-jurisdictional approach.

Furthermore, we would recommend that a community engagement process based on the internationally recognised 'IAP2' method of public participation be considered as the basis for such an approach.

The method is designed to help inform better decisions that reflect the interests and concerns of potentially affected people and entities by working within a clear spectrum that helps define the public's role in participation and managing their expectations.

Under this approach, involvement of the community ranges from informing and consulting through to collaborating and empowering, depending on the desired goal of the engagement and the level of control over decision making.

	GOAL OF ENGAGING WITH COMMUNITY	PROMISE BY GOVERNMENT TO COMMUNITY
<u>INFORM</u>	To provide the public with balanced and objective information to help them understand the problem, alternatives, opportunities and solutions.	We will keep you informed.
<u>CONSULT</u>	To obtain feedback on analysis, alternatives and decisions.	We will keep you informed, listen to concerns and aspirations, seek feedback on drafts and proposals and provide feedback on how this influenced the decision.
<u>INVOLVE</u>	To work directly with the public throughout the process to ensure concerns and aspirations are consistently understood and considered.	We will work with you to ensure concerns and aspirations are directly reflected in the alternatives and provide feedback on how this influenced the decision.
<u>COLLABORATE</u>	To partner with the public in decision making including development of alternatives and identification of preferred solution.	We will work together to formulate solutions and incorporate your advice and recommendations into the decisions.
<u>EMPOWER</u>	To place the final decision making in the hands of the public.	We will implement what you decide.

We understand that at this early stage of the investigation, the approach by the Royal Commission has been to inform the community through release of the four discussion papers.

As considerations about further involvement in the nuclear fuel cycle proceed and potential locations and impacted communities are identified, we would be seeking a far higher level of engagement that seeks to genuinely involve and collaborate with local leaders and key community stakeholders.

Representatives from the Upper Spencer Gulf Common Purpose Group would be very pleased to discuss any aspect of this submission further.

We wish the Commission well in its deliberations on this most important issue.

Yours sincerely

RESPONSE TO ISSUES PAPER 1 – EXPLORATION, EXTRACTION AND MILLING

1.1 Are there opportunities for new or further exploration activities directed at locating new mineral deposits, or to better understand existing deposits containing economic concentrations of uranium or thorium in South Australia? What specifically are those opportunities? What might understanding those opportunities be reasonably expected to reveal? What needs to be done to understand their potential more clearly?

- *Please refer to appendix*

1.2 What are the economic conditions including those in resource markets that would be necessary for the financial viability of new exploration activities directed at locating uranium or thorium? Aside from economic conditions, how do factors such as access to investment, skills training, taxation, research and development, innovation and regulation, bear on decisions to invest in new activities? What is most important?

- *Please refer to appendix*

1.3 What might be necessary to encourage further exploration for uranium and thorium? What might be done to promote viability? Are existing government plans sufficient? Could support be provided in other ways and, if so, how could that be done most effectively? Is there a sufficient availability of information from exploration activities previously undertaken?

- *Please refer to appendix*

1.4 Are there either existing proven uranium or thorium resources which might feasibly be developed? Where are they? What specifically needs to be done to develop these? How long would the development process take?

- *Please refer to appendix*

1.5 What would be necessary to develop new mine sites or expand existing sites? To what extent are those factors affected by the ability to extract commercial resources other than uranium? What are the necessary factors that might stimulate an expansion in activity? What is the evidence that those factors have been relevant to an expansion in activities elsewhere?

- *Please refer to appendix*

1.6 Does more need to be done now and in the future with factor inputs (including skills and training, research, education and infrastructure) which are relevant to decisions made to invest in new projects or to expand those that already exist? What capabilities and capacities would be required for the development of new projects? What is the evidence that any specific deficiency influences new investment? What needs to be done to address any deficiency and how would it be done?

- *Please refer to appendix*

1.7 Is there a sound basis for concluding that there will be increased demand for uranium in the medium and long term? Would that increased demand translate to investment in expanded uranium production capacity in South Australia (bearing in mind other sources of supply and the nature of South Australia's resources)?

- *Please refer to appendix*

1.8 Would an expansion in extraction activities give rise to new or different risks for the health and safety of workers and the community? If so, what are those risks and what needs to be done to ensure they do not exceed safe levels?

- *Please refer to appendix*

1.9 Are the existing arrangements for addressing the interaction between the interests of exploration and extraction activities and other groups with interests such as landowners and native title holders suitable to manage an expansion in exploration or extraction activities? Why? If they are not suitable, what needs to be done?

- *Please refer to appendix*

1.10 Would a future expansion of exploration, extraction and milling activities create new environmental risks or increase existing risks? If so, are current strategies for managing those new risks sufficient? If not, in what specific respects? How would any current approach need to be changed or adapted?

- *Please refer to appendix*

1.11 Given current techniques of extraction and milling and their regulation, what are the relevant lessons for the contemporary management of environmental impacts that should be learned from past extraction and milling practices?

- *Please refer to appendix*

1.12 If an expansion of exploration or extraction activities were viable, what would the estimated benefit be expected to be directly in those sectors, in terms of economic activity? Can growth in employment relating to the extraction or milling of uranium (alone or in conjunction with other commodities being extracted) be estimated? Is there evidence increased extraction and milling would create additional capabilities and capacities in related sectors? What are those sectors? What would their value be?

- *Please refer to appendix*

1.13 Would an increase in extraction activities give rise to negative impacts on other sectors of the economy? Have such impacts been demonstrated elsewhere in Australia or in other economies similar to Australia?

- *Please refer to appendix*

RESPONSE TO ISSUES PAPER 2 – FURTHER PROCESSING OF MINERALS AND MANUFACTURE OF MATERIALS CONTAINING RADIOACTIVE AND NUCLEAR SUBSTANCES.

2.1 Could the activities of conversion, enrichment, fabrication or reprocessing (or an aspect of those activities) feasibly be undertaken in South Australia? What technologies, capabilities or infrastructure would be necessary for their feasible establishment? How could any shortcomings be addressed?

- *Please refer to appendix*

2.2 Would it be feasible for South Australia to assume a greater role in manufacturing materials containing radioactive and nuclear substances? What factors need to be taken into account in making that determination? Which factors are most important and why?

- *Please refer to appendix*

2.3 What legislative and regulatory arrangements would need to be in place to facilitate further processing and further manufacturing activities, including the transport of the products which they generate? How could these arrangements be developed so that they are most effective?

- *Please refer to appendix*

2.4 What are the projections for future supply and demand for conversion, enrichment, fuel fabrication or reprocessing activities? What is the evidence to support those projections? Might it be viable for one or more of those activities, or an aspect of them, to be established in South Australia in the medium or long term? What is the reason for thinking that would be so? What conditions would be necessary for that to be viable?

- *Please refer to appendix*

2.5 Could South Australia viably increase its participation in manufacturing materials containing radioactive and nuclear substances? Why or why not? What evidence is there about this issue? What new or emerging technologies are being developed which might impact this decision?

- *Please refer to appendix*

2.6 What are the specific models and case studies that demonstrate the best practice for the establishment, operation and regulation of facilities for the conversion, enrichment, fuel fabrication or reprocessing of, or the manufacture of materials containing, radioactive and nuclear substances? What are the less successful examples? Where have they been implemented? What lessons can be drawn from them?

- *Please refer to appendix*

2.7 What are the processes that would need to be undertaken to build confidence in the community generally, or specific communities, in the design, establishment and operation of such facilities?

- *Please refer to appendix*

2.8 What additional risks for health and safety would be created by the establishment and operation of such facilities in South Australia? What needs to be done to ensure that risks would not exceed safe levels? Can anything be done to better understand those risks?

- *Please refer to appendix*

2.9 What additional environmental risks would be created by the establishment and operation of such facilities in South Australia? Are there strategies for managing those risks? If not, what strategies would need to be developed? How would any current approach to management need to be changed or adapted?

- *Please refer to appendix*

2.10 Given current techniques for further processing of radioactive and nuclear substances, what are the relevant lessons for the contemporary management of environmental impacts which should be learned from past South Australian processing practices?

- *Please refer to appendix*

2.11 What security implications are created by the activities of conversion, enrichment, fabrication or reprocessing of nuclear fuel, or by further manufacturing activities, in South Australia? What is the evidence which suggests that such risks might materialise? Can they be addressed and by what means?

- *Please refer to appendix*

2.12 What safeguards issues are created by the further participation in South Australia in activities (such as the production of uranium oxide, conversion, enrichment, fuel fabrication or reprocessing) necessary for uranium to be used as a fuel in electricity generation? Can those implications be addressed? If so, by what means? Further, would the possession of those technical capabilities give rise to strategic and policy issues for Australia? If so, what are those issues and how could they be addressed?

- *Please refer to appendix*

2.13 What financial or economic model or method ought be used to estimate the economic benefits from South Australia's establishment and operation of facilities for the conversion, enrichment, fuel fabrication or reprocessing of, or the manufacture of materials containing, radioactive and nuclear substances? What information or data (including that drawn from actual experience elsewhere) should be used in that model or method?

- *Please refer to appendix*

2.14 Would South Australia's establishment and operation of such facilities give rise to impacts on other sectors of the economy? What would those impacts be? How should they be estimated and what information should be used? Have such impacts been demonstrated in other economies similar to South Australia?

- *Please refer to appendix*

RESPONSE TO ISSUES PAPER 3 – ELECTRICITY GENERATION FROM NUCLEAR FUELS

3.1 Are there suitable areas in South Australia for the establishment of a nuclear reactor for generating electricity? What is the basis for that assessment?

- *Please refer to appendix*

3.2 Are there commercial reactor technologies (or emerging technologies which may be commercially available in the next two decades) that can be installed and connected to the NEM? If so, what are those technologies, and what are the characteristics that make them technically suitable? What are the characteristics of the NEM that determine the suitability of a reactor for connection?

- *Please refer to appendix*

3.3 Are there commercial reactor technologies (or emerging technologies which may be commercially available in the next two decades) that can be installed and connected in an off-grid setting? If so, what are those technologies, and what are the characteristics that make them technically suitable? What are the characteristics of any particular off-grid setting that determine the suitability of a reactor for connection?

- *Please refer to appendix*

3.4 What factors affect the assessment of viability for installing any facility to generate electricity in the NEM? How might those factors be quantified and assessed? What are the factors in an off-grid setting exclusively? How might they be quantified and assessed?

- *Please refer to appendix*

3.5 What are the conditions that would be necessary for new nuclear generation capacity to be viable in the NEM? Would there be a need, for example, for new infrastructure such as transmission lines to be constructed, or changes to how the generator is scheduled or paid? How do those conditions differ between the NEM and an off-grid setting, and why?

- *Please refer to appendix*

3.6 What are the specific models and case studies that demonstrate the best practice for the establishment and operation of new facilities for the generation of electricity from nuclear fuels? What are the less successful examples? Where have they been implemented in practice? What relevant lessons can be drawn from them if such facilities were established in South Australia?

- *Please refer to appendix*

3.7 What place is there in the generation market, if any, for electricity generated from nuclear fuels to play in the medium or long term? Why? What is the basis for that prediction including the relevant demand scenarios?

- *Please refer to appendix*

3.8 What issues should be considered in a comparative analysis of the advantages and disadvantages of the generation of electricity from nuclear fuels as opposed to other sources? What are the most important issues? Why? How should they be analysed?

- *Please refer to appendix*

3.9 What are the lessons to be learned from accidents, such as that at Fukushima, in relation to the possible establishment of any proposed nuclear facility to generate electricity in South Australia? Have those demonstrated risks and other known safety risks associated with the operation of nuclear plants been addressed? How and by what means? What are the processes that would need to be undertaken to build confidence in the community generally, or specific communities, in the design, establishment and operation of such facilities?

- *Please refer to appendix*

3.10 If a facility to generate electricity from nuclear fuels was established in South Australia, what regulatory regime to address safety would need to be established? What are the best examples of those regimes? What can be drawn from them?

- *Please refer to appendix*

3.11 How might a comparison of the emission of greenhouse gases from generating electricity in South Australia from nuclear fuels as opposed to other sources be quantified, assessed or modelled? What information, including that drawn from relevant operational experience should be used in that comparative assessment? What general considerations are relevant in conducting those assessments or developing these models?

- *Please refer to appendix*

3.12 What are the wastes (other than greenhouse gases) produced in generating electricity from nuclear and other fuels and technologies? What is the evidence of the impacts of those wastes on the community and the environment? Is there any accepted means by which those impacts can be compared? Have such assessments making those comparisons been undertaken, and if so, what are the results? Can those results be adapted so as to be relevant to an analysis of the generation of electricity in South Australia?

- *Please refer to appendix*

3.13 What risks for health and safety would be created by establishing facilities for the generation of electricity from nuclear fuels? What needs to be done to ensure that risks do not exceed safe levels?

- *Please refer to appendix*

3.14 What safeguards issues are created by the establishment of a facility for the generation of electricity from nuclear fuels? Can those implications be addressed adequately? If so, by what means?

- *Please refer to appendix*

3.15 What impact might the establishment of a facility to generate electricity from nuclear fuels have on the electricity market and existing generation sources? What is the evidence from other existing markets internationally in which nuclear energy is generated? Would it complement other sources and in what circumstances? What sources might it be a substitute for, and in what circumstances?

- *Please refer to appendix*

3.16 How might a comparison of the unit costs in generating electricity in South Australia from nuclear fuels as opposed to other sources be quantified, assessed or modelled? What information, including that drawn from relevant operational experience, should be used in that comparative assessment? What general considerations should be borne in mind in conducting those assessments or models?

- *Please refer to appendix*

3.17 Would the establishment of such facilities give rise to impacts on other sectors of the economy? How should they be estimated and using what information? Have such impacts been demonstrated in other economies similar to Australia?

- *Please refer to appendix*

RESPONSE TO ISSUES PAPER 4 – MANAGEMENT, STORAGE AND DISPOSAL OF NUCLEAR AND RADIOACTIVE WASTE

4.1 Are the physical conditions in South Australia, including its geology, suitable for the establishment and operation of facilities to store or dispose of intermediate or high level waste either temporarily or permanently? What are the relevant conditions? What is the evidence that suggests those conditions are suitable or not? What requires further investigation now and in the future?

- *Please refer to appendix*

4.2 Are there nuclear or radioactive wastes produced in Australia which could be stored at a facility in South Australia? In what circumstances would the holders of those wastes seek to store or dispose of that waste at facilities in South Australia?

- *Please refer to appendix*

4.3 Would the holders of nuclear or radioactive waste outside Australia seek to store or dispose of that waste in South Australia? Who holds that waste? What evidence is there that they are seeking options to store or dispose of wastes elsewhere including in locations like South Australia? If so, what kinds of waste and what volumes might be expected? What would the holders be willing to pay and under what arrangements?

- *Please refer to appendix*

4.4 What sorts of mechanisms would need to be established to fund the costs associated with the future storage or disposal of either Australian or international nuclear or radioactive wastes? Are there relevant models in operation which should be considered? What mechanisms need to be put in place to increase the likelihood that the South Australian community, and relevant parts of it, derive a benefit from that activity?

- *Please refer to appendix*

4.5 What are the specific models and case studies that demonstrate the best practice for the establishment, operation and regulation of facilities for the storage or disposal of nuclear or radioactive waste? What are the less successful examples? Where have they been implemented in practice? What new methods have been proposed? What lessons can be drawn from them?

- *Please refer to appendix*

4.6 What are the security implications created by the storage or disposal of intermediate or high level waste at a purpose-built facility? Could those risks be addressed? If so, by what means?

- *Please refer to appendix*

4.7 What are the processes that would need to be undertaken to build confidence in the community generally, or specific communities, in the design, establishment and operation of such facilities?

- *Please refer to appendix*

4.8 Bearing in mind the measures that would need to be taken in design and siting, what risks for health and safety would be created by establishing facilities to manage, store and dispose of nuclear or radioactive waste? What needs to be done to ensure that risks do not exceed safe levels? Can anything be done to better understand those risks?

- *Please refer to appendix*

4.9 Bearing in mind the measures that would need to be taken in design and siting, what environmental risks would the establishment of such facilities present? Are there strategies for managing those risks? If not, what strategies would need to be developed? How would any current approach to management need to be changed or adapted?

- *Please refer to appendix*

4.10 What are the risks associated with transportation of nuclear or radioactive wastes for storage or disposal in South measures might be necessary?

- *Please refer to appendix*

4.11 What financial or economic model or method ought be used to estimate the economic benefits from the establishment or operation of facilities for the storage or disposal of nuclear and radioactive waste? What information or data (including that drawn from actual experience in Australia or overseas) should be used in that model or method?

- *Please refer to appendix*

4.12 Would the establishment and operation of such facilities give rise to impacts on other sectors of the economy? How should they be estimated and what information should be used? Have such impacts been demonstrated in other economies similar to Australia?

- *Please refer to appendix*