

	<p><i>processes, to ensure that minimum risks will result to the Australian population, animals and food supplies.</i></p> <p>In conclusion I believe there is still a lot to be done on this matter, before it is to a stage of preparation, when it can be delivered as a “White Paper” to cabinet for approval and preparation of draft legislations.</p> <p>As I have been involved in the preparation of draft legislations for overseas governments, I would be interested in receiving a copy of the draft legislation for comments before it is presented to parliament for voting into law.</p>	
<p>02 Dr John Harries</p>	<p>Attached are my comments on the Public Consultation Draft, Recommendations for Classification of Radioactive Waste.</p> <p>We need certainly need a document with clear recommendations for classifying radioactive waste. The draft I think needs some work and a stronger focus, but most of if the required information is there.</p> <p>My strongest comment is that short lived waste should be called "short lived waste". The ARPANSA draft and the IAEA DS390 call this class "very short lived waste (VSLW)" which is an overstating the case. I do not think a radionuclide with a half life of about 100 days is very short lived, so I do not understand why this terminology is used to describe this class of waste There is no class called "short lived waste" so why introduce the word "very" to describe this class of waste.</p> <p>I would be very happy to provide clarification or additional information on my comments.</p> <p style="text-align: center;">[EMAIL ATTACHMENT]</p> <p>Section 1.2 line 16 -24 The IAEA is in the final stages of finalising a draft safety guide on classification of radioactive waste (DS390), which is likely to be issued before this ARPANSA draft. The classification scheme in this ARPANSA draft is very similar to that in the IAEA draft. However there is little reference to the IAEA document in this ARPANSA draft.</p> <p>Line 24 says that any waste classification scheme developed in Australia would need to take into account consistency with international developments.</p>	<p>The IAEA uses “VSLW” and so we need to also, for international communication. Compared to the institutional control periods proposed for a waste facility, which are of the order of 200-300 years, 100 days is very short.</p> <p>Paragraph added to the end of the Background Section to this effect.</p>

	<p>The reader is left pondering why ARPANSA is issuing a document that appears be directly based on the IAEA classification scheme or precedes it. I presume the case for the ARPANSA document is to provide clarity on issues of specific relevance to Australia. If so, it would be better to say that up front and acknowledge that the proposed Australian classification scheme is consistent with the international IAEA scheme.</p> <p>There should be direct reference to the new IAEA classification scheme, both in section 1.2 and elsewhere to make clear that the proposed scheme is based on the internationally recognised IAEA scheme.</p> <p>Section 1.2 Line 30 Delete “Apart from waste containing only short lived radionuclides” and the word “other”. The management of all radioactive waste should meet the requirements of the quoted documents.</p> <p>Section 1.2 Line 37 Delete sentence “There may however be a case for disposing of short lived radioactive waste from a security point of view rather than storing it”. This might be a valid comment, but is not relevant in section 1.2 which is about the background to a classification scheme. Furthermore, at this stage, “short lived waste” has not been defined.</p> <p>Section 1.2 line 42-44 Delete sentence “The suitability of waste for disposal in a particular disposal facility is required to be demonstrated by the safety case and supporting safety assessment for the facility (IAEA 20yy)”. This sentence is duplicated at lines 472-474. Requirement statements are out of place in a recommendations document, this particular requirement has nothing to do with classification of radioactive waste and furthermore requirements for Australia should be based on local ARPANSA documents rather than an IAEA document.</p> <p>Section 1.3 line 55 Replace “such schemes” with “such operational requirements”. The sentence becomes “While the usefulness of classification schemes for the safe operational management of radioactive waste, including the transportation of waste, is recognised, such operational requirements are subject to different</p>	<p>Correct.</p> <p>Agreed.</p> <p>Agreed – add reference in line 24.</p> <p>Agreed.</p> <p>Lines 37 and 38 deleted.</p> <p>Waste is being classified in terms of how it can be disposed of and hence this is relevant.</p> <p>Done.</p>
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	<p>considerations and are not addressed in these Recommendations.”</p> <p>Section 1.4 lines 70 Replace “could also” with “is”. Be bold, the less exceptions the better.</p> <p>Section 2 line 115 Replace “The Recommendations primarily give consideration to ...” with “The classification scheme proposed in these recommendations is primarily based on...”</p> <p>Section 2 line 146 Delete word “ideal”. I think the proposed scheme meets these objectives whilst not being ideal under all conditions.</p> <p>Section 2 line 222 This is the only mention of the words “dose criteria” in this document. The statement that dose criteria can be different for naturally occurring radionuclides seems to conflict with the statement lines 30–36 that all waste needs to be managed and disposed on in a consistent manner. I suggest deleting lines 222-227 since it does not add to this section which in an introduction to the classification scheme. If it is an important statement it could be move into one of the Annexes.</p> <p>Section 3.1 Line 260 Delete “very” before short lived waste. Why have a classification called “very short lived waste” if there is no class for “short lived waste”. Very short lived implies radionuclides with half lives much less than a day, not up to 100 days. This class of waste has previously been called “short lived waste” which is much more appropriate. Elsewhere in this document, these radionuclides are called “short lived” e.g line 26, 30, 37. Line 313 uses the word “short” for a half life of seconds. Line 705 characterises Tc99m as having a short half life. I strongly recommend calling this class “short lived waste”.</p> <p>Section 3.1 line 266 Delete the word “necessarily”. VLLW does not meet the requirement of “Exempt Waste”</p> <p>Section 3.1 line 267</p>	<p>Done.</p> <p>Done.</p> <p>Done.</p> <p>These paragraphs have been separated and slightly reworded to clarify and improve the flow.</p> <p>Disagreed (see earlier comment).</p> <p>Done.</p>
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	<p>I have difficulty with the reference to “high levels of containment” even if not required. No containment would also meet this criterion. I suggest using the words “... but does need a moderate level of containment and isolation...”</p> <p>Section 3.2 Fig 1 This figure appears to come directly from the IAEA draft DS390 and should be referenced.</p> <p>Section 3.2 line 332 Suggest adding reference to NDRP as in: The criteria for exempt radioactive materials are defined in section 3.2 of the National Directory for Radiation Protection (ARPANSA 2004) or as determined by the Regulatory Authority. NDRP still does not have discharge limits.</p> <p>Section 3.2 line 334 This paragraph appears to introduce a new class of “conditionally exempted waste”. This should not be classified as exempt waste. It is material that was under regulatory control and has been allowed to be discharged under a regulatory approval process. Delete the sentence referring to conditionally exempted waste.</p> <p>Section 3.2 line 338 See my comment on 3.1 line 260 above. The name of this class should be “short lived waste” not “very short lived waste”</p> <p>Section 3.2 line 445 Replace “huge range” with “many types”</p> <p>Section 3.2 line 445 Remove quotes from “near surface”</p> <p>Section 3.2 line 471-473 This is a duplicate of the sentence at line 42-44. My comment above on line 42-44 is that requirement statements like this are out of place in a recommendations document, this particular requirement has nothing to do with classification of radioactive waste and furthermore requirements for Australia should be based on local ARPANSA documents rather than an IAEA document.</p>	<p>Done.</p> <p>Agreed. Appropriate referencing to GSG-1 has been added.</p> <p>Done, in part.</p> <p>“Conditionally” removed.</p> <p>Disagreed (see the discussion above).</p> <p>Done.</p> <p>Done. Also removed from “wet” and “arid”.</p> <p>Disagreed; it is OK to reiterate it here. Added in reference to the near surface disposal Code.</p>
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	<p>Section 3.2 line 527 Delete “for the purposes of communication”. It is not clear what this means. The boundary between LLW and ILW depends only on the capabilities of the LLW facility; it does not need any knowledge of the ILW facility. ILW is the waste not suitable for the LLW facility.</p> <p>Section 3.2 line 550 Should be Figure 2</p> <p>Section 3.3 Figure 2 The first box is “Is the waste or process excluded?” There is no definition of what “excluded” means.</p> <p>Section 3.3 Figure 2 There is no box for “[very] short lived waste”</p> <p>Section 3.3 Figure 2 This figure is a direct copy of figure 2 in DS390 and the DS390 should be referenced</p> <p>Annex 1 line 627 Delete “as recommended in section 3 of this document“. Section 3 does not recommend that the concentrations in these waste streams exceed the levels for exempt waste?</p> <p>Annex 1 line 648 Delete “long-term storage or disposal”.</p> <p>Annex 1 line 715 Add “[very] short lived waste” to the options from university and medical facilities</p> <p>Annex 1 line 729 These sources are [very] short lived waste. Why not use this classification if it has been defined?</p> <p>Annex 1 line 747 Replace “for waste likely to be generated in Australia” with “for disused</p>	<p>Done. Paragraph amended.</p> <p>Agreed</p> <p>Box deleted.</p> <p>Comes under “storage for decay”; boxes deleted.</p> <p>Agreed.</p> <p>Done.</p> <p>Done.</p> <p>Done.</p> <p>“stored for decay” implies VSLW. Done.</p> <p>Disagreed, this covers more than just sealed sources.</p>
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	<p>sealed sources” Figure 3 does not show the classification of waste likely to be generated in Australia</p> <p>Annex 1 Figure 3 This figure is a copy of figure 3 in DS390 with some additional source categories added. DS390 should be referenced</p> <p>Annex 2 Annex 2 is not focused and its purpose not clear. According to line 189 the purpose of Annex 2 is to indicate aspects that could be considered in development of a more detailed classification for specific waste management practises. However, Annex 2 is a general discussion about waste classification schemes as if one is developing a classification scheme from scratch. It mentions the recommendations in section 3 as only one of many ways of classifying radioactive waste, and seems to imply that any other classification you might come up with could be equally OK.</p> <p>I suggest deleting Annex 2 or modifying it to ensure that it is about possible sub-classifications needed for specific purposes within the recommended scheme define in Section 3.</p>	<p>Agreed.</p> <p>Annex 2 deleted.</p>
<p>03 R G Armstrong Radiation Health & Safety Coordinator OHS Unit, Level 1, Chancellery Human Resources Department University of New South Wales</p>	<p>Thank you providing UNSW with the opportunity to comment on the draft Radiation Protection Standard for Classification of Radioactive Waste.</p> <p>The University of New South Wales has been a user of radioactive materials for a range of research purposes throughout Schools in the Faculties of Science , Medicine and Engineering since the 1950’s. Consequently there are a range of radioactive waste materials stored at UNSW. These materials could expect to be classified as mostly “low level waste (LLW”) radioactive materials and no longer in use by researchers are now stored in a central store on the University’s Kensington campus. There are some exceptions which will need to be considered separately eg radium needles. The ultimate aim of UNSW is to have these ‘low activity’, but long half life materials transferred to a central repository controlled by government regulators. Logically it would be useful to remove any materials for recycling, wherever possible, during classification and prior to transfer to such a repository. UNSW maintains its current store to the requirements of Department of Environment, Climate Change and Water(DECCW), NSW and has implemented updates to comply with ARPANSA’s Security Guidelines .</p>	

	<p>Current research at UNSW using radioactive materials is managed with the intention of accruing the absolute minimum possible radioactive waste. Consequently, most materials are of low half lives and are decayed to background before disposal as conventional hazardous waste.</p> <p>The draft Classification of Radioactive Waste document appears to be designed to delineate materials for ultimate long term storage or disposal and is to be commended in this aim. It does seem however, likely that establishments such as UNSW may have problems in future in that there is unlikely to be clear separation of classifications within current storage systems. Future transfers will require local classification before transfer is possible</p> <p>This situation was envisaged with the original design of the UNSW radiation store and there is a section within the store designed to enable classification of materials prior to transfer to a more appropriate long term facility.</p> <p>A clear guide of the methods of physical classification of materials is recommended to provide support for organisations that will need to classify their materials, in the future, prior to transfer to regulator approved facilities. It is particularly important to provide guidance in support of the statement on line 177 of the Recommendations, “Consideration should be given as to when a particular material is declared waste.”</p> <p>UNSW would also appreciate clear guidelines on what radioactive materials are considered by ARPANSA to be recyclable and what will be accepted as waste when appropriate central storage facilities become available.</p> <p>Note : Line 158 in the document is mistakenly dot pointed .</p>	<p>This point appears to relate to later documents such as operational management of radioactive waste.</p> <p>Some of this info may already be in the pre-disposal guide.</p> <p>Fixed.</p>
<p>04 Dave Sweeney Australian Conservation Foundation</p>	<p>I write on behalf of the Australian Conservation Foundation. ACF is committed to inspiring people to achieve a healthy environment for all Australians and for 40 years we have been a strong voice for the environment, promoting solutions through research, consultation, education and partnerships. We work with the community, business and government to protect, restore and sustain our environment. ACF has a deep interest in nuclear issues, including radioactive waste management and is actively engaged with the current policy discourse around this area.</p> <p>In this context ACF wants to highlight the importance of social license and</p>	

	<p>community consent in relation to the siting of any radioactive waste storage or disposal facility in Australia.</p> <p>We note the distinction articulated in the current draft classification document between any classification scheme and regulatory or technical constraints that may govern the approach or operations of any given facility. In this context we re-iterate the pivotal importance of community consultation and consent in relation to realizing effective radioactive waste management.</p> <p>ACF notes the importance given to community consultation and consent in an increasing number of international instruments and approaches including the 2006 report by the UK Committee on Radioactive Waste Management (Managing our Radioactive Waste Safely, Recommendations to Government, 2006), which found:</p> <p>Recommendation 9: There should be continuing public and stakeholder engagement, which will be essential to build trust and confidence in the proposed long-term management approach, including siting of facilities.</p> <p>Recommendation 10: Community involvement in any proposals for the siting of long-term radioactive waste facilities should be based on the principle of volunteerism, that is, an expressed willingness to participate.</p> <p>ACF is concerned that this prudent and proven approach is missing from the current federal government approach to this issue. Should a site be chosen for an imposed federal radioactive waste facility in the Northern Territory ACF believes that any such decision would be open to robust contest and that licensing any such approach would be inconsistent with ARPANSA’s obligation to protect the health and safety of people, and to protect the environment, from the harmful effects of radiation.</p> <p>ACF accepts that these comments relate more to regulatory and site identification processes than to waste classification regimes, however we believe these are appropriate and important considerations to help inform a credible and effective radioactive waste management practise.</p> <p>ACF further notes that the draft documents states that ‘Australia does not have any HLW and is unlikely to have any in the foreseeable future’. ACF does not share the view advanced in the draft that because ‘the spent fuel still</p>	<p>Agreed and noted.</p> <p>This statement has been moved into Section 1.4 Scope.</p>
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	<p>contains residual U-235 which could be potentially recovered for reuse and therefore is not classified as radioactive waste whilst in transit from Australia’ (p.26).</p> <p>In this context ACF draws your attention to the view taken on this issue by the NSW Parliament Inquiry into the Transportation and Storage of Nuclear Waste (2004) which stated in recommendation 9: ‘ANSTO should acknowledge that spent fuel is waste, and in dealing with the Australian public, should identify it as waste’. ACF believes it is appropriate that ARPANSA should also identify spent nuclear fuel as radioactive waste.</p>	<p>The declaration of spent fuel as radioactive waste rests with the Joint Convention and not this document. It should be noted that some countries consider spent fuel to be a resource and not a waste product.</p>
<p>05 Natalie Wasley Beyond Nuclear Initiative project coordinator</p>	<p>The Beyond Nuclear Initiative (BNI) project is run out of the Arid Lands Environment Centre in Alice Springs.</p> <p>BNI seeks to highlight the adverse impacts of the uranium and wider nuclear industry in Australia and to promote a nuclear free future. The project has a focus on the interface between the nuclear industry and Indigenous people.</p> <p>BNI welcomes the opportunity to make a submission to the ARPANSA Draft Recommendations on Classification of Radioactive Waste.</p> <hr/> <p>1.0 The Draft Classification of Radioactive Waste document states one of its purposes is to “assist in development and implementation of appropriate waste management strategies and facilitate communication and information exchange”.</p> <p>In relation to the proposed radioactive waste dump in the Northern Territory, BNI believes that communication and information from government agencies has been limited and at times misleading, and therefore this component of the document should be reviewed and developed.</p> <p>1.1 Internationally, it is recognised that community consultation and consent is imperative in decisions regarding the location and operation of radioactive facilities, for example the UK Committee on Radioactive Waste Management report (June 2007) that states, “There is growing recognition that it is ethically unacceptable to impose a radioactive waste facility on an unwilling</p>	<p>The WG believes that a uniform approach across Australia to classifying radioactive waste would promote more efficient communication and information exchange relating to that material. Therefore, no change was made to the document. However, it is recognised that promotion of the document via the National Directory and the ARPANSA website is important.</p> <p>This is not consistent with the Scope of this document.</p>

	<p>community”.</p> <p>BNI strongly believes this level of public inclusion is lacking from the current process forcing a radioactive dump on the Northern Territory.</p> <p>1.2 The NT dump process is continuing under the Rudd Government despite clear opposition from Traditional Owners and the Northern Territory Government. This is also contrary to an election commitment to overturn legislation allowing the dump to be forced on the NT.</p> <p>1.3 Should a Northern Territory site be selected for a federal radioactive waste dump, BNI believes that licensing a facility that has been selected under this undemocratic and highly contested process would be contrary to ARPANSA’s obligations and aims to protect the public and environment from the effects of radiation.</p> <p>2.0 The draft document notes that the usefulness of classification for safety eg transport, is recognised, but not addressed in the recommendations. BNI believes that issues of radioactive waste transport and all safety issues should be included in this document to help inform the public, as well as stakeholder groups like emergency first responders.</p> <p>2.1 When noting that classification of waste is useful “for the public” it would be pertinent to specifically include reference to “communities targeted to host radioactive facilities”.</p> <p>2.2 The document is calling for the classification system to be “widely applicable”. This should be broadened to include cross-agency application, for example ANSTO.</p> <p>Spokespeople for ANSTO seem hesitant to acknowledge publicly that long-lived intermediate level waste is produced at its Lucas Heights facility and is earmarked to be transported to one of the proposed Northern Territory radioactive waste dump sites.</p> <p>For example, recently on the SBS Living Black program “Waste not, want not”, Ron Cameron from ANSTO was quoted as saying that a proposed NT dump site would only contain low level nuclear waste.</p>	<p>Transport is outside the Scope of the document.</p> <p>Noted, however it was felt that such communities are a subset of the public. The WG believed that it was best to leave ‘public’ without further qualification.</p> <p>Noted, as it is broadly ranging it therefore already includes ANSTO.</p> <p>LLILW is not in this classification scheme.</p>
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	<p><i>“Low Level Waste is the sort of waste we generate from a laboratory, so sometimes its gloves, bits of paper and other clothing which is a little bit contaminated, other times its bits of equipment, laboratory waste”.</i></p> <p>2.3 This omission of other categories of waste destined for the NT dump is misleading for communities who are being targeted for the facility and the broader public, which is closely scrutinising the government’s interaction with those affected communities.</p> <p>3.0 On page 23 of the draft document it is stated that ‘Australia does not have any high level waste and is unlikely to have any in the foreseeable future’.</p> <p>In response, firstly, BNI does not concur with the statement that ‘the spent fuel still contains residual U-235 which could be potentially recovered for reuse and therefore is not classified as radioactive waste whilst in transit from Australia’. BNI strongly believes that ARPANSA should classify spent fuel as waste. This is a view also presented by the 2004 NSW Parliamentary Inquiry into Transportation and Storage of Nuclear Waste.</p> <p><i>“ANSTO should acknowledge that spent fuel is waste, and in dealing with the Australian public, should identify it as waste”</i></p> <p>3.1 There is no dispute that when removed from the OPAL reactor (and previously the HIFAR reactor), spent fuel easily meets the heat and radioactivity criteria for classification of high level waste and meets those criteria for several months. It is extremely disappointing that ARPANSA has chosen to parrot ANSTO's deceit and obfuscation rather than labelling spent fuel what it is - high-level nuclear waste.</p> <p>It is important that this classification is clarified and made consistent for the public. Social impacts may be considered by ARPANSA to be outside of the scope of this classification document but its important to have accurate information conveyed.</p> <p>4.0 Noting all of the above, BNI agrees that some “social or political aspects... may restrict the degree of freedom for development of the scheme and therefore need to be evaluated before the scheme is derived”.</p>	<p>This will be classified as LLW in these Recommendations.</p> <p>The document does not address any specific radioactive waste management facility.</p> <p>This statement has been modified and moved to 1.4 Scope.</p> <p>Noted, although this is taken from the IAEA’s GSG-1</p> <p>This should not be part of the classification discussion.</p> <p>Annex 2 has been removed from the document.</p>
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	Please contact me for any further comment on these matters.	
<p>06 Will Robertson</p>	<p>This background of my science and community experience is given to support my Submission below on Nuclear Energy.</p> <p>I graduated with B.Sc. Hon in physics from University of Sydney in 1954. Besides Nuclear studies, my research project was establishing a 40,000Volt power supply for an electron microscope then being built. While a science teacher I did research for M.Ed. 1961; then M.A. at Macquarie University. After secondments; ASEP 1971-73 as Area Specialist Teacher Education; I was appointed to the NSW Public Service as Head , Teaching Resources Services where I served under 8 Education Ministers 1974-89, prior to study for B.Th. and ordination for ministry in the Uniting Church where I have ministered to 14 Congregations.</p> <p>SUBMISSION</p> <ol style="list-style-type: none"> 1. All life on the Earth is dependent upon the Sun and its electromagnetic radiation and other cosmic rays. There would be NO LIFE without Energy; whether stored in the Earth from previous emissions or being radiated now. 2. Geological and other records show that the Earth, Living things and its Climate have been changing since creation. <u>3. As the Earth continues to change beyond the limited control of humans, so all life must adapt or perish.</u> Species have come and been extinguished as the Earth has changed. <u>4. The LIMIT to all life is the Limit of available Energy.</u> 5. As the stored energy in the earth is extracted and used,[whether coal, oil, gaseous, nuclear or other] so the limit of available energy is reduced. <p>In using this stored energy humans must make choices:</p> <p>These questions must be considered</p> <p>Given all stored energy of all forms is limited and will used or wasted:</p>	<p>This is not relevant to waste classification.</p>

Q1. What is the LIMIT TO POPULATION GROWTH?

How many people and life forms can be supported by Renewable Energy received from the Sun?

Q2 How long will existing resources and populations last given the present rate of extraction, use and growth??

Q3 What quality of life will be possible in the future?

COMPETITION FOR RESOURCES FOR LIFE?

Is this not the latent bigger danger than Nuclear Energy, the Bomb and its radiation?

Population control, within the limits of renewal resources and energy from the Sun, for every country must be enacted, prior to the exploitation of Nuclear Energy. This is to ensure a transition period and the existance of all life into the future.

Further development of Nuclear Energy without this Population safe guard, will increase the probability of Nuclear War and the extinsion of humanity and other life forms as people compete for energy to survive

[email No. 2]

Today 8/8/09 Sydney Morning Herald; News Review Opinion p 9; gives support to my submission in Articles 'Oil will run out so we have to embrace new energy sources' by Peter Hartcher, writing "the world is running out of oil, the source of 80 per cent of all world energy"; and "A more positive Pacific solution" by Hamish McDonald writing "where 4 million people are clustered. As well as rising sea levels, ...face being swamped by a projected doubling of populations in coming decades".

Further "radical notions ..to shift our thinking....Vanuatau's 220,000 people had been largely unaffected by the global financial crisis - about 80% live in traditional village economy - rely on tradition and kinship for food, work

	<p>exchange and dispute settlement."</p> <p>This leads me to propose that our Policies must again: promote: SELF RELIANCE for individuals sharing in local communities; not dependency on big central Government.</p> <p>RESPONSIBILITY in individuals and local communities for their welfare and sharing with others in need;</p> <p>ACCOUNTABILITY for our situation. What have I done to provide for my and others needs - in conserving Energy, Water and food?</p> <p>Looking forward to discussion on the Questions raised.</p> <p>Q1. What is the LIMIT TO POPULATION GROWTH?How many people and life forms can be supported by Renewable Energy received from the Sun?</p> <p><u>Further development of Nuclear Energy without a Population safe guard, will increase the probability of Nuclear War and the extinction of humanity and other life forms as people compete for energy to survive</u></p>	
<p>07 John Fisher</p>	<p>i am an inventor i can build green renewable energy to power any city i can fix our economy as well i can lots with my world besting inventions but for 14 years begging our corrupt government to support me nothing i am so hurt that my own country treats me this way i got a letter here telling me to leave my country to china with my ideas and this got huge military applications i feel our coutry needs a royal commission to all our governments movements in the last hundred years i i will fund a big inquiry when i get some backing and a plaque build telling how they the government are so corrupt giving all names, 14 years begging to be heard and i got a energy system and the worlds best building sysyem nothing our country is worse the any communist ones, how can you trust them to look after nuclear waste and why we need this when i can clean green energy to start with so what is going on stop raping the country of its minerals and polluting my air terrorist every where</p>	<p>Not relevant to waste classification.</p>
<p>08 Brendan J. Kennedy Professor of Solid State</p>	<p>Attached are comments on the Classification of Waste Draft from the University of Sydney.</p>	

<p>Chemistry Chair University Radiation Safety Committee & Howard Ackland Radiation Safety Officer Occupational Health Safety & Injury Management University of Sydney</p>	<p>The general comments are from the Chair of our Radiation Safety Committee and the Specific Comments from me!</p> <p><u>GENERAL COMMENT</u></p> <p>The University of Sydney makes frequent use of low level radioactive isotopes in a variety of research and teaching applications. This use is across a number of departments and faculties and is overseen by the University Radiation Safety Committee (RSC). A number of hospitals affiliated with the University also frequently use isotopes for clinical and research purposes. The use in Hospitals is overseen by the appropriate local RSC, and it is anticipated that such bodies will independently comment on the ARPANSA recommendations. With few exceptions the isotopes used at the University if Sydney are what the NSW Regulator have termed CHIPPS sources; that is, C-14, H-3, I-125, P-32, P-33 & S-35. This response to the ARPANSA recommendations is based on these current activities.</p> <p>In 2006 the University introduced a policy for the use of isotopes that mandated that any new project using radioactive materials must demonstrate the existence of a disposal path for any radioactive waste that is generated. The University has also commissioned a purpose built facility to house long lived solid radioactive waste, generated pre-2006, but does not have a centralised facility to store corresponding liquid waste. The uncertainty regarding the disposal of liquid waste is of concern to the University RSC as it negatively impacts on the ability of the University to perform certain research and teaching activities.</p> <p>The University welcomes the development of a national standard for the storage and disposal of low level waste (LLW) and very low level waste (VLLW) publication. The need for such a national standard is evident from the discrepancies between exemption levels set in ARPANSA's National Directory, the NSW regulations and the requirements of commercial waste disposal companies. An example of the national/state discrepancies is given in the comment of line 258. Our current waste contractor's requirement is more restrictive requiring the specific activity of radioactive waste to be less than 100 Becquerel per gram. This level is below the regulator's definition of radioactive material, which is in turn well below the exemption levels set in Schedule 4 of ARPANSA's National Directory.</p>	<p>Noted.</p> <p>Noted.</p>
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	<p>Examination of the proposed guidelines prompts a number of questions that we believe need to be addressed in developing a National policy. These are tabulated in the Specific Comments below.</p> <p>We are happy to provide further advice regarding the development of this policy.</p> <p>Brendan J. Kennedy Professor of Solid State Chemistry Chair University Radiation Safety Committee</p> <p><u>SPECIFIC COMMENTS</u></p> <p>Line 258 - Exempt Waste [EW] It would be helpful if some reference could be given to the exemption levels listed in Schedule 4 of the National Directory.</p> <p>For example in NSW, the current regulatory exemption level for Tritium [H-3] is less than 40MBq and 100Bq/gm, whereas in Schedule 4 of the National Directory it is less than 1GBq and 1kBq/gm. This is a large variation and will obviously affect the classification scheme if National uniformity is ultimate aim of this document.</p> <p>Since “exemption level” determines the boundary between EW and VLLW; it needs to have some definition.</p> <p>Line 380 - Very Low Level Waste [VLLW] Reference is made to the National Directory Schedule 8 however this schedule does not refer to Disposal Requirements.</p> <p>It appears that schedule 8 will be an integral part of the safe management of VLLW, so it is difficult to make comment on this part without knowing what the proposed schedule contains.</p> <p>Lines 399-409 - Very Low Level Waste [VLLW] The “definition” of VLLW on line 370 states in the region of or slightly above exemption levels for regulatory controls; however line 403 states one or two magnitudes above levels for exempt waste for short lived radionuclides but no guidance for long lived material. Is this contradictory?</p>	<p>Agreed. Sentence added to item 1 Exempt Waste in Section 3.1.</p> <p>The new Schedule 14 will do this, once it is included in the NDRP.</p> <p>These issues will be resolved by Schedule 14 (in preparation) in the <i>National Directory for Radiation Protection (RPS6)</i>.</p>
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	<p>The aim of the VLLW classification is to permit disposal to landfill and this should require minimal controls from the radiation perspective. Since the exemption levels as given in Schedule 4 are based on the potential radiation hazard of the isotope, could a simple factor be applied to long-lived radionuclides to meet this class? For example five or ten times the exempt levels. Special consideration can still be give to levels above this as per lines 410-411.</p> <p>Some consideration should be given here to emphasising the dual hazards of waste such as contaminated scintillation liquid. Perhaps a comment could be added that there can be a non-radioactive hazard, as is referred to in line 74.</p> <p>Lines 703 -716 - Annex 1. Waste from University & Medical radionuclide laboratories The majority of routine radioactive waste generated by the university is what the NSW Regulator has termed CHIPPS sources; that is, C-14, H-3, I-125, P-32, P-33 & S-35. The waste is mainly in the form of contaminated laboratory consumables and scintillation liquid.</p> <p>The classification of this waste is mainly EW or VSLW, with only a small amount being VLLW [that is using NSW regulatory exemption levels]</p> <p>Line 710 Again, reference to schedule 8 is confusing.</p> <p>Lines 744 & 759 - Annex 1. Radioactive material in the environment Table 1 is most useful. The university has a small amount of legacy sealed sources which currently require secure storage. Figure 3 permits easy classification of thee sources.</p> <p>Line 927 - Annex 3. Regulatory Authorities The NSW regulator has had a recent name change; they are now the Department of Environment Climate Change & Water [DECCW].</p> <p>Howard Ackland</p>	<p>Agreed. A new paragraph relating to the non-radiological hazard of the radioactive waste has been added.</p> <p>The NDRP exemption levels should ensure a consistent approach across Australia.</p> <p>Amended to “Schedule 14 (in preparation)”.</p> <p>Noted. It is hoped that others users of this document will also find it useful.</p> <p>The Contacts List will be updated at the publishing stage.</p>
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	University Radiation Safety Officer & Secretary Radiation safety Committee	
09 Steve McIntosh Senior Adviser Government Liaison ANSTO	<p>The "Draft Recommendations for Classification of Radioactive Waste" is largely a reprinting of IAEA Draft Safety Guide No. DS 390. Unfortunately, DS 390 is expressed in such general language as to be of very little assistance to states looking to develop national waste classification systems. In particular, there is a lack of quantitative criteria on total activity, activity concentration or heat generation which can be used to allocate waste to a particular class.</p> <p>DS 390 creates a new class of very low level waste, intended to meet the problems faced in some European countries which for political reasons have declined to make use of the concept of clearance to allow for the disposal of waste which has decayed to levels of radioactivity below regulatory concern. Given that Australia applies existing international standards on clearance, there is no need for the creation of such a class of waste in Australia.</p> <p>The relationship between this document and the 1992 NHMRC Code of Practice for the Near-Surface Disposal of Radioactive Waste in Australia (Radiation Health Series No. 35) is not clear. The 1992 NHMRC Code of Practice contains a classification system for radioactive wastes, with four classes of wastes identified. Although those classes do not bear any relationship to current international waste classification standards, the fact that they are defined by reference to specific limits on activity concentration is potentially helpful to users. There is no indication in the Draft Recommendations for Classification of Radioactive Waste as to how the proposed new classifications will relate to those four waste classes or whether the Draft Recommendations are intended to supersede the 1992 NHMRC Code of Practice for the Near Surface Disposal of Radioactive Waste in Australia.</p> <p>In defining high level waste, this document should have regard to existing Australian legislation. Section 3 of the <i>Commonwealth Radioactive Waste Management Act 2005</i> defines "high level radioactive material" as "material which has a thermal energy output of at least 2 kilowatts per cubic metre".</p> <p>Given the vague and subjective nature of the proposed delineation between the various classes of waste, the document appears to offer little assistance to holders of waste or regulators. As such, it is difficult to discern what purpose</p>	<p>Annex 1 and Fig 3 are there to assist in this area.</p> <p>Disagree. The VLLW category is not inconsistent with the approach currently taken by some Australian jurisdictions e.g. disposal in near surface, industrial or commercial, landfill type facilities with limited regulatory control. Additionally, clearance as a concept is not generally used by Australian regulatory authorities.</p> <p>Disagree – RHS35 did not really incorporate a waste classification scheme, rather it was generic waste acceptance criteria for a near surface disposal facility in an arid environment. Note that the examples in rows ix-xii of Table 1, and its associated Figure 3, effectively include the categories from RHS35.</p> <p>Noted, but no change effected. Such a definition, in legislation, is consistent with the classification in this document.</p> <p>Adoption of this classification scheme should ensure consistency with international schemes.</p>

<p>10 Tony Hodgson Manager Hazardous Materials & radiation Environment Protection & Regulation Group Dept of Environment, Climate Change & Water, NSW</p>	<p>its adoption would serve.</p> <p>I refer to your invitation of 28 July 2009 to comment on the <i>Draft Recommendations for Classification of Radioactive Waste (2009)</i>. The Department of Environment, Climate Change and Water (DECCW) in consultation with the NSW Radiation Advisory Council has reviewed this document and provides a number of general and specific comments as an attachment to this letter. I apologise for the delay in responding.</p> <p>DECCW supports the development of this document but has some reservations concerning the volume of material that could potentially be captured as very low level waste. DECCW considers it imperative that disposal options and handling arrangements are justified on a cost benefit basis and that careful consideration needs to be given to where the clearance levels are set in order to cater for material which is above the National Directory's Schedule 4 Exemption Levels, yet suitable for reuse and/or conventional disposal.</p> <p>Thank you for the opportunity for DECCW to provide input into this document.</p> <p style="text-align: center;">Comments on the Draft Recommendations for Classification of Radioactive Waste</p> <p>The Department of Environment, Climate Change and Water (DECCW) and the NSW Radiation Advisory Council have reviewed the Public Consultation Draft of the document <i>Recommendations: Classification of Radioactive Waste</i> and are generally supportive of this non-mandatory guidance material.</p> <p>General Comments</p> <p>The DECCW agrees with the view that any waste classification scheme developed in Australia would need to take into account consistency with international developments to avoid cross border issues. It is suggested that the finalised document be consistent with the IAEA <i>Classification of Radioactive Waste</i> No. DS 390.</p> <p>The DECCW has some reservations about the section on very low level waste (VLLW). Given the substantial volumes of material that could potentially be captured as VLLW, DECCW considers it imperative that the disposal options</p>	<p>This is the intention of this document.</p>
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	<p>and handling arrangements are justified on a cost benefit basis.</p> <p>Careful consideration also needs to be given to where the clearance levels are set. Some material, that is above the National Directory's Schedule 4 Exemption Levels and therefore not exempt waste, is suitable for reuse and/or disposal to municipal landfill sites. This material needs to be cleared for conventional disposal/reuse as per Figure 2. Ideally the clearance level(s) for this material should be nationally agreed.</p> <p>While the draft recommendations focus on the technical nature of waste it is suggested that further attention should be given to the retention of information, particularly with the transience of administrative institutions and structures over the projected hundreds of years envisaged by the document.</p> <p>Specific Comments</p> <p>Lines 380-281 and line 780 refer to disposal requirements addressed in Schedule 8 of the National Directory for Radiation Protection. This reference is incorrect as Schedule 8 relates to nationally agreed security requirements for people applying for authorisation to possess, store or use a radiation source.</p> <p>Lines 474-478 The statement “It is generally assumed that institutional controls can be relied upon for a period of up to around 300 years” is questioned and it is suggested that this statement be removed.</p>	<p>Clearance values are not generally set by Australian authorities, if at all. The draft BSS loosely implies that clearance was exemption for bulk material and exemption applied to smaller quantities.</p> <p>This does not appear to be relevant to a classification scheme.</p> <p>Changed to “... Schedule 14 (in preparation) ...”.</p> <p>Wording changed to make the statement conditional i.e. “If it is assumed that ...”.</p>
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