

行政院原子能委員會核能研究所

委託研究計畫期末報告

核電廠除役技術編彙

計畫編號：NL1070598

受委託機關(構)：財團法人中華民國輻射防護協會

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研究期程：中華民國 107 年 5 月 30 日至 107 年 11 月 20 日

研究經費：新臺幣 46 萬 3 千元

核研所聯絡人員：林書睿

報告日期：107 年 11 月 12 日

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中文摘要

依據「2025 非核家園」之政策，我國核電廠將於 107 年起邁入除役作業階段。核電廠除役對國內而言為一全新課題，且迫在眉睫，為協助主管機關原子能委員會核能管制處奠定管制專業職能，進行核電廠除役技術彙編為刻不容緩的工作。

國內歷年除役相關研究計畫成果方面：本研究蒐集、整理、研析國內 82-107 年除役相關研究計畫成果；建立國內歷年除役相關研究計畫成果資料庫，並編寫搜尋引擎便利查詢。國際除役技術資料方面：本研究系統性蒐集 IAEA、OECD/NEA、US-NRC、UK-NDA 等國際組織除役相關資料；整理核設施除役參考專書目錄；蒐集整理國內外所舉辦的核電廠除役研討會與訓練課程；完成國際除役資訊資料庫架構設計，資料庫目前仍在建置中；整理停機過渡階段管制參考資料。國內除役相關研究人才庫方面：整理參與國內除役相關研究計畫人員，建立國內除役相關人才名錄。本研究並召開專家會議，針對本年度工作進行意見諮詢，作為未來工作規劃之參考。

英文摘要

According to "Nuclear Power Phase-Out by 2025" policy, the nuclear power plants in Taiwan will move to the decommission phase from Dec. 2018. The regulatory control of decommissioning of the nuclear power plants is a new task to Atomic Energy Council (AEC), the demand of the D&D (Decontamination and Decommissioning) references on all aspects is of great urgency.

This study collects and compiles the domestic research project reports and conducts the preliminary analysis. A database of the domestic research project reports with search engine has been built for more efficient use. In the international D&D references part, we have compiled the list of IAEA publications, OECD/NEA publications, US-NRC publications, UK-NDA publications, decommissioning reference book, workshop and training courses. The structure of the international D&D references database has been designed. The database itself is still under construction. We have held an expert meeting to collect suggestions to this study and prepare to form the talent pool for AEC.

壹、計畫緣起與目的

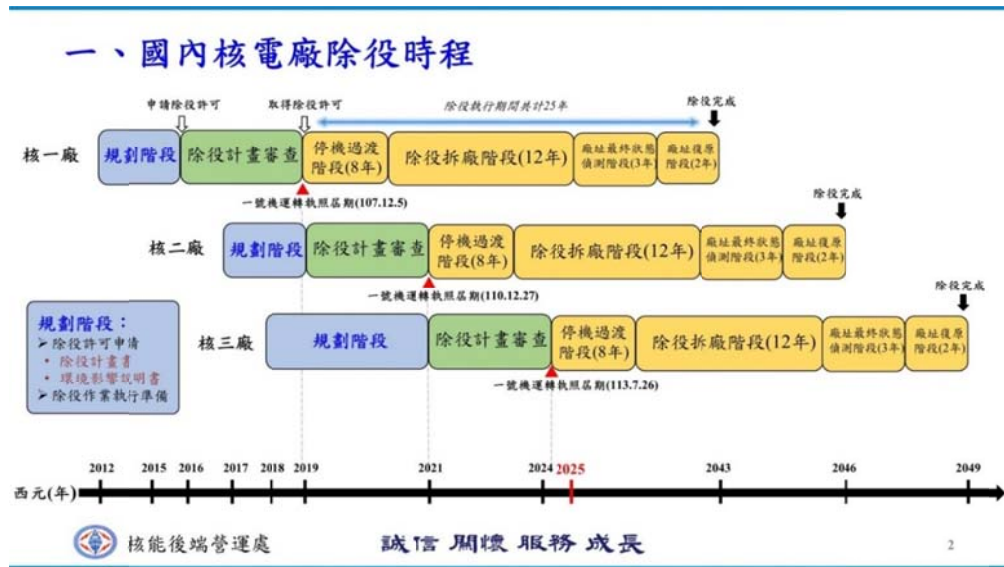
依據 106 年 1 月 11 日電業法修正案，明定核能發電設備應於 114 年前全部停止運轉，即「2025 非核家園」之政策，我國核電廠將於 107 年起邁入除役作業階段(表 1)。核電廠除役對國內而言為一全新課題，且迫在眉睫，為協助主管機關原子能委員會核能管制處(以下簡稱核管處)奠定管制專業職能，進行核電廠除役技術彙編為刻不容緩的工作。

表 1 我國核能電廠預定除役時間

廠別項目	核一廠		核二廠		核三廠	
	一號機	二號機	一號機	二號機	一號機	二號機
建廠	60/12/15	61/12/04	64/08/19	64/08/19	67/04/01	67/04/01
核定正式	67/12/06	68/07/16	70/12/28	72/03/15	73/07/27	74/05/18
現有運轉	107/12/05	108/07/15	110/12/27	112/03/14	113/07/26	114/05/17
型式	奇異公司沸水式第4型		奇異公司沸水式第6型		西屋公司壓水式3迴路	
申請除役	104		107		110	

由於國內用過核燃料乾式貯存設施延宕，我國核電廠除役面臨執照到期時用過核燃料並無法完全由反應爐內移出。為因應上述狀況，目前台電公司所規劃的除役時程為停機過渡階段(8年)、除役拆廠階段(12年)、廠址最終狀態偵測階段(3年)、廠址復原階段(2年)共 25 年(圖 1)。由於核一、二廠乾式貯存設施興建計畫延宕，停機過渡階段可能面臨無法將用過核燃料自爐心退出，機組將長期維持

於大修運轉模式，屬於我國較為特殊的情況。當反應爐內和用過燃料池內存有核燃料時，為維持核燃料處於安全狀態，其所須之相關結構、系統及組件之老化管理策略，均需要相關資料作為我國管制參考方向，以精進管制作業和品質。



資料來源：新北市核能安全監督委員會 107 年第 1 次委員會議簡報資料

圖 1 台電核電廠除役時程

本計畫之目的為：

1. 蒐集及整理國內自民國 82 年以來之核電廠除役相關研究計畫報告，並進行初步研析供相關單位參考。
2. 蒐集國際除役技術資料，提供國內從事核電廠除役工作者參考。
3. 建立國內除役研究人才庫，供相關單位參考。

貳、國內歷年除役相關研究計畫成果彙編

一、研究方法與過程

本研究利用 GRB 政府研究資訊系統，搭配原子能委員會資訊公開/研究計畫進行國內歷年研究計畫成果蒐集。圖 2 為 GRB 查詢畫面，圖 3 為原能會查詢畫面。自 82 年至 107 年原子能委員會(含物管局及核能研究所)、國科會及科技部共計委託 142 個研究計畫，詳列於附錄一，完整的研究計畫 excel 表格及所蒐集到的所有研究計畫報告電子檔另附於光碟片中。



The screenshot shows the GRB Government Research Information System search interface. The header includes the GRB logo and navigation links. The main content area features a search bar with the text '除役' and a search button. Below the search bar are several filter options: '編號查詢', '計畫年度' (082 to 108), '計畫經費' (千元 to 千元), '研究方式' (9 類已選擇), '研究屬性' (請選擇研究屬性), '研究領域' (請選擇研究領域), '主管機關' (行政院原子能委員會), and '執行機構代碼'. A search button is located at the bottom right of the filter section.

圖 2 GRB 政府研究資訊系統研究計畫查詢畫面

(<https://www.grb.gov.tw/index>)

行政院原子能委員會
Atomic Energy Council
輪安核安 民眾心安 日新又新 專業創新

網站導覽 首長信箱 RSS 電子報 簡易版 English

查詢法規條文請至「原子能法規」網站

簡易版 關於本會 施政與法規 核能管制 輻射防護 緊急應變 核物料管制 環境輻射偵測

● 首頁 > 資訊公開 > 研究計畫

資訊公開	研究計畫
主動公開資訊項目	105年度
國際合作	104年度
研究計畫	103年度
業者通報事件	102年度
民眾申請資訊	101年度
性別主流化專區	100年度
開放資料 Open Data	99年度
廉政園地	98年度
個資保護公開作業	97年度
本會退休人員專區	96年度
榮譽園地	95年度
公務人員行政中立報你知	94年度
	93年度
	物管局研究報告
	其他安全研究

圖 3 原子能委員會資訊公開研究計畫查詢畫面

(https://www.aec.gov.tw/category/資訊公開/研究計畫/219_314.html)

為便利查詢資料，於雲端建立所蒐集之國內除役相關研究計畫資料庫，並編寫搜尋引擎供使用者利用分類及關鍵字查詢。圖 4 為本資料庫的搜尋畫面，查詢後畫面顯示相關研究計畫資訊及摘要，除少數計畫由於年代久遠無法獲得其研究報告電子檔，抑或有些是限閱報告外，均提供全文下載。未來也會持續更新資料庫，提供國內各界使用。



圖 4 國內除役相關研究計畫資料庫查詢畫面

二、主要發現

進行國內政府單位補助除役相關研究計畫資料初步研析如下：

(一) 計畫年度及委託單位

研究計畫年度以民國 100 年為分水嶺，82-99 年期間共有 35 個除役相關研究計畫，主要環繞除污、拆除及放射性廢棄物處理等技術相關之研究主題，多為原子能委員會的委託計畫。隨著核一廠運轉執照即將於 107 年到期，除役計畫審查之需求增加，100-107 年期間有 107 個相關研究計畫，計畫主要為物管局科技發展綱要計畫、原能會科技發展綱要計畫、原子能科技學術合作研究計畫、核研所除役相關科技發展計畫等，少數為向國科會及科技部申請的研究計畫，除了除役相關技術研究外，增加相當數量的管制技術及審查技

術研究。

(二) 研究主題

142 個研究計畫可略分為法規研究、管制技術、審查技術、除役技術(除污技術、拆除技術、劑量評估、偵檢技術、感測技術)、放射性廢棄物、除役資訊、研究用反應器、其他(意外事故、地震研究、能源政策、政策溝通、人才培育、環境影響、核子保安) 等主題，各主題之研究計畫數列於表 2。

表 2 研究計畫主題分類

研究計畫分類	計畫數
法規研究	4
管制技術	11
審查技術	27
除役技術(除污技術、拆除技術、劑量評估、偵檢技術、感測技術)	42
放射性廢棄物	36
除役資訊	3
研究用反應器	7
其他 (意外事故、地震研究、能源政策、政策溝通、人才培育、環境影響、核子保安)	17

註：大型研究計畫涵蓋一個以上主題

(三) 執行單位及研究人員

表 3 為研究計畫執行單位統計結果，核能研究所、清華大學、義守大學為其中最主要的執行單位。進一步分析後發現，自 103 年之後，執行單位開始增加，代表相關研究需求性增加，研究主題也更廣泛，吸引更多的團隊投入。

表 3 研究計畫執行單位統計

計畫執行單位	計畫數
核能研究所	61
清華大學	33
義守大學	14
龍華科大、朝陽科大、成功大學、中原大學	4
陽明大學、政治大學、台灣大學	3
雲林科大	2
台北大學、台師大、台科大、世新大學、元智大學、中興大學、核能資訊中心	1

表 4 為各執行單位研究人員依姓氏筆畫順序列表，由於計畫橫跨 82-107 年，名單中的研究人員有可能已退休或轉至其他單位須進一步確認。

表 4 除役相關計畫研究人員列表

計畫執行單位	主持人	研究人員
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	王曉剛 吳裕文 梁明在 陳清江 劉文仁	黃美利 楊志馮 劉文仁 劉明樓
龍華科大	葛自祥 宋大崙 周源卿	丁鯤 宋大崙 周源卿 葛自祥 薛燕婉
朝陽科大	干裕成 李朱慧	干裕成 李朱慧 裴廣智
成功大學	吳榮華 劉大綱	吳榮華 劉大綱 王毓正
中原大學	鄧治東 張政元	張政元 黃瓊緯
陽明大學	范玫芳	范玫芳
台灣大學	陳湘鳳 楊烽正 廖運炫	陳湘鳳 黃奎隆 楊烽正 廖運炫
雲林科大	何前程	何前程 林明星
台北大學	張四明	張四明
台師大	楊遵榮	楊遵榮
台科大	吳瑞南	吳瑞南 范建得
世新大學	梁世武	梁世武
元智大學	張昌財	張昌財 蘇艾
中興大學	陳春生	陳春生
核能資訊中心	邱太銘	N/A

參、國際除役技術資料彙編

一、研究方法與過程

核電廠除役是一項複雜的系統工程，絕不是單純的拆除活動而已，其難度和複雜性甚至超過原設施新建工程，因此，實施核設施除役的決策考量因素應包含政策面、安全面、技術面及社會環境與經濟面之問題。核設施除役技術是由不少專業領域整合而成的技術，進行資料蒐集與彙編是一龐大且複雜的工作。

首先，系統性蒐集核電相關之國際組織在網路上公開之除役相關技術報告、安全指引及法規等。本年度蒐集了國際原子能總署(IAEA)、經濟合作暨發展組織轄下的核能安全總署(OECD/NEA)、美國核管會(US-NRC)及英國核設施除役機構 Nuclear Decommissioning Authority (UK-NDA)等組織的相關資料，表 5 為國際組織除役技術資料網址一覽表。蒐集方式為進入網站進行關鍵字(decommissioning,) 搜尋，並下載各組織提供的電子檔。所蒐集之各組織除役相關資料清單列於附錄二~五，完整的 excel 表格及資料電子檔另附於光碟片中。

核設施除役參考專書亦為重要的參考資料，主要利用 amazon 網站進行關鍵字搜尋，其優點為能獲得相關參考書的完整出版資訊及內容簡介，再進入各出版社進一步查詢該書目錄，若該書提供免費下載，則將該書電子檔納入資料庫中。附錄六為核電廠除役參考書目錄，完整的 excel 表格及資料電子檔另附於光碟片中。

蒐集整理國內外所舉辦的核電廠除役研討會與訓練課程，主要

資料來源為原子能委員會物管局郭火生組長和核能學會核設施除役學術委員會邱太銘召集人。目前完成第一階段的蒐集，未來將更進一步進行系統性的搜尋。附錄七為核電廠除役研討會第一階段清單，完整的 excel 表格及資料電子檔另附於光碟片中。

表 5 國際組織除役技術資料網址一覽表

組織名稱	網址
國際原子能總署 (IAEA)	https://www.iaea.org/publications
經濟合作暨發展組織 /核能安全總署 (OECD/NEA)	https://www.oecd-nea.org/pub/
美國核管會 (US-NRC)	https://www.nrc.gov/reading-rm/doc-collections/
英國核設施除役機構 (UK-NDA)	https://tools.nda.gov.uk/publications/

此外，參考「國際核電廠除役資訊整合專題研究」成果報告之章節，進行國際除役技術資訊資料庫架構設計，將國際除役技術資料分類為：除役總覽(含步驟)、國外核能電廠除役法規、國外核能電廠除役策略、核能電廠除役廠址特性調查與除役計畫、核能電廠除役除污及切割技術、除役放射性廢棄物管理、核能電廠除役組織與管理、核能電廠除役費用、國外核能電廠除役案例及經驗等主題。資料蒐集方式以網路搜尋、諮詢國內除役研究先進為主，並積極參與國內外除役相關研討會及訓練課程。已完成蒐集與整理的分類清

單列於附錄八。

二、主要發現

本研究所蒐集之國際除役技術資料初步研析結果如下：

(一) IAEA 除役相關出版品

國際原子能總署 (IAEA) 除役相關出版品主要分為 Safety Standards Series、Safety Reports Series、Nuclear Energy Series、TECDOC Series、Technical Reports Series 等系列。其中 Safety Standards Series 及 Safety Reports Series 的報告，可提供相關法規及管制的參考，TECDOC Series、Technical Reports Series 主要提供技術面的參考資訊，Nuclear Energy Series 的目的則為鼓勵與協助相關研究人員進行核能發電、核燃料循環、放射性廢棄物管理與核設施除役等主題的研究發展與實務應用。截至 2018 年 10 月此分項共蒐集 122 份文件，其統計表詳見表 6。

表 6 IAEA 除役相關出版品

IAEA 除役相關出版品系列	報告數
Safety Standards Series	25
Safety Reports Series	9
Nuclear Energy Series	21
TECDOC Series	30
Technical Reports Series	25

Others (Proceedings, Country Nuclear Power Profiles etc.)	12
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(二) OECD/NEA 除役相關出版品

經濟合作暨發展組織轄下的核能安全總署(OECD/NEA)提供了的除役相關資訊，目前概分為 NEA Reports、NEA-RWM Reports、Others 三大類。由於 OECD 為經濟發展組織，因此提供相當數量與除役經費、除役財務管理有關之參考文件。RWM 代表 NEA 中的 Radioactive Waste Management program，基於核電廠除役會產生相當數量的放射性廢棄物，與 RWM 有關的除役相關出版品很多，未來應持續關注。截至 2018 年 10 月此分項共蒐集 79 份文件，其統計表詳見表 7。

表 7 OECD/NEA 除役相關出版品

OECD/NEA 除役相關出版品系列	報告數
NEA Reports	42
NEA-RWM Reports	33
Others	4

(三) US-NRC 除役相關出版品

由於國內的三座核能電廠均由美國製造，因此過去國內核電廠管制與各項技術大多參考美國核管會(US-NRC)的作為。此分項目前

分為 NRC REGULATION (10CFR..)、NRC REGULATORY GUIDE (RG..)、NRC INSPECTION MANUAL (IMC..)、NUREG Publications Prepared by NRC Staff (NUREG ..)、NUREG Publications Prepared by NRC Contractors(NUREG/CR..)、NUREG Brochures Prepared by NRC Staff、NUREG Conference Proceedings Prepared by NRC Staff or Contractors 等 7 類。其中 NRC REGULATION 及 REGULATORY GUIDE 主要作為除役法規的參考，INSPECTION MANUAL 則提供了電廠視察參考。NUREG 系列主要提供與管制相關的技術文件，這系列中 NUREG-1700 與 NUREG-1757 Vol. 2 為核電廠廠址最終是否符合外釋標準的重要參考文件，這部分的管制工作應為主管機關最重要的工作之一，輻防協會預計在明後年完成這兩份文件中文化的工作。未來應特別針對這些重要參考資料的中文化資料進行蒐集與整理，提供給相關人員參考。截至 2018 年 10 月此分項共蒐集 104 份文件，其統計表詳見表 8。

表 8 US-NRC 除役相關出版品

US-NRC 除役相關出版品系列	文件數
NRC REGULATION	9
NRC REGULATORY GUIDE	7
NRC INSPECTION MANUAL	5
NUREG Publications Prepared by NRC Staff	34
NUREG Publications Prepared by NRC Contractors	43
NUREG Brochures Prepared by NRC Staff	4

NUREG Conference Proceedings Prepared by NRC Staff or Contractors	2
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(四) UK-NDA 除役相關出版品

英國核設施除役機構(UK-NDA, Nuclear Decommissioning Authority)為 2005 成立的英國官方組織，主要提供核設施除役的相關資訊。本年度先針對其 Strategy、Annual Report、Annual Report、Newsletter、Summary of Assessment 及放射性廢棄物相關之主題進行初步資料蒐集，截至 2018 年 10 月此分項共蒐集 65 份文件，其統計表詳見表 9。未來將增加 Guidance、Correspondence 等分類進行資料蒐集。

表 9 UK-NDA 除役相關出版品

UK-NDA 除役相關出版品系列	報告數
NDA Strategy	9
NDA Annual Report	14
NDA Newsletter	21
NDA Summary of Assessment	9
NDA-RWM	12

(五) 核設施除役參考書

表 10 為核設施除役參考書清單，前 3 本為美國 DOE、ANS&ASME 出版之除役手冊，第 4 本為 NUREG-1575 (MARSSIM) 報告重要作者為 MARSSIM 用戶所撰寫的手冊，具有相當多實務的經驗。第 5-7 本的編者 Michele Laraia 於 2011 年自 IAEA 退休，任職期間負責核設施除役相關事務，長達 20 餘年。這三本書具有極高參考價值，未來計畫針對 2017 及 2018 相繼出版的二本書進行新書介紹，以期國內除役工作人員能即時收到最新資訊。第 8-10 本參考書為較早期的除役相關書籍，第 12-13 本則為百科全書形式出版品中與除役相關的章節，供大家參考。

表 10 核設施除役參考書

編號	書名	作者	出版年	頁數
1	Decommissioning Handbook	DOE	1994	545
2	Decommissioning Handbook - PROCEDURES AND PRACTICES FOR DECOMMISSIONING	DOE	2000	137
3	The Decommissioning Handbook	Anibal L. Taboas, A. Alan Moghissi, Thomas LaGuardia	2004	465
4	Decommissioning Health Physics: A Handbook for MARSSIM Users	Eric W. Abelquist	2013	696
5	Nuclear Decommissioning - Planning, Execution and International Experience	Michele Laraia (Editor)	2012	857

6	Advances and Innovations in Nuclear Decommissioning	Michele Laraia (Editor)	2017	420
7	Nuclear Decommissioning- Its History, Development, and Current Status	Michele Laraia	2018	127
8	Nuclear Decommissioning, Waste Management, and Environmental Site Remediation	Colin Bayliss, Kevin Langley	2003	330
9	Decommissioning and Radioactive Waste Management	A. Rahman (Editor)	2008	352
10	Decontamination and Decommissioning of Nuclear Facilities	Marilyn M. Osterhout (Editor)	1980	804
11	Nuclear Energy: A Volume in the Encyclopedia of Sustainability Science and Technology Series	Nicholas Tsoulfanidis (Editor)	2018	438
12	Handbook of Nuclear Engineering - Chapter 27 Decommissioning of Nuclear Plants	Maurizio Cumo	2010	248

(六) 核電廠除役相關研討會與訓練課程

核電廠除役相關研討會與訓練課程對於初期接觸除役工作者應有很大的幫助。本年度共蒐集到 25 場國內舉辦的研討會與訓練課程，講者包含美國、日本、法國、德國及國內的專家學者，資料形式多為簡報講義。國外研討會今年僅收錄國內人員前往參加研討會或課程所帶回來的講義。由於近年日本積極辦理除役研討會，為蒐集日本除役技術資訊，未來應朝蒐集及整理國際相關研討會方向努力。

(七) 國際除役技術資料庫

除了本研究所蒐集資料外，目前獲得核能學會核設施除役學術委員會邱太銘召集人、核能科技協進會陳勝朗首席顧問、原能會物管局郭火生組長、核研所保物組武及蘭小姐、清華大學原科中心裴晉哲博士及輻防協會海外諮詢委員陳士友博士等人提供數十 G 的寶貴資料，以建立國際除役技術資料庫。由於資料量非常大，目前只完成架構設計，尚未完成整理工作，未來將持續整理，並建立雲端資料庫，編寫搜尋引擎，提供從事核電廠除役相關工作人員查詢。

(八) 停機過渡階段管制參考資料

核一廠一號機將於今年底進入除役期間，國際間關於核電廠由運轉階段進入除役階段的參考資料如下：

- IAEA_Safety Reports Series No. 36 (2004)_Safety Considerations in the Transition from Operation to Decommissioning of Nuclear Facilities
- NEA No. 7374 (2018)_Preparing for Decommissioning during Operation and after Final Shutdown

由於核一、二廠停機過渡階段可能面臨無法將用過核燃料自爐心退出，機組將長期維持於大修運轉模式，此狀況為我國較為特殊的情況。在這個狀態下應如何管制，今年度所蒐集到的相關參考資料如下：

- IAEA_Nuclear Energy Series No. NW-T-2.11 (2018)_Lessons Learned from Deferred Dismantling of Nuclear Facilities
- IAEA_Safety Reports Series No. 26 (2002)_Safe Enclosure of Nuclear Facilities During Deferred Dismantling
- NUREG-1449 (1993)_Shutdown and Low-Power Operation at Commercial Nuclear Power Plants in the United States

另外，老化管理也是停機過渡階段須注意事項，由於核一廠曾為了延役計畫進行過老化管理方面的研究，因此在此僅提供自 2014 年之後關於電廠組件老化研究的相關資料作為參考。

- IAEA_Nuclear Energy Series No. NP-T-3.5 (2016)_Ageing Management of Concrete Structures in Nuclear Power Plants
- IAEA_Nuclear Energy Series No. NP-T-3.24 (2017)_Handbook on Ageing Management for Nuclear Power Plants
- IAEA_Safety Reports Series No. 82 (2015)_Ageing Management for Nuclear Power Plants - International Generic Ageing Lessons Learned (IGALL)
- IAEA_TECDOC No. 1736 (2014)_Approaches to Ageing Management for Nuclear Power Plants
- NUREG-2191, Volume 1-2 (2017)_Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report – Final Report
- NUREG-2214 (2017)_Managing Aging Processes In Storage (MAPS) Report, Draft Report for Comment

肆、國內除役相關研究人才名錄

本研究利用國內歷年研究計畫成果資料庫，整理國內除役相關研究人員名單，建立人才名錄(表 11)。由於計畫橫跨 25 年，名單中的研究人員有可能已退休或轉至其他單位，且個人主要專長並無法從研究報告中呈現，目前所完成的名錄僅為參考，須進一步確認。

表 11 國內除役相關研究人才名錄

單位	計畫主持人	參與研究人員
法規研究		
中興大學法律研究所	陳春生	陳春生
核能研究所	周 鼎 張淑君	
義守大學	王曉剛	王曉剛 劉文仁 劉明樓
管制技術		
元智工學院	張昌財	張昌財 蘇艾
核能研究所	張淑君 吳禮浩 廖俐毅	吳禮浩 張淑君 陳晉奇
清華大學	江祥輝 鄧希平 馮玉明 曾永信 許榮鈞	江祥輝 鄧希平 馮玉明 曾永信 許文勝 楊融華 許榮鈞 錢景常 施純寬 葉宗洸 梁正宏 王仲容 黃爾文
義守大學	王曉剛	王曉剛
審查技術		
核能研究所	謝榮春 周 鼎 張淑君 紀立民	游鎮帆 張淑君 彭正球 張南昌 邱鎧盛 葉俊賢 林英瑋
清華大學	蔣安忠 林志宏 趙得勝	蔣安忠 林彥穎 林元堯

	裴晉哲 白寶實 許榮鈞	林志宏 徐仲彥 王俊仁 趙得勝 王振安 吳尚謙 梁正宏 白寶實 林宇捷 裴晉哲 劉鴻鳴 喻華德 許榮鈞 王仲容 曾永信 施純寬 范政文 盧廷鉅 許文勝 李宜娟 楊雋之 裴晉哲 劉千田 黃俊浩 林京樺
義守大學	王曉剛 王詩涵 吳裕文 陳清江 劉文仁	王詩涵 黃美利 王曉剛 劉明樓 劉文仁 吳裕文 陳清江 王曉剛 劉明樓 劉文仁
除污技術		
核能研究所	吳昌佶 許恆雄 童永黔	吳昌佶 陳建忠 關德基 張慧良 郭鴻達 陳紹舟 陳鴻斌 黃 評 許恆雄 郭明朝 謝榮春 魏聰揚 童永黔 曾訓華 李定一 門立中 陳紹舟 張慧良 曾錦清 郭慶輝
清華大學	蔣安忠 曾永信	蔣安忠 林彥穎 曾永信 林志宏
拆除技術		
中原大學	張政元	張政元
核能研究所	周 鼎 張淑君 吳晃昭	黃志中 任天熹 楊慶威 張淑君 吳帝頡 吳晃昭
台灣大學	廖運炫 陳湘鳳 楊烽正	廖運炫 陳湘鳳 楊烽正 黃奎隆
劑量評估		
核能研究所	周 鼎 吳禮浩 張淑君 李振弘 黃珮吉 林怡君 袁明程	吳禮浩 陳智隆 黃坪吉 林駿丞 李碧芬 蘇水華 黃文治 王思文 袁明程 葉俊賢 林怡君 林沼秀 張剛瑋
清華大學	李四海 許榮鈞	李四海 林善文 許榮鈞

偵檢技術		
核能研究所	周 鼎 邱鎧盛 黃珮吉	邱鎧盛 葉俊賢 黃珮吉 袁明程 黃文治 王思文 蘇水華 李碧芬
感測技術		
中原大學	張政元	張政元 黃瓊緯
核能研究所	曾訓華	曾訓華
雲林科技大學	何前程	何前程 林明星
朝陽科技大學	李朱慧	李朱慧
放射性廢棄物		
核能研究所	駱建樹 邱太銘 郭明朝 童永黔 謝榮春 施建樑 陳鴻斌 喬凌寰 莊文壽 魏聰揚 張淑君	黃慶村 黃振興 駱建樹 李瀛生 郭明朝 門立中 藍國琪 謝榮春 陳小鳴 陳 堅 涂光權 陳榮森 金筑庸 徐志江 余慶聰 張澤民 童永黔 曾訓華 魏聰揚 李定一 陳紹舟 張慧良 曾錦清 郭慶輝 施建樑 李中新 張福麟 莊文壽 陳义平 陳鴻斌 喬凌寰 王正忠 林國明 張福麟 莊文壽 黃毓皓 蔡光福 李崙暉 諸葛志春 林國明 紀立民 蔡光福 李崙暉 胥耀華 張峰榮 潘本立 鍾人傑 陳勝裕 林忠永 羅文璉 張國源 沈錦昌 魏華洲 施清芳 邱鎧盛 李文鎮 蔡振鐸 陳怡昌 鍾耀煥 李繡偉 黃君平 蕭憲明 沈錦昌 蔡翠玲 周貽新 游鎮帆 張淑君 黃君平 胡長良 溫鎮倉 李繡偉 詹瑞裕 任天熹 李文成 林忠永 廖啟宏 吳禮浩 張清土

除役資訊		
核能研究所	周 鼎 張淑君	黃志中 李學源 林南雄
核資中心	邱太銘	
研究用反應器		
核能研究所	賈緯民 郭明朝 李定一 謝榮春	郭明朝 門立中 藍國琪 謝榮春 陳小鳴 陳 堅 涂光權 陳榮森 金筑庸 徐志江 余慶聰 張澤民 李定一 魏聰揚 曾仁國 許恆雄 陳鴻斌 諸葛志春 王嘉寶 黃維屏 蔡光福 陳鴻斌 詹瑞裕 莊文壽 李茂傳 裘尚立 李中新 潘本立 許恆雄 李瀛生 趙旋爾 黃慶村 黃維屏
清華大學	王天戈	王天戈 沈 禮 羅志敏
人才培育		
臺灣師範大學	楊遵榮	楊遵榮
龍華科技大學	周源卿	周源卿 宋大崙
政策溝通		
陽明大學	范玫芳	范玫芳
政治大學	黃東益	黃東益 傅凱若 董祥開
世新大學	梁世武	梁世武
臺北大學	張四明	張四明
意外事故		
中原大學	鄧治東	
龍華科技大學	葛自祥	葛自祥 丁 鯤
環境影響		

清華大學	馮玉明	馮玉明
成功大學	劉大綱	劉大綱 王毓正

為建立人才庫，本研究邀請核能界的先進邱太銘博士、黃慶村博士、邱志宏博士及主辦核一廠除役計畫審查的物管局郭火生組長舉辦專家會議。專家們建議：

1. 徵詢名錄中人員是否願意加入人才庫，並調查個人專長。
2. 專長分類宜更細，包含土木、化工...等。
3. 請原能會及台電主要計畫委託單位提供名單，另外請主要研究單位協助修改名單。

未來將朝這個方向努力，建立國內除役研究人才庫，供相關單位參考。

伍、結論

一、國內核設施除役研究計畫成果

本研究完成蒐集 82 年至 107 年間，由原子能委員會(含物管局和核能研究所)與科技部(含國科會)等政府機構所補助之核設施除役相關研究計畫成果共 142 件，並建立資料庫。此資料庫將可提供主管機關作為管制與審查之參考，奠定國內管制機關的專業職能。其中特別推薦 105 年物管局委託財團法人核能資訊中心進行「國際核電廠除役資訊整合專題研究」之成果報告，該報告完整且有系統地提供核電廠除役相關資訊，非常適合作為進入核電廠除役工作者的入門參考資料。

台灣電力公司身為核電廠除役工作的執行者，亦委託相當數量的研究計畫，惟該公司基於智慧財產權之考量，研究成果並未公開。未來應增加台灣電力公司所委託之核電廠除役相關研究計畫清單，以完整國內除役相關研究計畫資料庫。

核一廠一號機將於今年底進入除役期間，過去幾年研究計畫較著重於除役計畫審查技術之建立、放射性廢棄物管理管制技術研究、除污切割技術研究，較缺乏有系統探討核電廠由運轉進入除役階段的相關管制研究。建議增加核電廠由運轉進入除役階段的相關管制研究，特別針對國內停機過渡階段核燃料仍在爐心內的情況下進行探討。第參章所列之停機過渡階段管制參考資料可做為參考。

二、國際除役技術資料

本年度針對國際除役技術資料彙編工作完成之項目如下：

1. 系統性蒐集 IAEA、OECD/NEA、US-NRC、UK-NDA 等國際組織在網路上公開之除役相關技術報告、安全指引及法規等資料。
2. 整理核設施除役參考專書目錄。
3. 蒐集整理部分國內外所舉辦的核電廠除役研討會與訓練課程。
4. 完成國際除役資訊資料庫架構設計，進行資料整理。
5. 整理停機過渡階段管制參考資料。

核設施除役技術是由不少專業領域整合而成的技術，進行資料蒐集與彙編是一龐大且複雜的工作。今年度只完成了其中一部份，未來應持續進行國際除役技術資料蒐集、整理、分類工作，建立國際除役資訊資料庫，並編寫搜尋引擎，以利相關人員查詢參考。

三、國內除役相關研究人才名錄

本研究藉由國內歷年除役相關研究計畫成果整理出相關研究人員名錄，並辦理專家會議諮詢核設施除役界先進的意見。由於計畫成果報告並無法呈現參與研究人員的專長，且研究計畫橫跨 25 年，名單中的研究人員有可能早已退休。因此，本年度尚無法建立國內除役相關研究人才庫，需要後續徵詢相關研究人員的意願並調查其專長，才能完成此部分工作，作為主管機關聘任審查委員時之參考。

四、專家會議

本研究於 107 年 10 月 30 日召開專家會議，針對本研究三大工作項目進行意見諮詢。結論如下：

1. 國內歷年除役相關研究計畫成果彙編

基於資料庫的完整性，應加入台電資料。但尊重台電智慧財產權，建議先獲得台電長官同意，再行文台電提供資料，至少請其提供年度、計畫名稱及成果摘要，至於是否提供研究計畫成果報告則尊重台電。

2. 國際除役技術資料彙編

目前資料庫的分類適切。建議增加日本及中國大陸資料蒐集，日本部分可諮詢核資中心謝牧謙顧問及石門環顧問，中國大陸可藉由中文期刊論文著手。另外可增加研討會系列。

3. 國內除役研究人才庫

- 建議先將人才庫改名為人才錄，待徵詢列名的人員是否願意加入人才庫，才可稱之為人才庫
- 研究領域分類宜更細，包含(土木、化工……)。
- 可請原能會及台電主要計畫委託單位提供名單，另外也可請主要研究單位協助修改名單。

陸、未來工作規劃

依照本年度研究心得與專家們的建議，規劃未來應加強與完成之工作：

1. 增加台灣電力公司所委託之核電廠除役相關研究計畫清單，提供相關人員查詢。
2. 增加 US-EPRI 除役相關出版品清單，持續更新現有核電相關國際組織除役相關出版品清單，並介紹最新出版品。
3. 加強蒐集日本及中國大陸相關核設施除役相關資料。
4. 持續進行國際除役技術資料整理，建立國際除役資訊雲端資料庫，並編寫搜尋引擎。
5. 蒐集並整理重要參考資料中譯本。
6. 徵詢本年度所建立除役研究人才名錄中的研究人員之意願，並調查其專長領域，從而建立人才庫。

藉由執行以上工作，核電廠除役技術編彙工作將更形完善。

柒、資料來源

1. GRB 政府研究資訊系統 <https://www.grb.gov.tw/index>
2. 原子能委員會資訊公開 https://www.aec.gov.tw/category/資訊公開/研究計畫/219_314.html
3. IAEA 網站 <https://www.iaea.org/publications>
4. OECD/NEA 網站 <https://www.oecd-nea.org/pub/>
5. NRC 網站 <https://www.nrc.gov/reading-rm/doc-collections/>
6. NDA 網站 <https://tools.nda.gov.uk/publications/>
7. GOV.UK 網站 <https://www.gov.uk/government/publications>
8. amazon Books <https://www.amazon.com/>
9. 原能會物管局郭火生組長
10. 核能學會核設施除役學術委員會邱太銘召集人
11. 核能科技協進會陳勝朗首席顧問
12. 核研所保物組武及蘭小姐
13. 清華大學原科中心裴晉哲博士
14. 原能會核管處江庚晏先生
15. 輻防協會海外諮詢委員陳士友博士國外核能電廠除役法規

捌、附錄

附錄一、82-107 年國內除役相關研究計畫一覽表

報告年度	計畫名稱	主持人	執行單位	委託單位
82	國內首座研究用反應器除役先導研究	王天戈	清華大學原 科中心	原能會
83	核設施除役後場址殘餘活性濃度限值之研究	李四海	清華大學	原能會
83	國內首座研究用反應器除役先導研究	王天戈	清華大學原 科中心	原能會
85	核能設施除役切割方法研究	陳堅	核能研究所	原能會
85	水鍋式研究用反應器除役細部規劃	賈緯民	核能研究所	原能會
86	水鍋式反應器除役現場技術之建立及廠房再利用之 規劃研究	賈緯民	核能研究所	原能會
86	核設施除役管制規範研究	張昌財	元智工學院 機械工程系	原能會
86	核能設施除役切割方法研究	陳堅	核能研究所	原能會
87	放射性廢料減容與固化技術之研究發展	駱建樹 邱太銘	核能研究所	原能會
87	核設施除汗與環境復育技術之發展與應用	童永黔 邱太銘	核能研究所	原能會
87	核設施除役問題之比較法研究	陳春生	中興大學法 律研究所	國科會
88	核設施除汗與環境復育技術之發展與應用	邱太銘	核能研究所	原能會
88	水刀切割用於核能電廠除役之先期研究	賀陳弘	清華大學動 力機械工程 系	國科會
89	核設施除污與環境復育技術之發展及應用	魏聰揚	核能研究所	原能會
89	加砂水刀用於核能電廠除役之回收裝置初步研究	賀陳弘	清華大學動 力機械工程 系	國科會

90	核設施除役與環境復育技術之發展及應用	郭明朝	核能研究所	原能會
90	放射性廢料安全貯存技術之發展與應用	郭明朝	核能研究所	原能會
91	核子設施除役技術之發展及應用	吳昌佶	核能研究所	原能會
91	除役中火災事故之模擬與火災防護計畫之評估	葛自祥	龍華科技大學機械工程 科	原能會
91	核子設施除污技術之發展及應用	許恆雄	核能研究所	原能會
91	核能相關材料之切削特性研究	廖運炫	台灣大學機 械工程學系	原能會
91	核能電廠除役安全管制技術之建立	江祥輝	清華大學工 程與系統科 學系	原能會
92	核設施除役與放射性廢棄物減量技術之發展及應用	董永黔	核能研究所	原能會
92	核能電廠除役安全管制技術之建立(II)	鄧希平	清華大學工 程與系統科 學系	原能會
92	核設施除役期間火災情形下煙層行為之研究	鄧治東	中原大學機 械工程學系	國科會
93	核子反應器設施除役審查規範技術建立	謝榮春	核能研究所	物管局
93	TRR 及燃料循環實驗設施之除污除役再利用計畫	李定一	核能研究所	原能會
94	核子反應器設施除役環境輻射監測及污染審查技術 研究		核能研究所	物管局
94	TRR 及燃料循環實驗設施之除污除役再利用計畫	謝榮春	核能研究所	原能會
95	核設施除役與廢棄物貯存處置之發展與應用	謝榮春	核能研究所	原能會
96	核設施除役及廢棄物管理技術之發展與應用	施建樑	核能研究所	原能會
97	核設施除役及廢棄物管理技術之發展與應用	施建樑	核能研究所	原能會
98	核設施除役及廢棄物管理技術之發展與應用	陳鴻斌	核能研究所	原能會
99	核設施除役及廢棄物管理技術之發展與應用	陳鴻斌	核能研究所	原能會
99	執行老舊核設施清理作業計畫	喬凌寰	核能研究所	原能會
100	高活度大型核能組件拆除之遙控吊運技術研究	張政元	中原大學電	原能會

				機工程學系
100	核電能源系統生命週期之放射性廢棄物管理技術發展與應用	莊文壽	核能研究所	原能會
100	執行老舊核設施清理作業計畫	喬凌寰	核能研究所	原能會
101	主要國家核子反應器設施除役相關法規研究	周鼎 張淑君	核能研究所	物管局
101	核子反應器設施除役計畫導則(草案)	周鼎 張淑君	核能研究所	物管局
101	核子反應器設施除役廠址特性調查研究	周鼎 張淑君	核能研究所	物管局
101	核能電廠除役計畫審查技術之研究	白寶實	清華大學原 科中心	物管局
101	核電能源系統生命週期之放射性廢棄物管理技術發展與應用	魏聰揚	核能研究所	原能會
101	執行老舊核設施清理作業計畫	喬凌寰	核能研究所	原能會
101	核燃料臨界分析現況資料收集與研究	宋大崙	龍華科技大 學工程技術 研究所	
101	放射性離子吸附動力及操作程序最佳化之研究	黃耀輝	財團法人成 大研究發展 基金會	
101	核能技術主軸專案計畫-核電廠除役之系統工程分析技術建立(II)	施建樑	核能研究所	國科會
101	因應除核之能源政策調和與研究	吳瑞南	臺灣科技大 學電機工程 系	國科會
101	台灣新能源政策之評析	吳榮華	成功大學資 源工程學系 (所)	國科會
102	精進放射性物料安全管制技術發展	邱賜聰	物管局	物管局
102	建置 205L 桶形校正系統及測試	周鼎 邱鎰盛	核能研究所	物管局
102	生物圈核種外釋傳輸模擬評估技術之審查要項研究	周鼎 吳禮浩	核能研究所	物管局
102	核子反應器設施除役安全策略研究	周鼎 張淑君	核能研究所	物管局
102	國際核設施除役案例經驗回饋探討	周鼎 張淑君	核能研究所	物管局
102	核設施拆除方式及技術發展之國際資訊研究	周鼎 張淑君	核能研究所	物管局

102	除役場址內殘留輻射之劑量評估技術研究	周鼎 張淑君	核能研究所	物管局
102	核能電廠除役廢棄物審查技術之研究	裴晉哲	清華大學原 科中心	物管局
102	除役核能電廠特性調查之審查技術研究	蔣安忠	清華大學原 科中心	物管局
102	核能電廠除役作業意外事故安全評估之審查技術研究	王曉剛	義守大學	物管局
102	執行老舊核設施清理作業計畫	喬凌寰	核能研究所	原能會
102	核電能源系統生命週期之放射性廢棄物管理技術發展與應用	魏聰揚	核能研究所	原能會
102	感測辨識技術於核設施除役工程之擴增實境應用研究	何前程	雲林科技大 學電機工程 系	原能會
102	核設施除役之輻射安全研究-人員生物劑量評估技術研究(1/4)	李振弘	核能研究所	原能會
102	核能電廠除役之審查技術研究 - 除役拆除混凝土塊除污之審查技術研究	白實實	清華大學工 程與系統科 學系	國科會
102	核能安全-核電廠除役之系統工程分析技術建立(II)	施建樑	核能研究所	國科會
103	反應器與圍阻體中子活化分析程式之驗證研究	裴晉哲	清華大學原 科中心	物管局
103	除役核能電廠之除污方式及除役期間放射性廢棄物處理之研究	蔣安忠	清華大學原 科中心	物管局
103	103 年度精進放射性物料安全管制技術發展子計畫一：國際原子能總署處置安全導則 SSG-23 與相關管制技術之研究	張淑君	核能研究所	物管局
103	103 年度精進放射性物料安全管制技術發展子計畫二：核子反應器設施除役安全議題研究	張淑君	核能研究所	物管局
103	103 年度精進放射性物料安全管制技術發展子計畫三：拆除方式技術能力與安全評估研究	張淑君	核能研究所	物管局
103	103 年度精進放射性物料安全管制技術發展子計畫四：除役廢棄物分類包裝審查技術研究	張淑君	核能研究所	物管局
103	核電能源系統生命週期之放射性廢棄物管理技術發展與應用	魏聰揚	核能研究所	原能會
103	依法執行核設施清理作業	喬凌寰	核能研究所	原能會

103	適用於遙控載具之管線輻射汙染偵檢技術研究	曾訓華	核能研究所	原能會
103	同步定位與建圖技術於核設施除役工程之擴增實境應用研究	何前程	雲林科技大學電機工程系	
103	核設施除役之輻射安全技術研究	黃珮吉	核能研究所	原能會
103	核電廠除役時用過燃料池管制安全技術之研究	王曉剛	義守大學機械與自動化工程學系	科技部
103	應用模擬移動床技術於放射性廢酸處理回收技術開發	梁明在	義守大學化學工程學系	科技部
103	核能電廠除役過程中高活度廢液處理與減廢之審查技術評估	劉文仁	義守大學材料科學與工程學系	科技部
103	核能除役用低活化性混凝土之強度及韌性評估	干裕成	朝陽科技大學營建工程系(所)	科技部
103	科技風險、環境影響評估與科學民主化	范玫芳	陽明大學科技與社會研究所	科技部
104	104 年度精進放射性物料安全管制技術發展 子計畫二:除役階段用過核子燃料池安全管制技術研究	吳禮浩 張淑君	核能研究所	物管局
104	核能電廠除役作業安全之審查技術研究 子計畫一:核能電廠除役作業安全分析之審查技術研究	林志宏	清華大學	物管局
104	核能電廠除役作業安全之審查技術研究 子計畫二:核電廠生物屏蔽體及管件活化分析之審查技術研究	裴晉哲	清華大學原科中心	物管局
104	核能電廠除役作業安全之審查技術研究 子計畫三:除役核電廠廠址特性與環境輻射分析之審查技術研究	趙得勝	清華大學	物管局
104	核能電廠除役作業安全之審查技術研究 子計畫四:核能電廠除役計畫拆除與除污研究之審查驗證	蔣安忠	清華大學	物管局
104	核能電廠除役低放射性廢棄物管理之安全審查技術研究 子計畫一:除役作業時低放射性廢棄物解除管制量測之審查技術研究	陳清江	義守大學化學工程學系	物管局
104	核能電廠除役低放射性廢棄物管理之安全審查技術研究	王詩涵	義守大學	物管局

	子計畫二：核能設施除役產生之放射性廢棄物處理管制技術研究			
104	核能電廠除役低放射性廢棄物管理之安全審查技術研究 子計畫三：除役超 C 類低放射性廢棄物包裝容器、貯存及運送之審查技術研究	王曉剛	義守大學	物管局
104	核能電廠除役廢棄物量測與分類包裝之安全審查技術研究 子計畫一：核能電廠除役廢棄物放射性量測之審查技術研究	紀立民	核能研究所	物管局
104	核能電廠除役廢棄物量測與分類包裝之安全審查技術研究 子計畫二：除役廢棄物分類包裝貯存技術研究	紀立民 張淑君	核能研究所	物管局
104	核設施除役產生放射性廢棄物處理與處置技術研發	魏聰揚	核能研究所	原能會
104	依法執行核設施清理作業	喬凌寰	核能研究所	原能會
104	高活度大型核能組件內部管路之遙控探測技術研究	張政元	中原大學電機工程學系	原能會
104	核設施除役之輻射安全技術研究	黃珮吉	核能研究所	原能會
104	科技風險、環境影響評估與科學民主化	范玫芳	陽明大學科技與社會研究所	科技部
104	放射性廢棄物長期貯存與最終處置之比較研究	劉大綱	成功大學海洋科技與事務研究所	科技部
104	核電廠除役之放射性物質污染擴散之分析研究	馮玉明	清華大學工程與系統科學系	科技部
104	加速原子能管制機關新進人員學習與提昇組織向心力之探討	楊遵榮	臺灣師範大學物理學系	科技部
104	利用高功率雷射在除役核能電廠放射性除污之應用技術開發	蔣安忠	清華大學原科中心	科技部
104	低放射性廢棄物中 Nb-94 核種分析技術研發	趙君行	清華大學原科中心	科技部
104	應用於運動攝影機之模糊影像還原系統研究與實現	李朱慧	朝陽科技大學資訊管理系	科技部
104	台灣核電廠除役產生之超 C 類輻射廢棄物處理方式可行性及意外風險評估分析	王曉剛	義守大學機械與自動化工程學系	科技部

104	核能除役材料 - 低活性化混凝土(LAC)與鋼筋之握裹行為研究	干裕成	朝陽科技大學營建工程系	科技部
104	低放射性廢棄物 Ni-63 核種分析技術研發	趙君行	清華大學原科中心	科技部
105	核電廠除役低放射性廢棄物處理管制之安全審查技術研究 子計畫三:除役放射性廢棄物處理與貯存設施之安全審查研究	王曉剛	義守大學	物管局
105	核電廠除役之審查與驗證技術研究	裴晉哲	清華大學	物管局
105	核電廠除役低放射性廢棄物處理管制之安全審查技術研究	吳裕文	義守大學	物管局
105	國際核電廠除役資訊整合專題研究報告	邱太銘	核資中心	物管局
105	核設施除役產生放射性廢棄物處理與處置技術研發	魏聰揚		
105	依法執行核設施清理作業	喬凌寰	核能研究所	原能會
105	大型核能組件內部管路遙控探測機具發展研究	張政元	中原大學電機工程學系	原能會
105	核設施除役之輻射安全技術研究	黃坪吉	核能研究所	原能會
105	放射性廢棄物長期貯存與最終處置之比較研究(II)	劉大綱	成功大學海洋科技與事務研究所	科技部
105	核能除役材料 - 低活性化混凝土(LAC)與鋼筋之握裹行為研究(二)	干裕成	朝陽科技大學營建工程系	科技部
105	科技風險、環境影響評估與科學民主化	范玫芳	陽明大學科技與社會研究所	科技部
105	利用高功率雷射在除役核能電廠放射性除污之應用技術開發	蔣安忠	清華大學原科中心	科技部
106	核能電廠除役作業安全審查技術研究	裴晉哲	清華大學	物管局
106	核電廠除役低放射性廢棄物處理管制之安全審查技術研究	吳裕文	義守大學	物管局
106	除役核電廠用過核燃料室內乾式貯存安全管制技術 子計畫一:用過核燃料乾式貯存設施風險比較之研析 子計畫二:除役核電廠用過核燃料室內乾式貯存之結構及密封管制技術研析 子計畫三:除役核電廠用過核燃料室內乾式貯存之熱傳管制技術研析 子計畫	許榮鈞	清華大學能環中心	物管局

四:除役核電場用過核燃料室內乾式貯存之輻射屏蔽
管制技術研析 子計劃五:除役核電廠破損用過核燃料
處理貯存管制之國際資訊研析

106	原子能系統工程跨域整合發展計畫	施建樑	核能研究所	原能會
106	核設施除役與輻射防護劑量評估驗證技術研究	林怡君	核能研究所	原能會
106	核二廠用過燃料池正常運作時之局部水溫計算	曾永信	清華大學原 科中心	原能會
106	核反應器切割拆解最佳化設計	陳湘鳳	台灣大學機 械系	原能會
106	核設施除役切割件包裝最適化模式研究	楊烽正	台灣大學嚴 慶齡工業研 究中心	原能會
106	核設施除役切割組件之包裝最適化研究	吳晃昭	核能研究所	原能會
106	利用高功率雷射在除役核能電廠放射性除污之應用 技術開發	蔣安忠	清華大學原 科中心	科技部
106	核子事故緊急應變法規對除役中核能電廠之適用性 與管制實務研究	王曉剛	義守大學機 械與自動化 工程學系	科技部
106	核電廠除役及核廢料處理議題公眾溝通機制之研究	黃東益	政治大學公 共行政學系	科技部
106	反應器周遭三維中子通量計算及靈敏度量化分析	許榮鈞	清華大學核 子工程與科 學研究所	科技部
106	台電核一廠除役時低放射性廢料場內集中儲存方式 之潛在問題以及改進方法之研究	王曉剛	義守大學機 械與自動化 工程學系	科技部
107	精進核電廠除役低放射性廢棄物安全審查研究	吳裕文	義守大學	物管局
107	精進用過核燃料室內乾式貯存設施安全審查技術之 研究	許榮鈞	清華大學工 程與系統科 學系	物管局
107	核能電廠安全管制法規與技術研究計畫(3/4)	廖俐毅	核管技支中 心	原能會
107	核設施除役與輻射防護劑量評估驗證技術研究	袁明程	核能研究所	原能會
107	107 年核能安全管制及安全度評估技術能力建立	曾永信	清華大學原 科中心	原能會
107	噴砂除汙技術於核電廠除役之應用探討	曾永信	清華大學原 科中心	原能會

107	除役期間停機過渡階段用過燃料池火災暨消防管制技術研究	馮玉明	清華大學研究發展處	原能會
107	除役中核能電廠之核子保安管制要求與國際實施現況研究	宋大崙	龍華科技大學 化學與材料工程系	科技部
107	核電廠除役各階段公民參與模式及民意溝通之研究	梁世武	世新大學 公共關係暨廣告學系	科技部
107	核電廠除役利害關係群體意見探詢與溝通機制之設計及執行	黃東益	政治大學 公共行政學系	科技部
107	大範圍深穿透輻射遷移計算的技術與應用研發	許榮鈞	清華大學 核子工程與科學研究所	科技部
107	跨國核電廠除役管理個案分析及利害關係人之研究	張四明	臺北大學 公共行政暨政策學系	科技部
107	龍華科技大學原子能學程與原子能人才培訓	周源卿	龍華科技大學 化學與材料工程系	科技部

附錄二、IAEA 除役相關出版品清單

出版年	編號	題目
IAEA SAFETY STANDARDS SERIES		
Safety Fundamentals		
2006	No. SF-1	Fundamental Safety Principles
Safety Requirements		
2000	No. WS-R-2 Superseded by: GSR Part 5	Predisposal Management of Radioactive Waste, Including Decommissioning
2006	No. WS-R-5 Superseded by: GSR Part 6	Decommissioning of Facilities Using Radioactive Material
2009	No. GSR Part 5	Predisposal Management of Radioactive Waste
2014	No. GSR Part 6	Decommissioning of Facilities
2016	No. GSR Part 1 (Rev. 1)	Governmental, Legal and Regulatory Framework for Safety
Safety Guides		
1999	No. WS-G-2.1	Decommissioning of Nuclear Power Plants and Research Reactors
1999	No. WS-G-2.2	Decommissioning of Medical, Industrial and Research Facilities
2001	No. WS-G-2.4	Decommissioning of Nuclear Fuel Cycle Facilities
2002	No. GS-G-1.1	Organization and Staffing of the Regulatory Body for Nuclear Facilities
2002	No. GS-G-1.3	Regulatory Inspection of Nuclear Facilities and Enforcement by the Regulatory Body
2003	No. WS-G-2.5 Superseded by: SSG-40 and Superseded by: SSG-41	Predisposal Management of Low and Intermediate Level Radioactive Waste
2003	No. WS-G-2.6 Superseded by: SSG-40 and Superseded by: SSG-41	Predisposal Management of High Level Radioactive Waste
2006	No. WS-G-5.1	Release of Sites from Regulatory Control on Termination of Practices
2006	No. WS-G-6.1	Storage of Radioactive Waste

2006	No. RS-G-1.7	Application of the Concepts of Exclusion, Exemption and Clearance
2008	No. GS-G-3.3	The Management System for the Processing, Handling and Storage of Radioactive Waste
2008	No. GS-G-3.4	The Management System for the Disposal of Radioactive Waste
2009	No. WS-G-5.2	Safety Assessment for the Decommissioning of Facilities Using Radioactive Material
2010	No. SSG-10	Ageing Management for Research Reactors
2013	No. GSG-3	The Safety Case and Safety Assessment for the Predisposal Management of Radioactive Waste
2016	No. SSG-40	Predisposal Management of Radioactive Waste from Nuclear Power Plants and Research Reactors
2016	No. SSG-41	Predisposal Management of Radioactive Waste from Nuclear Fuel Cycle Facilities
2018	No. GSG-9	Regulatory Control of Radioactive Discharges to the Environment
2018	No. GSG-10	Prospective Radiological Environmental Impact Assessment for Facilities and Activities

IAEA SAFETY REPORTS SERIES

2002	Safety Reports Series No. 26	Safe Enclosure of Nuclear Facilities During Deferred Dismantling
2004	Safety Reports Series No. 36	Safety Considerations in the Transition from Operation to Decommissioning of Nuclear Facilities
2005	Safety Reports Series No. 45	Standard Format and Content for Safety Related Decommissioning Documents
2007	Safety Reports Series No. 50	Decommissioning Strategies for Facilities Using Radioactive Material
2009	Safety Reports Series No. 62	Proactive Management of Ageing for Nuclear Power Plants
2012	Safety Reports Series No. 67	Monitoring for Compliance with Exemption and Clearance Levels
2012	Safety Reports Series No. 72	Monitoring for Compliance with Remediation Criteria for Sites
2013	Safety Reports Series No. 77	Safety Assessment for Decommissioning
2015	Safety Reports Series No. 82	Ageing Management for Nuclear Power Plants: International Generic Ageing Lessons Learned (IGALL)

NUCLEAR ENERGY SERIES

2008	Nuclear Energy Series No. NG-T-2.3	Decommissioning of Nuclear Facilities: Training and Human Resource Considerations
2009	Nuclear Energy Series No. NW-T-2.5	An Overview of Stakeholder Involvement in Decommissioning
2009	Nuclear Energy Series No. NW-T-3.3	Integrated Approach to Planning the Remediation of Sites Undergoing Decommissioning
2011	Nuclear Energy Series No. NG-T-1.4	Stakeholder Involvement Throughout the Life Cycle of Nuclear Facilities
2011	Nuclear Energy Series No. NW-G-2.1	Policies and Strategies for the Decommissioning of Nuclear and Radiological Facilities
2011	Nuclear Energy Series No. NW-O	Radioactive Waste Management Objectives
2011	Nuclear Energy Series No. NW-T-2.1	Selection and Use of Performance Indicators in Decommissioning
2011	Nuclear Energy Series No. NW-T-2.2	Redevelopment and Reuse of Nuclear Facilities and Sites: Case Histories and Lessons Learned
2011	Nuclear Energy Series No. NW-T-2.3	Decommissioning of Small Medical, Industrial and Research Facilities: A Simplified Stepwise Approach
2013	Nuclear Energy Series No. NW-T-3.4	Overcoming Barriers in the Implementation of Environmental Remediation Projects
2014	Nuclear Energy Series No. NW-T-2.4	Cost Estimation for Research Reactor Decommissioning
2014	Nuclear Energy Series No. NW-T-2.7	Experiences and Lessons Learned Worldwide in the Cleanup and Decommissioning of Nuclear Facilities in the Aftermath of Accidents
2014	Nuclear Energy Series No. NW-T-3.5	Communication and Stakeholder Involvement in Environmental Remediation Projects
2014	Nuclear Energy	Lessons Learned from Environmental Remediation

	Series No.	Programmes
	NW-T-3.6	
2015	Nuclear Energy Series No. NW-G-3.1	Policy and Strategies for Environmental Remediation
2015	Nuclear Energy Series No. NW-T-2.6	Decommissioning of Pools in Nuclear Facilities
2016	Nuclear Energy Series No. NP-T-3.5	Ageing Management of Concrete Structures in Nuclear Power Plants
2016	Nuclear Energy Series No. NW-T-1.10	Advancing Implementation of Decommissioning and Environmental Remediation Programmes
2016	Nuclear Energy Series No. NW-T-2.8	Managing the Unexpected in Decommissioning
2017	Nuclear Energy Series No. NP-T-3.24	Handbook on Ageing Management for Nuclear Power Plants
2018	Nuclear Energy Series No. NW-T-2.11	Lessons Learned from Deferred Dismantling of Nuclear Facilities

IAEA TECDOC SERIES

1976	TECDOC No.179	Decommissioning of Nuclear Facilities Report of A Technical Committee Meeting held in Vienna, 20–24 Oct. 1975
1978	TECDOC No.205	Decommissioning of Nuclear Facilities (Report of A Technical Committee Meeting, Vienna, 24-28 Oct. 1977)
1989	TECDOC No.511	Decontamination and Decommissioning of Nuclear Facilities (Final Report of Three Research Co-ordination Meetings Held Between 1984 and 1987)
1993	TECDOC No.714	National Policies and Regulations for Decommissioning Nuclear Facilities
1993	TECDOC No.716	Decontamination and Decommissioning of Nuclear Facilities (Results of a Co-ordinated Research Programme, Phase II: 1989-1993)
1995	TECDOC No.841	A directory of Information Resources on Radioactive Waste Management, Decontamination and Decommissioning, and Environmental Restoration

Data as of June 1995

1998	TECDOC No.1022	New Methods and Techniques for Decontamination in Maintenance or Decommissioning Operations
1998	TECDOC No.1043	Technologies for Gas Cooled Reactor Decommissioning, Fuel Storage and Waste Disposal
1999	TECDOC No.1084	Review of Selected Cost Drivers for Decisions on Continued Operation of Older Nuclear Reactors: Safety Upgrades, Lifetime Extension, Decommissioning
1999	TECDOC No.1124	On-site Disposal as a Decommissioning Strategy
2000	TECDOC No.1133	The Decommissioning of WWER Type Nuclear Power Plants
2002	TECDOC No.1273	Decommissioning Techniques for Research Reactors
2002	TECDOC No.1305	Safe and Effective Nuclear Power Plant Life Cycle Management Towards Decommissioning
2002	TECDOC No.1322	Decommissioning Costs of WWER-440 Nuclear Power Plants
2004	TECDOC No.1394	Planning, Managing and Organizing the Decommissioning of Nuclear Facilities: Lessons Learned
2004	TECDOC No.1405	Operational and Decommissioning Experience with Fast Reactors
2005	TECDOC No.1476	Financial Aspects of Decommissioning
2005	TECDOC No.1478	Selection of Decommissioning Strategies: Issues and Factors Report by an Expert Group
2006	TECDOC No.1521	Characterization, Treatment and Conditioning of Radioactive Graphite from Decommissioning of Nuclear Reactors
2007	TECDOC No.1556	Assessment and Management of Ageing of Major Nuclear Power Plant Components Important to Safety: PWR Pressure Vessels
2007	TECDOC No.1557	Assessment and Management of Ageing of Major Nuclear Power Plant Components Important to Safety: PWR Vessel Internals
2007	TECDOC No.1572	Disposal Aspects of Low and Intermediate Level Decommissioning Waste
2008	TECDOC No.1602	Innovative and Adaptive Technologies in

Decommissioning of Nuclear Facilities
Final Report of a Coordinated Research Project 2004–2008

2011	TECDOC No.1657	Design Lessons Drawn from the Decommissioning of Nuclear Facilities
2011	TECDOC No.1668	Assessment and Management of Ageing of Major Nuclear Power Plant Components Important to Safety: Steam Generators
2013	TECDOC No.1702	Planning, Management and Organizational Aspects of the Decommissioning of Nuclear Facilities
2014	TECDOC No.1736	Approaches to Ageing Management for Nuclear Power Plants
2017	TECDOC No.1816	Model Regulations for Decommissioning of Facilities
2017	TECDOC No.1832	Data Analysis and Collection for Costing of Research Reactor Decommissioning
2018	TECDOC No.1850	Sampling and Isotope Analysis of Agricultural Pollutants in Water

TECHNICAL REPORTS SERIES

1986	Technical Reports Series No. 267	Methodology and Technology of Decommissioning Nuclear Facilities
1987	Technical Reports Series No. 278	Methods for Reducing Occupational Exposures During the Decommissioning of Nuclear Facilities
1988	Technical Reports Series No. 286	Decontamination and Demolition of Concrete and Metal Structures During the Decommissioning of Nuclear Facilities
1988	Technical Reports Series No. 293	Factors Relevant to the Recycling or Reuse of Components Arising from the Decommissioning and Refurbishment of Nuclear Facilities
1992	Technical Reports Series No. 334	Monitoring Programmes for Unrestricted Release Related to Decommissioning of Nuclear Facilities
1992	Technical Reports Series No. 346	Cleanup and Decommissioning of A Nuclear Reactor After A Severe Accident
1992	Technical Reports Series No. 348	Application of Remotely Operated Handling Equipment in the Decommissioning of Nuclear Facilities
1993	Technical Reports Series No. 351	Planning and Management for the Decommissioning of Research Reactors and Other Small Nuclear Facilities
1997	Technical Reports Series No. 382	Design and Construction of Nuclear Power Plants to Facilitate Decommissioning
1998	Technical Reports Series No. 389	Radiological Characterization of Shut Down Nuclear Reactors for Decommissioning Purposes
2000	Technical Reports Series No. 399	Organization and Management for Decommissioning of Large Nuclear Facilities

2001	Technical Reports Series No. 401	Methods for the Minimization of Radioactive Waste from Decontamination and Decommissioning of Nuclear Facilities
2002	Technical Reports Series No. 411	Record Keeping for the Decommissioning of Nuclear Facilities
2003	Technical Reports Series No. 414	Decommissioning of Small Medical, Industrial and Research Facilities
2004	Technical Reports Series No. 420	Transition from Operation to Decommissioning of Nuclear Installations
2005	Technical Reports Series No. 428	The Power Reactor Information System (PRIS) and Its Extension to Non-electrical Applications, Decommissioning and Delayed Projects Information
2006	Technical Reports Series No. 439	Decommissioning of Underground Structures, Systems and Components
2005	Technical Reports Series No. 440	Dismantling of Contaminated Stacks at Nuclear Facilities
2006	Technical Reports Series No. 441	Management of Problematic Waste and Material Generated During the Decommissioning of Nuclear Facilities
2006	Technical Reports Series No. 444	Redevelopment of Nuclear Facilities after Decommissioning
2006	Technical Reports Series No. 446	Decommissioning of Research Reactors: Evolution, State of the Art, Open Issues
2008	Technical Reports Series No. 462	Managing Low Radioactivity Material from the Decommissioning of Nuclear Facilities
2008	Technical Reports Series No. 463	Decommissioning of Research Reactors and Other Small Facilities by Making Optimal Use of Available Resources
2008	Technical Reports Series No. 464	Managing the Socioeconomic Impact of the Decommissioning of Nuclear Facilities
2008	Technical Reports Series No. 467	Long Term Preservation of Information for Decommissioning Projects

IAEA Other Publication

1979	STI/PUB/500	Decommissioning of Nuclear Facilities
2003	STI/PUB/1154	Safe Decommissioning for Nuclear Activities
2004	STI/PUB/1201	Status of the Decommissioning of Nuclear Facilities around the World
2005	STI/PUB/1212	Research Reactor Utilization, Safety, Decommissioning, Fuel and Waste Management
2007	STI/PUB/1299	Lessons Learned from the Decommissioning of Nuclear Facilities and the Safe Termination of Nuclear Activities
2011	IAEA-NS-2011/X	International Peer Review for The Decommissioning Programme of Magnox Limited, United Kingdom With Bradwell as the Reference Site

2013	IAEA/IEM/4	IAEA Report on Decommissioning and Remediation after a Nuclear Accident
2017	STI/PUB/1759	Advancing the Global Implementation of Decommissioning and Environmental Remediation Programmes
2018	STI/PUB/1831	International Conference on Physical Protection of Nuclear Material and Nuclear Facilities
2018	IAEA-RDS-1/38	Energy, Electricity and Nuclear Power Estimates for the Period up to 2050, 2018 Edition
2018	IAEA-RDS-2/38	Nuclear Power Reactors in the World 2018 Edition
2018	IAEA-CNPP/2018	Country Nuclear Power Profiles 2018 Edition

附錄三、OECD/NEA 除役相關出版品清單

出版年	編號	題目
NEA publication		
1996	NEA No. 96	NEA Co-operative Programme on Decommissioning (The): The First Ten Years 1985-95
1996	NEA No. 149	Recycling and Reuse of Scrap Metals
1999	NEA No. 1707	Decontamination Techniques Used in Decommissioning Activities
2002	NEA No. 3033	Environmental Remediation of Uranium Production Facilities
2003	NEA No. 3590	Decommissioning Nuclear Power Plants - Policies, Strategies and Costs
2002	NEA No. 3714	The Decommissioning and Dismantling of Nuclear Facilities
2003	NEA No. 4375	The Regulatory Challenges of Decommissioning Nuclear Reactors
2004	NEA No. 5300	Strategy Selection for the Decommissioning of Nuclear Facilities- Seminar Proceedings, Tarragona, Spain, 1-4 September 2003
2004	NEA No. 5410	Stakeholder Participation in Radiological Decision Making: Processes and Implications Case Studies for the Third Villigen Workshop, Villigen, Switzerland, 21-23 October 2003
2005	NEA No. 5417	Achieving the Goals of the Decommissioning Safety Case-A Status Report Prepared on Behalf of the WPDD by its Task Group on the Decommissioning Safety Case
2004	NEA No. 5728	Decommissioning of Nuclear Power Facilities
2006	NEA No. 5996	Decommissioning Funding: Ethics, Implementation, Uncertainties
2006	NEA No. 6038	Selecting Strategies for the Decommissioning of Nuclear Facilities
2006	NEA No. 6185	The NEA Co-operative Programme on Decommissioning
2006	NEA No. 6186	Radioactivity Measurements at Regulatory Release Levels
2006	NEA No. 6187	Releasing the Sites of Nuclear Installations - A Status Report
2007	NEA No. 6320	Stakeholder Involvement in Decommissioning Nuclear Facilities
2008	NEA No. 6401	Regulating the Decommissioning of Nuclear Facilities

2008	NEA No. 6403	Release of Radioactive Materials and Buildings from Regulatory Control
2008	NEA No. 6436	Nuclear Energy Outlook (NEO)
2009	NEA No. 6829	Decommissioning of Nuclear Facilities (brochure)
2010	NEA No. 6831	Cost Estimation for Decommissioning
2010	NEA No. 6833	Decommissioning Considerations for New Nuclear Power Plants
2010	NEA No. 6867	Towards Greater Harmonisation of Decommissioning Cost Estimates
2011	NEA No. 6905	Improving Nuclear Regulation - NEA Regulatory Guidance Booklets, Volumes 1-14
2010	NEA No. 6924	Applying Decommissioning Experience to the Design and Operation of New Nuclear Power Plants
2012	NEA No. 6990	CSNI Technical Opinion Papers No. 15 - Ageing Management of Nuclear Fuel Cycle Facilities
2012	NEA No. 7088	International Structure for Decommissioning Costing (ISDC) of Nuclear Installations
2014	NEA No. 7190	Guide for International Peer Reviews of Decommissioning Cost Studies for Nuclear Facilities
2014	NEA No. 7191	R&D and Innovation Needs for Decommissioning Nuclear Facilities
2014	NEA No. 7192	Nuclear Site Remediation and Restoration during Decommissioning of Nuclear Installations
2016	NEA No. 7201	Costs of Decommissioning Nuclear Power Plants
2015	NEA No. 7237	The Practice of Cost Estimation for Decommissioning of Nuclear Facilities
2016	NEA No. 7290	Strategic Considerations for the Sustainable Remediation of Nuclear Installations
2016	NEA No. 7291	NEA News Vol. 34.1
2017	NEA No. 7292	NEA News Vol. 34.2
2016	NEA No. 7305	Management of Radioactive Waste after a Nuclear Power Plant Accident
2017	NEA No. 7310	Recycling and Reuse of Materials Arising from the Decommissioning of Nuclear Facilities
2016	NEA No. 7326	Financing the Decommissioning of Nuclear Facilities
2017	NEA No. 7344	Addressing Uncertainties in Cost Estimates for Decommissioning Nuclear Facilities

2017	NEA No. 7373	Radiological Characterisation from a Materials and Waste End-State Perspective – Experience from Decommissioning Nuclear Facilities
2018	NEA No. 7374	Preparing for Decommissioning during Operation and after Final Shutdown

NEA Radioactive Waste Management Program Publication

2006	NEA/RWM/WPDD(2006)1/REV1	Selection of Strategies for Decommissioning of Nuclear Facilities
2006	NEA/RWM/WPDD(2006)10	A Map on International Activities on Decommissioning and Dismantling
2006	NEA/RWM/WPDD(2006)3/REV1	Decommissioning Funding: Ethics, Implementation, Uncertainties
2006	NEA/RWM/WPDD(2006)4	The Release of Sites of Nuclear Installations
2007	NEA/RWM(2007)9	Proceedings of the Topical Session held during the RWMC 40th meeting
2007	NEA/RWM/WPDD(2007)1	Stakeholder Issues and Involvement in Decommissioning Nuclear Facilities
2008	NEA/RWM/WPDD(2008)6	Proceedings of the DCEG Topical Session on "Risks and Uncertainties in Decommissioning Cost Estimates"
2008	NEA/RWM/WPDD(2008)8	Proceedings of the Topical Session of the 9th Meeting of the WPDD on "Human and Organisational Factors in Decommissioning"
2009	NEA/RWM/WPDD(2008)12/REV1	A Map of International Activities on Decommissioning and Dismantling
2009	NEA/RWM/WPDD(2009)3	Proceedings of the Topical Session on Applying Decommissioning Experience to the Design and Operation of New Nuclear Power Plants
2010	NEA/RWM/WPDD(2009)9	A Map of International Activities on Decommissioning and Dismantling
2010	NEA/RWM/WPDD(2010)1	Summary of Decisions taken at WPDD 10th Meeting
2010	NEA/RWM/WPDD(2010)10	A Map of International Activities on Decommissioning and Dismantling
2010	NEA/RWM/WPDD(2010)2	Summary Record of the Topical Session at WPDD-10
2011	NEA/RWM/CPD(2010)3	DECONTAMINATION AND DISMANTLING OF RADIOACTIVE CONCRETE STRUCTURES
2011	NEA/RWM/R(2011)1	Decontamination and Dismantling of Radioactive Concrete Structures
2011	NEA/RWM/R(2011)2	REMOTE HANDLING TECHNIQUES IN DECOMMISSIONING

2012	NEA/RWM/R(2012)8	The management of large components from decommissioning to storage and disposal
2012	NEA/RWM/WPDD(2012)4	A Map of International Activities on Decommissioning and Dismantling
2012	NEA/RWM/WPDD(2012)5	Summary of the Special Seminar Commemorating the 10th Anniversary of the OECD/NEA Working Party on Decommissioning and Dismantling
2013	NEA/RWM/R(2013)0	Cost Control Guide for Decommissioning of Nuclear Installations
2013	NEA/RWM/WPDD(2013)1	Source Book of the IAEA, EC and NEA References in Decommissioning
2013	NEA/RWM/WPDD(2013)2	Radiological Characterisation for Decommissioning of Nuclear Installations
2013	NEA/RWM/WPDD(2013)3	Mandate of the RWMC Task Group on Nuclear Site Restoration
2014	NEA/RWM/WPDD(2013)4/REV1	Summary Record of the 6th Meeting of the DCEG
2014	NEA/RWM/WPDD(2013)6/PROV	Summary Record of the 14th Session of the WPDD
2014	NEA/RWM/WPDD(2013)6/PROV2	Summary Record of the 14th Session of the WPDD
2014	NEA/RWM/WPDD(2014)1	Source Book of the IAEA, EC and NEA References in Decommissioning
2014	NEA/RWM/WPDD(2014)2	Summary Record of the 7th Meeting of the DCEG
2014	NEA/RWM/WPDD(2014)5	Mandate of the WPDD Task Group on Radiological Characterisation and Decommissioning
2016	NEA/RWM/R(2016)1	Radiological Characterisation from a Material and Waste End-state Perspective
2017	NEA/RWM/R(2016)2	International Symposium on Preparation for Decommissioning (PREDEC2016)
2018	NEA/RWM/R(2018)1	The Methodology of Cost Estimation for Decommissioning Nuclear Facilities in the Russian Federation

NEA Other Publication

1996	OECD No. 79523	THE NEA CO-OPERATIVE PROGRAMME ON DECOMMISSIONING TWENTY-FIVE YEARS OF PROGRESS; THE FIRST TEN YEARS 1985-95
2000	NEA/CNRA/R(99)4	REGULATORY PRACTICES FOR DECOMMISSIONING OF NUCLEAR FACILITIES WITH SPECIAL REGARD OF REGULATORY INSPECTION PRACTICES

- 2000 NEA/CSNI/R(99)17 REPORT ON THE CSNI WORKSHOP ON NUCLEAR POWER
PLANT TRANSITION FROM OPERATION INTO
DECOMMISSIONING: HUMAN FACTORS AND
ORGANISATION CONSIDERATIONS
- 2011 NEA/RWM/R(2011)3 THE NEA CO-OPERATIVE PROGRAMME ON
DECOMMISSIONING TWENTY-FIVE YEARS OF PROGRESS;
THE LAST FIVE YEARS - 2006 through 2010

附錄四、US-NRC 除役相關出版品清單

出版年	編號	題目
NRC REGULATION		
	10CFR20.1401	General provisions and scope
	10CFR20.1402	Radiological criteria for unrestricted use
	10CFR20.1403	Criteria for license termination under restricted conditions
	10CFR20.1404	Alternate criteria for license termination
	10CFR20.1405	Public notification and public participation
	10CFR20.1406	Minimization of contamination
	10CFR50.75	Reporting and recordkeeping for decommissioning planning
	10CFR50.82	Termination of license
	10CFR50.83	Release of part of a power reactor facility or site for unrestricted use
NRC REGULATORY GUIDE		
1974	RG 1.86 Withdrawn 08/12/2016	Termination of Operating Licenses for Nuclear Reactors
2001	RG 1.191	Fire Protection Program for Nuclear Power Plants During Decommissioning and Permanent Shutdown
2005	RG 1.202	Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors
2011	RG 1.159 Revision 2	Assuring the Availability of Funds for Decommissioning Nuclear Reactors
2011	RG 1.179 Revision 1	Standard Format and Content of License Termination Plans for Nuclear Power Reactors
2013	RG 1.184 Revision 1	Decommissioning of Nuclear Power Reactors
2013	RG 1.185 Revision 1	Standard Format and Content for Post-Shutdown Decommissioning Activities Report
NRC INSPECTION MANUAL		
2016	IMC 1248, APPENDIX F	Training Requirements and Qualification Journal for Decommissioning Inspectors

2016	IMC 1248, APPENDIX G	Training Requirements and Qualification Journal for Decommissioning Project Managers/Technical Reviewers
2016	IMC 2515, APPENDIX G	Baseline Inspection Guidance for Power Reactors Preparing for Transition to the Decommissioning Phase
2018	IMC 2561	Decommissioning Power Reactor Inspection Program
2008	IMC 2602	Decommissioning Oversight and Inspection Program for Fuel Cycle Facilities and Materials Licensees

NUREG Publications Prepared by NRC Staff

2002	NUREG-0586, Supplement 1, Volume 1: Main Report, Appendices A through M	Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities: Regarding the Decommissioning of Nuclear Power Reactors
2002	NUREG-0586, Supplement 1, Volume 2: Appendices N, O and P	Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities: Regarding the Decommissioning of Nuclear Power Reactors
2017	NUREG-1307, Revision 16	Report on Waste Burial Charges: Changes in Decommissioning Waste Disposal Costs at Low-Level Waste Burial Facilities, Final Report
1993	NUREG-1449	Shutdown and Low-Power Operation at Commercial Nuclear Power Plants in the United States
1997	NUREG-1496, Volume 1	Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities – Main Report
1997	NUREG-1496, Volume 2	Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities – Appendices A and B
1997	NUREG-1496, Volume 3	Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities – Appendices C - H
1994	NUREG-1501	Background as a Residual Radioactivity Criterion for Decommissioning: Appendix A to the Draft Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for Decommissioning of NRC-Licensed Nuclear Facilities - Draft Report for Comment
1998	NUREG-1505, Revision 1	A Nonparametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys - Interim Draft Report for Comment and Use
2000	NUREG-1575, Revision 1	Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)

2009	NUREG-1575, Supplement 1	Multi-Agency Radiation Survey and Assessment of Materials and Equipment Manual (MARSAME)
2004	NUREG-1576, Initial Report, Vol.1	Multi-Agency Radiological Laboratory Analytical Protocols Manual
2004	NUREG-1576, Supplement 1	Multi-Agency Radiological Laboratory Analytical Protocols Manual: Accompaniment to CD — Executive Summary (Roadmap)
1999	NUREG-1577, Revision 1	Standard Review Plan on Power Reactor Licensee Financial Qualifications and Decommissioning Funding Assurance
2000	NUREG-1628	Staff Responses to Frequently Asked Questions Concerning Decommissioning of Nuclear Power Reactors
2003	NUREG-1640	Radiological Assessments for Clearance of Materials from Nuclear Facilities
2018	NUREG-1700, Revision 2	Standard Review Plan for Evaluating Nuclear Power Reactor License Termination Plans
2004	NUREG-1713	Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors
2002	NUREG-1720	Re-Evaluation of the Indoor Resuspension Factor for the Screening Analysis of the Building Occupancy Scenario for NRC's License Termination Rule - Draft Report for Comment
2000	NUREG-1727	NMSS Decommissioning Standard Review Plan
2001	NUREG-1736	Consolidated Guidance: 10 CFR Part 20 — Standards for Protection Against Radiation
2001	NUREG-1738	Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants
2006	NUREG-1757, Volume 1, Revision 2	Consolidated Decommissioning Guidance: Decommissioning Process for Materials Licensees
2006	NUREG-1757, Volume 2, Revision 1	Consolidated Decommissioning Guidance: Characterization, Survey, and Determination of Radiological Criteria
2012	NUREG-1757, Volume 3, Revision 1	Consolidated NMSS Decommissioning Guidance - Financial Assurance, Recordkeeping, and Timeliness
2002	NUREG-1761	Radiological Surveys for Controlling Release of Solid Materials – Draft Report for Comment
2010	NUREG-1801, Revision 2	Generic Aging Lessons Learned (GALL) Report — Final Report
2005	NUREG-1814, Initial Report	Status of the Decommissioning Program: 2004 Annual Report
2007	NUREG-1814, Rev. 1	Status of the Decommissioning Program: 2006 Annual Report
2009	NUREG-1814, Rev. 2	Status of the Decommissioning Program: 2008 Annual Report

2006	NUREG-1836	Standard Review Plan for Releasing Part of a Reactor Facility or Site for Unrestricted Use Before Approval of the License Termination Plan - Draft Report for Comment
2017	NUREG-2191	Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report – Final Report
2016	NUREG-2201	Probabilistic Risk Assessment and Regulatory Decisionmaking: Some Frequently Asked Questions
2017	NUREG-2214	Managing Aging Processes In Storage (MAPS) Report, Draft Report for Comment

NUREG Publications Prepared by NRC Contractors

1982	NUREG/CR-1756	Technology, Safety and Costs of Decommissioning Reference Nuclear Research and Test Reactors
1983	NUREG/CR-1756, Addendum	Technology, Safety and Costs of Decommissioning Reference Nuclear Research and Test Reactors – Sensitivity of Decommissioning Radiation Exposure and Costs to Selected Parameters
1992	NUREG/CR-5512, Volume 1, PNL-7994	Residual Radioactive Contamination From Decommissioning: Technical Basis for Translating Contamination Levels to Annual Total Effective Dose Equivalent Final Report
2001	NUREG/CR-5512, Volume 2, SAND2001-0822P	Residual Radioactive Contamination From Decommissioning: User's Manual DandD Version 2.1
1999	NUREG/CR-5512, Volume 3, SAND99-2148	Residual Radioactive Contamination From Decommissioning - Parameter Analysis Draft Report for Comment
1999	NUREG/CR-5512, Volume 4, SAND99-2147	Comparison of the Models and Assumptions used in the DandD 1.0, RESRAD 5.61, and RESRAD-Build 1.50 Computer Codes with Respect to the Residential Farmer and Industrial Occupant Scenarios Provided in NUREG/CR-5512 Draft Report for Comment
2001	NUREG/CR-5632	Incorporating Aging Effects into Probabilistic Risk Assessment — A Feasibility Study Utilizing Reliability Physics Models
1995	NUREG/CR-5884 PNL-8742	Revised Analyses of Decommissioning for the Reference Pressurized Water Reactor Power Station - Effects of Current Regulatory and Other Considerations on the Financial Assurance Requirements of the Decommissioning Rule and on Estimates of Occupational Radiation Exposure
1996	NUREG/CR-6174, PNL-9975	Revised Analyses of Decommissioning for the Reference Boiling Water Reactor Power Station – Effects of Current Regulatory and Other Considerations on the Financial Assurance Requirements of the Decommissioning Rule and on Estimates of Occupational Radiation Exposure

1996	NUREG/CR-6424, ORNL/TM-13148	Report on Aging of Nuclear Power Plant Reinforced Concrete Structures
2002	NUREG/CR-6477, PNNL-11209	Revised Analyses of Decommissioning Reference Non-Fuel-Cycle Facilities
2000	NUREG/CR-6627, PNNL-12185	The Role of Organic Complexants and Colloids in the Transport of Radionuclides by Groundwater
2000	NUREG/CR-6628, ORNL/TM- 13767	The Effects of Aging at 343°C on the Microstructure and Mechanical Properties of Type 308 Stainless Steel Weldments
2002	NUREG/CR-6632, PNNL-12205	Solubility and Leaching of Radionuclides in Site Decommissioning Management Plan (SDMP) Slags
1999	NUREG/CR-6656, PNNL-13091	Information on Hydrologic Conceptual Models, Parameters, Uncertainty Analysis, and Data Sources for Dose Assessments at Decommissioning Sites
2000	NUREG/CR-6676, ANL/EAD/TM- 89	Probabilistic Dose Analysis Using Parameter Distributions Developed For RESRAD and RESRAD-BUILD Codes
2000	NUREG/CR-6692, ANL/EAD/TM-91	Probabilistic Modules for the RESRAD and RESRAD-BUILD Computer Codes: User Guide
2001	NUREG/CR-6695, PNNL-13375	Hydrologic Uncertainty Assessment for Decommissioning Sites: Hypothetical Test Case Applications
2000	NUREG/CR-6697, ANL/EAD/TM-98	Development of Probabilistic RESRAD 6.0 and RESRAD-BUILD 3.0 Computer Codes
2002	NUREG/CR-6755, ANL/EAD/TM/02-1	Technical Basis for Calculating Radiation Doses for the Building Occupancy Scenario Using the Probabilistic RESRAD-BUILD 3.0 Code
2002	NUREG/CR-6758, PNNL-13774	Radionuclide-Chelating Agent Complexes in Low-Level Radioactive Decontamination Waste: Stability, Adsorption, and Transport Potential
2002	NUREG/CR-6766, INEEL/EXT-01-01681	Release of Radionuclides and Chelating Agents from Full-System Decontamination Ion-Exchange Resins
2002	NUREG/CR-6767, PNNL-13832	Evaluation of Hydrologic Uncertainty Assessments for Decommissioning Sites Using Complex and Simplified Models
2003	NUREG/CR-6821	Solubility and Leaching of Radionuclides in Site Decommissioning Management Plan (SDMP) Soil and Ponded Wastes
2003	NUREG/CR-6823, SAND2003-3348P	Handbook of Parameter Estimation for Probabilistic Risk Assessment
2003	NUREG/CR-6836	Comparing Ground-Water Recharge Estimates Using Advanced Monitoring Techniques and Models
2004	NUREG/CR-6843, PNNL-14534	Combined Estimation of Hydrogeologic Conceptual Model and Parameter Uncertainty
2005	NUREG/CR-6869, BNL-NUREG-73676-2005	A Reliability Physics Model for Aging of Cable Insulation Materials

2005	NUREG/CR-6881, PNNL-15244	Soil and Groundwater Sample Characterization and Agricultural Practices for Assessing Food Chain Pathways in Biosphere Models
2007	NUREG/CR-6941, PNNL-16741	Soil-to-Plant Concentration Ratios for Assessing Food-Chain Pathways in Biosphere Models
2008	NUREG/CR-6946	Field Studies to Confirm Uncertainty Estimates of Ground-Water Recharge
2007	NUREG/CR-6948, Vol. 1	Integrated Ground-Water Monitoring Strategy for NRC-Licensed Facilities and Sites: Logic, Strategic Approach and Discussion
2007	NUREG/CR-6948, Vol. 2	Integrated Ground-Water Monitoring Strategy for NRC-Licensed Facilities and Sites: Case Study Applications
2011	NUREG/CR-7029	Lessons Learned in Detecting, Monitoring, Modeling and Remediating Radioactive Ground-Water Contamination
2011	NUREG/CR-7038, ANL-10/27	Verification of RESRAD-OFFSITE
2012	NUREG/CR-7111, ORNL/TM-2011/410	A Summary of Aging Effects and Their Management in Reactor Spent Fuel Pools, Refueling Cavities, Tori, and Safety-Related Concrete Structures
2011	NUREG/CR-7116, SRNL-STI-2011-00005	Materials Aging Issues and Aging Management for Extended Storage and Transportation of Spent Nuclear Fuel
2012	NUREG/CR-7120, PNNL-20979	Radionuclide Behavior in Soils and Soil-to-Plant Concentration Ratios for Assessing Food Chain Pathways
2013	NUREG/CR-7127, ANL/EVS/TM/11-5	New Source Term Model for the RESRAD-OFFSITE Code Version 3
2014	NUREG/CR-7174, PNNL-22975	Transfer Factors for Contaminant Uptake by Fruit and Nut Trees
2015	NUREG/CR-7185, ANL-14/10	Effect of Thermal Aging and Neutron Irradiation on Crack Growth Rate and Fracture Toughness of Cast Stainless Steels and Austenitic Stainless Steel Welds
2015	NUREG/CR-7189, ANL/EVS/TM-14/2	User's Guide for RESRAD-OFFSITE
2017	NUREG/CR-7231	Modeling of Radionuclide Transport in Freshwater Systems Associated with Nuclear Power Plants

NUREG Brochures Prepared by NRC Staff

2005	NUREG/BR-0053, Revision 6	United States Nuclear Regulatory Commission Regulations Handbook
2005	NUREG/BR-0325	U.S. Nuclear Regulatory Commission's Decommissioning Program

2017	NUREG/BR-0521, Revision 1	Decommissioning Nuclear Power Plants
2017	NUREG/BR-0528	Safety of Spent Fuel Storage

NUREG Conference Proceedings

2006	NUREG/CP-0193	Proceedings of the International Workshop on Conceptual Model Development for Subsurface Reactive Transport Modeling of Inorganic Contaminants, Radionuclides, and Nutrients: Held at La Posada de Albuquerque, Albuquerque, New Mexico, April 20–24, 2004
2011	NUREG/CP-0195	Proceedings of the Workshop on Engineered Barrier Performance Related to Low-Level Radioactive Waste, Decommissioning, and Uranium Mill Tailings Facilities: Held at the U.S. Nuclear Regulatory Commission Headquarters, Rockville, MD, August 3-5, 2010

附錄五、UK-NDA 除役相關出版品清單

出版年	編號	題目
NDA Strategy		
2011	NDA Strategy	Nuclear Decommissioning Authority: Strategy (effective from April 2011)
2011	NDA Strategy	NDA Strategy Post Consultation Responses: Decommissioning and Clean-Up
2016	NDA Strategy	NDA Strategy: Consultation response to the review of the NDA Strategy
2016	NDA Strategy	NDA Strategy: Integrated Impact Assessment Post-Adoption Statement
2016	NDA Strategy	NDA Strategy: Integrated Impact Assessment Report Non-Technical Summary
2016	NDA Strategy	NDA Strategy: Integrated Impact Assessment Report Volume 1 - Main Report
2016	NDA Strategy	NDA Strategy: Integrated Impact Assessment Report Volume 2 - Detailed Options Assessment
2016	NDA Strategy	NDA Strategy: Integrated Impact Assessment Report Volume 3 - Baseline Report and Policy and Legislative Context Review
2016	NDA Strategy	Nuclear Decommissioning Authority: Strategy (effective from April 2016)
NDA Annual Report		
2006	NDA Annual Report 2004 to 2005	Nuclear Decommissioning Authority: Annual Report and Accounts 2004 to 2005
2006	NDA Annual Report 2005 to 2006	Nuclear Decommissioning Authority: Annual Report and Accounts 2005 to 2006
2007	NDA Annual Report 2006 to 2007	Nuclear Decommissioning Authority: Annual Report and Accounts 2006 to 2007
2008	NDA Annual Report 2007 to 2008	Nuclear Decommissioning Authority: Annual Report and Accounts 2007 to 2008
2009	NDA Annual Report 2008 to 2009	Nuclear Decommissioning Authority: Annual Report and Accounts 2008 to 2009
2010	NDA Annual Report 2009 to 2010	Nuclear Decommissioning Authority: Annual Report and Accounts 2009 to 2010
2011	NDA Annual Report 2010 to 2011	Nuclear Decommissioning Authority: Annual Report and Accounts 2010 to 2011
2012	NDA Annual Report 2011 to 2012	Nuclear Decommissioning Authority: Annual Report and Accounts 2011 to 2012

2013	NDA Annual Report 2012 to 2013	Nuclear Decommissioning Authority: Annual Report and Accounts 2012 to 2013
2014	NDA Annual Report 2013 to 2014	Nuclear Decommissioning Authority: Annual Report and Accounts 2013 to 2014
2015	NDA Annual Report 2014 to 2015	Nuclear Decommissioning Authority: Annual Report and Accounts 2014 to 2015
2016	NDA Annual Report 2015 to 2016	Nuclear Decommissioning Authority: Annual Report and Accounts 2015 to 2016
2017	NDA Annual Report 2016 to 2017	Nuclear Decommissioning Authority: Annual Report and Accounts 2016 to 2017
2018	NDA Annual Report 2017 to 2018	Nuclear Decommissioning Authority: Annual Report and Accounts 2017 to 2018

NDA Newsletter

2009	Newsletter Edition 1	Insight into nuclear decommissioning - November 2009 Newsletter
2010	Newsletter Edition 2	Insight into nuclear decommissioning - March 2010 Newsletter
2010	Newsletter Edition 3	Insight into nuclear decommissioning - July 2010 Newsletter
2010	Newsletter Edition 4	Insight into nuclear decommissioning - November 2010 Newsletter
2011	Newsletter Edition 5	Insight into nuclear decommissioning - February 2011 Newsletter
2011	Newsletter Edition 6	Insight into nuclear decommissioning - June 2011 Newsletter
2011	Newsletter Edition 7	Insight into nuclear decommissioning - September 2011 Newsletter
2012	Newsletter Edition 8	Insight into nuclear decommissioning - February 2012 Newsletter
2012	Newsletter Edition 9	Insight into nuclear decommissioning - June 2012 Newsletter
2012	Newsletter Edition 10	Insight into nuclear decommissioning - November 2012 Newsletter
2013	Newsletter Edition 11	Insight into nuclear decommissioning - April 2013 Newsletter
2013	Newsletter Edition 12	Insight into nuclear decommissioning - September 2013 Newsletter
2014	Newsletter Edition 13	Insight into nuclear decommissioning - January 2014 Newsletter
2014	Newsletter Edition 14	Insight into nuclear decommissioning - June 2014 Newsletter
2014	Newsletter Edition 15	Insight into nuclear decommissioning - September 2014 Newsletter

2014	Newsletter Edition 16	Insight into nuclear decommissioning - December 2014 Newsletter
2015	Newsletter Edition 17	Insight into nuclear decommissioning - March 2015 Newsletter
2015	Newsletter Edition 18	Insight into nuclear decommissioning - August 2015 Newsletter
2015	Newsletter Edition 19	Insight into nuclear decommissioning - December 2015 Newsletter
2015	Newsletter Highlights 2005-2015	Insight into nuclear decommissioning: 2005 to 2015
2016	Newsletter Edition 20	Insight into nuclear decommissioning - March 2016 Newsletter
2016	Newsletter Edition 21	Insight into nuclear decommissioning - August 2016 Newsletter
2017	Newsletter Edition 22	Insight into nuclear decommissioning - February 2017 Newsletter

NDA Summary of Assessment

2006	Summary of Assessment	Summary of Assessment for Solid ILW at Hunterston A Decommissioning Site
2007	Summary of Assessment	Summary of Assessment for JET Decommissioning
2007	Summary of Assessment	Summary of Assessment for Magnox Fuel Element Debris at Sizewell A Decommissioning Site (2)
2007	Summary of Assessment	Summary of Assessment for Miscellaneous Activated Components Removed from Magnox Fuel Element Debris at Sizewell A Decommissioning Site
2007	Summary of Assessment	Summary of Assessment for PFR Decommissioning ILW
2007	Summary of Assessment	Summary of Assessment for Solid ILW at Hunterston A Decommissioning Site (2)
2011	Summary of Assessment	Packaging of Dounreay PFR Decommissioning Waste in 2m or 4m Boxes _Conceptual Stage
2013	Summary of Assessment	Summary of Assessment Report for Dragon decommissioning ILW in 6m ³ concrete boxes (Interim Stage)
2013	Summary of Assessment	Summary of Assessment Report for WAGR Reactor Decommissioning Debris (Final Stage)

NDA Technical Note and others

2007	NDA Technical Note no. 7988372	Geological Disposal Options for High-Level Waste and Spent Fuel: Companion Report of Supporting Information
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2011	NDA Technical Note no. 13000634	NDA Review of BGS Draft Geological Sub-surface Screening Report for the West Cumbria MRWS Partnership
2014	NDA R&D Brochure 2014	Research and Development Driving solutions delivering progress brochure November 2014
2014	R13-95(A)	Optimum packaging approach for disposal of decommissioning waste arisings
2015	7359.12_R1, Issue 3	In Situ Immobilisation and Encapsulation of ILW During Decommissioning Activities
2015	NDA R&D Brochure 2015	Research and Development Driving solutions delivering progress brochure November 2015
2016	Contractor Ref: NS4145-500-001	Summary of Graphene (and Related Compounds) Chemical and Physical Properties
2016	NDA R&D Brochure 2016	Research and Development Driving solutions delivering progress brochure November 2016
2016	NDA Technical Baseline Issue 1	NDA technical baseline - October 2016
2017	Contractor Ref: NS4145-500-005	The Potential Applications of Graphene (and Related Compounds) Relevant to the NDA's Decommissioning Mission

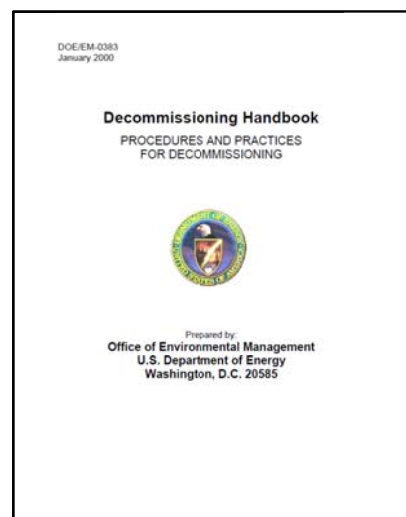
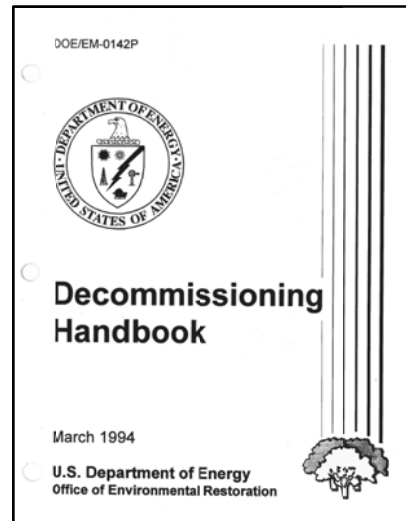
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Decommissioning Handbook DOE 1994

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14. PACKAGING AND TRANSPORTATION
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Decommissioning Handbook-PROCEDURES AND



PRACTICES FOR DECOMMISSIONING
DOE 2000

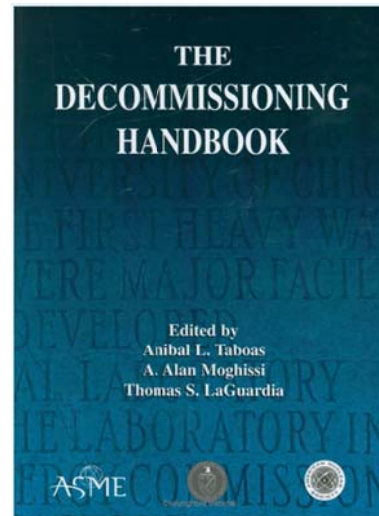
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4. Determination Action
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6. Engineering and Planning
7. Decommissioning Operations

The Decommissioning Handbook

By [Anibal L. Taboas](#) (Author), [A. Alan Moghissi](#) (Author), [Thomas LaGuardia](#) (Author)

- Hardcover: 465 pages
- Publisher: The American Society of Mechanical Engineers; Har/Cdr edition (July 8, 2004)
- Language: English
- ISBN-10: 0791802248
- ISBN-13: 978-0791802243
- Product Dimensions: 6 x 1.1 x 9 inches



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Chapter 18 Dismantling

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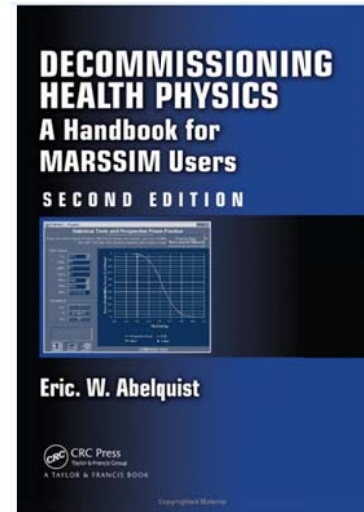
About this book

This comprehensive and authoritative volume will serve as a complete introduction to those new to the field, as well as an up-to-date desk reference on regulations and resources for experienced practitioners. The handbook will provide a forum building a network of consistent approaches, practices, and results. Covering both NRC and DOE approaches, this book applies not only to decommissioning existing facilities, but by crossing the traditional lines between operations and reuse, this will also allow us to rethink the construction of new ones. The expert team of authors provides valuable lessons from their collective experiences in nuclear decommissioning. They represent areas pertaining to policy, engineering, and science. The handbook focuses primarily on time-tested and proven technologies. The text is supplemented by a Cd-Rom, which provide readers with a living resource through links to Internet-based updates containing latest information. CD Supplement is available to purchasers upon request to ASME Publishing. www.asme.org

Decommissioning Health Physics: A Handbook for MARSSIM Users, 2nd Edition

By [Eric W. Abelquist](#) (Author)

- Hardcover: 696 pages
- Publisher: CRC Press; 2 edition (October 10, 2013)
- Language: English
- ISBN-10: 1466510536
- ISBN-13: 978-1466510531
- Product Dimensions: 6.1 x 1.4 x 9.2 inches



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- Chapter 12 ■ Statistics and Hypothesis Testing
- Chapter 13 ■ MARSSIM Final Survey Design and Strategies

Chapter 14 ■ MARSSIM Data Reduction

Chapter 15 ■ Clearance of Materials

Chapter 16 ■ Decommissioning Survey Applications at Various Facility
Types

Chapter 17 ■ FSS Reports and Measurement Uncertainty

Chapter 18 ■ Practical Applications of Statistics to Support
Decommissioning Activities

Chapter 19 ■ International Decommissioning Perspectives

About this book

Experienced Guidance on the Technical Issues of Decommissioning Projects, written by one of the original MARSSIM authors, **Decommissioning Health Physics: A Handbook for MARSSIM Users, Second Edition** is the only book to incorporate all of the requisite technical aspects of planning and executing radiological surveys in support of decommissioning. Extensively revised and updated, it covers survey instrumentation, detection sensitivity, statistics, dose modeling, survey procedures, and release criteria.

New to the Second Edition

- Chapter on hot spot assessment that recognizes appropriate dosimetric significance of hot spots when designing surveys and includes a new approach for establishing hot spot limits
- Chapter on the clearance or release of materials, highlighting aspects of the MARSAME manual
- Revised chapter on characterization survey design to reflect guidance in ANSI N13.59 on the value of data quality objectives (DQOs)
- Updated regulations and guidance documents throughout
- Updated survey instrumentation used to support decontamination and decommissioning (D&D) surveys, including expanded coverage of *in situ* gamma spectrometers

- Revised statistics chapter that includes an introduction to Bayesian statistics and additional double sampling and ranked set sampling statistical approaches
- More case studies and examples throughout

Implement the Surveys Effectively and Avoid Common Pitfalls

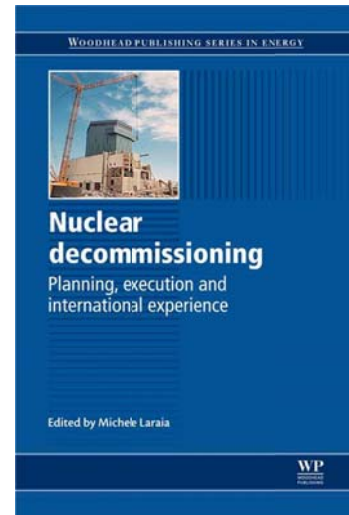
With more than 20 years of experience as a practitioner in the decommissioning survey field, author Eric W. Abelquist prepares you for the technical challenges associated with planning and executing MARSSIM surveys. He discusses the application of statistics for survey design and data reduction and addresses the selection of survey instrumentation and detection sensitivity. He presents final status survey procedures and covers pathway modeling to translate release criteria to measurable quantities. He also offers solutions for navigating the complexity inherent in designing and implementing MARSSIM and MARSAME surveys. Detailed derivations, thorough discussions of technical bases, and real-world examples and case studies illustrate effective strategies for demonstrating to regulators and stakeholders that contaminated sites can be released for other beneficial uses.

Nuclear Decommissioning

Planning, Execution and International Experience (Woodhead Publishing Series in Energy Book 36) 1st Edition

By [Michele Laraia](#) (Editor)

- File Size: 18611 KB
- Print Length: 857 pages
- Page Numbers Source ISBN: 0857091158
- Publisher: Woodhead Publishing; 1 edition (February 21, 2012)
- Publication Date: February 21, 2012



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5. Characterisation of radioactive materials in redundant nuclear facilities: key issues for the decommissioning plan
6. Managing the transition from operation to decommissioning of a nuclear facility
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9. Radiological protection in the decommissioning of nuclear facilities: safety, regulations and licensing
10. Nuclear facility design and operation to facilitate decommissioning: lessons learned

Part II Execution: nuclear decommissioning processes and technologies, radioactive waste management, site

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11. Safe enclosure and entombment strategies in nuclear decommissioning projects
12. Dismantling and demolition processes and technologies in nuclear decommissioning projects
13. Decontamination processes and technologies in nuclear decommissioning projects
14. Remote operation and robotics technologies in nuclear decommissioning projects
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21. Decommissioning of gas-cooled nuclear reactors (GCRs)
22. Decommissioning of nuclear fuel cycle facilities
23. Decommissioning of small nuclear facilities: industrial, medical and research facilities
24. Decommissioning of legacy nuclear waste sites: Dounreay, UK
25. Decommissioning of legacy nuclear waste sites: Idaho National Laboratory, USA
26. Information management for nuclear decommissioning projects

About this book

Once a nuclear installation has reached the end of its safe and economical operational lifetime, the need for its decommissioning arises. Different strategies can be employed for nuclear decommissioning, based on the evaluation of particular hazards and their attendant risks, as well as on the analysis of costs of clean-up and waste management. This allows for decommissioning either soon after permanent shutdown, or perhaps a long time later, the latter course allowing for radioactivity levels to drop in any activated or contaminated components. It is crucial for clear processes and best practices to be applied in decommissioning such installations and sites, particular where any significant health and environmental risks exist.

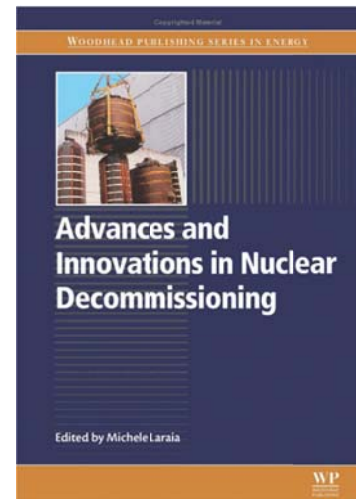
This book critically reviews the nuclear decommissioning processes and technologies applicable to nuclear power plants and other civilian nuclear facilities. Part one focuses on the fundamental planning issues in starting a nuclear decommissioning process, from principles and safety regulations, to financing and project management. Part two covers the execution phase of nuclear decommissioning projects, detailing processes and technologies such as dismantling, decontamination, and radioactive waste management, as well as environmental remediation, site clearance and reuse. Finally, part three details international experience in the decommissioning of nuclear applications, including the main nuclear reactor types and nuclear fuel cycle facilities, as well as small nuclear facilities and legacy nuclear waste sites.

- Critically reviews nuclear decommissioning processes and technologies applicable to nuclear power plants and other civilian nuclear facilities
- Discusses the fundamental planning issues in starting a nuclear decommissioning process
- Considers the execution phase of nuclear decommissioning projects, including dismantling, decontamination, and radioactive waste management, as well as environmental remediation, site clearance and reuse

Advances and Innovations in Nuclear Decommissioning (Woodhead Publishing Series in Energy) 1st Edition

By [Michele Laraia](#) (Editor)

- Series: Woodhead Publishing Series in Energy
- Hardcover: 420 pages
- Publisher: Woodhead Publishing; 1 edition (June 27, 2017)
- Language: English
- ISBN-10: 0081011229
- ISBN-13: 978-0081011225



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7. Lessons learned from decommissioning: What went wrong?
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9. Decommissioning after a severe accident
10. The end state of materials, buildings, and sites: Restricted or unrestricted release?

Part Three International Experience

11. Recent experience in decommissioning research reactors
12. Decommissioning in a multifacility site

13. Recent experience in environmental remediation of nuclear sites

About this book

Advances and Innovations in Nuclear Decommissioning is an essential resource for industry professionals and academics interested in acquiring the most up-to-date information on the current state of nuclear decommissioning. Written and edited by the world's leading experts, this book considers lessons learned and new innovations in the field. Edited by Dr. Laraia, it is the perfect companion to his 2012 book, *Nuclear Decommissioning*, which critically reviews the nuclear decommissioning processes and technologies applicable to nuclear power plants and other civilian nuclear facilities.

Where the earlier book covers the basics of decommissioning, this new book brings you up-to-date with new areas of interest and approaches, innovative technologies, and lessons learned by both the nuclear and non-nuclear decommissioning sectors.

- Focuses on new aspects, trends and innovative technologies
- Includes content on decommissioning after a severe accident, including the use of robotics
- Brings together information from around the world and considers the lessons learned from the non-nuclear sector as well

Nuclear Decommissioning

Its History, Development, and Current Status

Authors: [Michele Laraia](#) 2018

- **Series:** Lecture Notes in Energy (Book 66)
- **Hardcover:** 127 pages
- **Publisher:** Springer; 1st ed. 2018 edition (April 15, 2018)
- **Language:** English
- **ISBN-10:** 3319759159
- **ISBN-13:** 978-3319759159

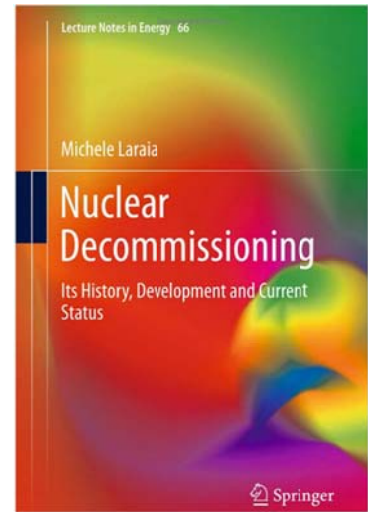


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- Chapter 8 New Issues Emerge
- Chapter 9 Founders and Early Scientists
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About this book

This book discusses the history of nuclear decommissioning as a science and industry. It explores the early, little-known period when the term “decommissioning” was not used in the nuclear context and the end-of-life operations of a nuclear facility were a low priority. It then describes the subsequent period when decommissioning was recognized as a separate phase of the nuclear lifecycle, before bringing readers up to date with today’s state of the art.

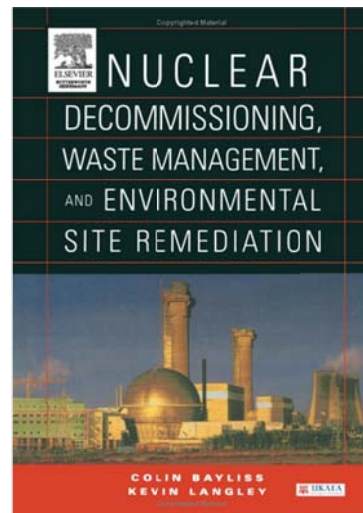
The author addresses decommissioning as a mature industry in an era in which large, commercial nuclear reactors and other fuel-cycle installations have been fully dismantled, and their sites returned to other uses. The book also looks at the birth, growth and maturity of decommissioning, focusing on how new issues emerged, how these were gradually addressed, and the lessons learned from them. Further, it examines the technologies and management advances in science and industry that followed these solutions.

Nuclear Decommissioning is a point of reference for industry researchers and decommissioning practitioners looking to enrich their knowledge of decommissioning in recent decades as well as the modern industry. The book is also of interest to historians and students who wish to learn more about the history of nuclear decommissioning.

Nuclear Decommissioning, Waste Management, and Environmental Site Remediation

By [Colin Bayliss](#) (Author), [Kevin Langley](#) (Author)

- Hardcover: 330 pages
- Publisher: Butterworth-Heinemann; 1 edition (September 22, 2003)
- Language: English
- ISBN-10: 0750677449
- ISBN-13: 978-0750677448
- Product Dimensions: 7 x 0.8 x 10 inches



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About this book

Decommissioning nuclear facilities is a relatively new field, which has developed rapidly in the last ten years. It involves materials that may be highly radioactive and therefore require sophisticated methods of containment and remote handling. The wastes arising from decommissioning are hazardous and have to be stored or disposed of safely in order to protect the environment and future generations. Nuclear decommissioning work must be carried out to the highest possible standards to protect workers, the general public and the environment. This book describes the techniques used for dismantling redundant nuclear facilities, the safe storage of radioactive wastes and the restoration of nuclear licensed sites.

- Describes the techniques used for dismantling nuclear facilities, safe storage of radioactive wastes, and the restoration of nuclear licensed facilities.
- Provides the reader with decommissioning experience accumulated over 15 years by UKAEA.
- Contains valuable information to personnel new to decommissioning and waste management.

Decommissioning and Radioactive Waste Management

By [A. Rahman](#) (Editor)

- Hardcover: 352 pages
- Publisher: Whittles Publishing; 1 edition (October 8, 2008)
- Language: English
- ISBN-10: 1420073486
- ISBN-13: 978-1420073485
- Product Dimensions: 6.2 x 1.2 x 9.5 inches

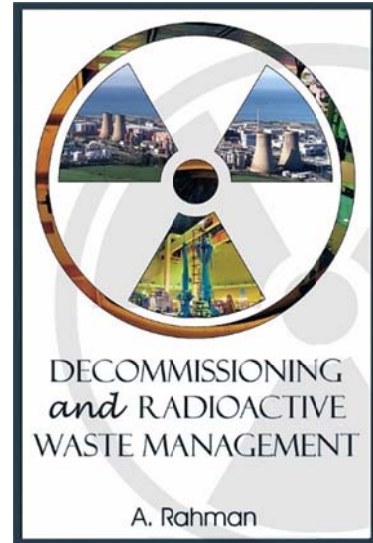


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About this book

This book provides a detailed understanding of the issues associated with these processes. The depth and breadth of the treatment is such that the book is suitable as a text book for graduate and post-graduate courses, and will also be useful to those involved in decommissioning projects and radioactive waste management practices, such as project managers, engineers, health physicists and regulators. Although decommissioning is perceived as the dismantling and demolition of existing facilities, the book demonstrates that there is more to it and there are challenging technical issues to face.

The book has been divided into three parts. Part I (Radiation Science) is the enabling part covering radiation, biological effects of radiation, radiological protection, and statistical methods. These subject matters are used and referred to throughout the rest of the book. Part II incorporates the whole aspect of decommissioning, project management, safety aspects, environmental impact assessment, decontamination and dismantling techniques etc. The last part includes radioactive waste management covering regulatory aspects, treatment and conditioning, storage and transportation, waste disposal etc.

Decontamination and Decommissioning of Nuclear Facilities

1st Printing. Edition

By [Marilyn M. Osterhout](#) (Editor)

- Hardcover: 804 pages
- Publisher: Springer; 1st Printing. edition (May 1, 1980)
- Language: English
- ISBN-10: 030640429X
- ISBN-13: 978-0306404290
- Shipping Weight: 3.2 pounds

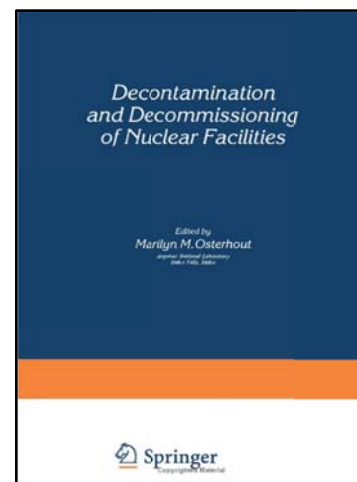


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About this book

This volume contains the invited and contributed papers presented at the American Nuclear Society (ANS) meeting on Decontamination and Decommissioning (D & D) of Nuclear Facilities, held September 16-20, 1979, in Sun Valley, Idaho. This was the first U. S. meeting of the ANS which addressed both of these important and related subjects. The meeting was attended by more than 400 engineers, scientists, laymen, and representatives of federal, state, and local governments, including participants from eleven foreign countries. The technical sessions included several sessions concentrating on ongoing D & D programs in the U. S. and abroad. In addition, "new ground" was broken in such areas as decommissioning costs and cost recovery, advanced programs on reactor coolant filtration, and other areas of continuing and increasing importance to the nuclear industry and to consumers. The dual sponsorship of the meeting (The ANS Reactor Operations Division and the Eastern Idaho Section of the ANS) helped spur a high quality program, a pleasant location, and a high degree of success in technical interchange between the attendees. As guest speaker, we were honored to have Mr. Vince Boyer of Philadelphia Electric Company. Mr. Boyer is both a past chairman of the ANS Reactor Operations Division and a past president of the American Nuclear Society. His views on the nuclear industry and of its current status were informative and interesting.

Nuclear Energy: A Volume in the Encyclopedia of Sustainability Science and Technology Series, 2nd ed. 2018 Edition

By [Nicholas Tsoulfanidis](#) (Editor)

- **Series:** Encyclopedia of Sustainability Science and Technology Series
- **Hardcover:** 438 pages
- **Publisher:** Springer; 2nd ed. 2018 edition (April 18, 2018)
- **Language:** English
- **ISBN-10:** 9781493966172
- **ISBN-13:** 978-1493966172
- **ASIN:** 1493966170
- **Product Dimensions:** 7.2 x 1 x 10.5 inches

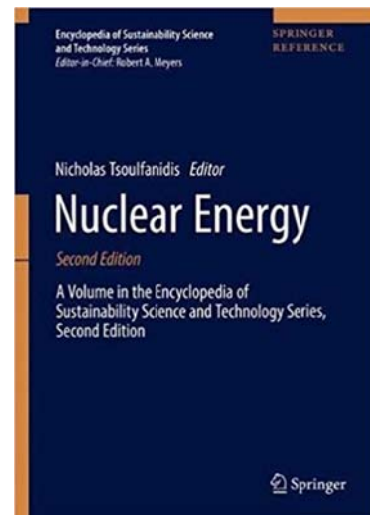


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[Nuclear Fission Power Plants](#)

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[GEN-IV Reactors](#)

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[Small Modular Reactors](#)

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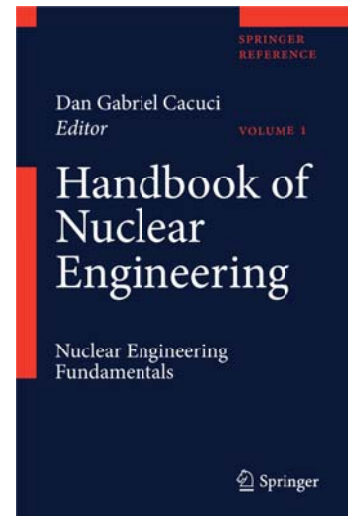
About this book

This book provides an authoritative reference on all aspects of the nuclear energy enterprise for both fission and fusion reactors. Featuring 22 peer-reviewed chapters by recognized authorities in the field, the book offers concise yet comprehensive coverage of fundamentals, current areas of research, and goals for the future. Topics range from fundamental reactor physics calculations, reactor design, nuclear fuel resources, and the nuclear fuel cycle, to radiation detection and protection and the economics of nuclear power. All chapters have been updated from the first edition, with new chapters added on small modular reactors, medical applications - atomic and nuclear, and applications of radioisotopes. As each chapter is written by an acknowledged expert in the area, the reader can be assured that the text is accurate, up-to-date, and will appeal to a broad audience of undergraduate and graduate students, researchers, and energy industry experts.

Handbook of Nuclear Engineering (5 Vol set) 2010th Edition

By [Dan Gabriel Cacuci](#) (Editor)

- Hardcover: 3574 pages
- Publisher: Springer; 2010 edition (September 14, 2010)
- Language: English
- ISBN-10: 0387981306
- ISBN-13: 978-0387981307
- Product Dimensions: 10 x 10.5 x 13.2 inches



Chapter 27 Decommissioning of Nuclear Plants (p.3005-3252)

Authors: Maurizio Cumo

Content

1. Nuclear Plants Decommissioning Overview
2. Decommissioning Organization and Management
3. Plant and Site Characterization
4. Decontamination Techniques
5. Cutting and Dismantling Techniques
6. Remote Control Techniques
7. Spent-Fuel and Waste Management
8. Safety, Health and Environmental Protection
9. Decommissioning Cost Evaluation
10. International Organizations Roles

About this book

The Handbook of Nuclear Engineering is an authoritative compilation of information regarding methods and data used in all phases of nuclear engineering. Addressing nuclear engineers and scientists at all academic levels, this five volume set provides the latest findings in nuclear data and experimental techniques, reactor physics, kinetics, dynamics and control. Readers will also find a detailed description of data assimilation, model validation and calibration, sensitivity and uncertainty analysis, fuel management and cycles, nuclear reactor types and radiation shielding. A discussion of radioactive waste disposal, safeguards and non-proliferation, and fuel processing with partitioning and transmutation is also included.

About this chapter

Decommissioning a nuclear plant can be defined as the termination of operations and the withdrawal of the facility from service, followed by its transformation into an out-of-service state without radiological risks and, in some cases, its complete removal from the site. Decommissioning activities shall be carried out in a cost-effective manner assigning top priority to health and safety of the general public and the environment, as well as of the decommissioning workers. This chapter covers all aspects related to the closure of the operating life of nuclear plants and provides a description of all the activities and tools involved in both the decision-making and operative processes of decommissioning. Nuclear plant decommissioning is a complex, long, and highly specialized activity. In some countries, therefore, it is even called "de-construction" because it is in many respects similar to the construction activity and, in addition, it deals with partly activated and contaminated structures. Activities to perform include technological tools, industrial safety, environmental impact minimization, licensing, safety analysis, structural analysis, etc. Other aspects are short- and long-term planning, calculation of cash flow and financing, waste disposal, and spent fuel strategy. A lot of technical information is drawn from direct experience of nuclear operators. The widely used references are those from the OECD-NEA, UNO-IAEA, US-NRC, and the European Commission. They cover the results of working groups, special studies, comparisons of technologies, and recommendations.

附錄七、核電廠除役相關研討會與訓練課程一覽表

國內研討會及訓練課程

日期	主辦單位	研討會名稱
2004	物管局(?)	93 年除役研討會(NRC)
2012	核管處	101 年除役訓練系列演講
201112	台電公司	台電除役研討會
201204	台電公司	美國 EPRI 除役經驗分享會議
201204	物管局	TRR 研究用反應器除役實務經驗
201211	物管局	2012 NRC 核能電廠除役審查及管制研討會
201303	台電公司	EPRI 除役經驗介紹與資訊分享會議
201305	物管局	核能電廠除役審查及管制研討會
201406	核能學會核設施 除役學術委員會 物管局	核設施除役技術研討會
201407	台電核後端處	EPRI 除役經驗介紹與資訊分享會議
201503	核能學會核設施 除役學術委員會 物管局	2015 年核設施除役技術研討會
201508	物管局	2015 NRC 除役管制技術研討會
201509	核能學會核設施 除役學術委員會 物管局	104 年核設施除役技術研討會
201610	台電	2016 法國 EDF 除役研討會
201611	物管局	2016 台日核電廠除役技術研討會

201701	台電公司	台-瑞典核電廠除役及廢棄物處理技術交流研討會
201708	物管局	2017 NRC 核能電廠除役審查及管制研討會
201711	核能學會核設施 除役學術委員會 物管局	2017 台日核電廠除役技術研討會
201711	物管局	2017 日本除役廠商技術說明會
201711	台電核後端處	2017 中日工程技術研討會
201805	核管處	核電廠除役期間廠址輻射特性調查程式系列 (RESRAD)訓練課程
201807	核管處	2018 NRC 核能電廠除役審查及管制研討會
201809	核管處	2018 台日核電廠除役技術研討會
201809	清華大學核工所	2018 核能電廠除役與核廢料處理訓練課程
201810	原能會	2018 核能電廠除役訓練課程

國外研討會及訓練課程

日期	主辦單位	地點	研討會名稱
201104	NEI	Manchester, UK	2nd Annual Nuclear Decommissioning Conference
201301	IAEA	Vienna, Austria	International Experts' Meeting on Decommissioning and Remediation after a Nuclear Accident
201510	NEI	Charlotte, NC, USA	2nd Annual Nuclear Decommissioning and Used Fuel Stragy Summit 第二屆除役與用過燃料策略高峰會
201602	EDF	Lyon, France	International Symposium on Preparation for Decommissioning(PREDEC 2016)
201706	Agency for Nuclear Reasources and Energy	Tokyo, Japan	International Workshop on Decommissioning of Nuclear Power Plants
201711	ANL	Las Vegas, NV, USA	ANL Decommissioning Training Course

附錄八、國際除役技術資料清單

除役總覽

- NRC(2017)_NUREG BR-0521 Rev.1_DecommissioningNucPlants
- NRC(2005)_NUREG BR-0325_USNRC's Decommissioning Program
- GRS(2017)_GRS-S-58_Decommissioning of Nuclear Facilities
- EPRI(2015)_14th EPRI International Nuclear Power Plant Decommissioning Workshop_Proceedings
- EUR 27902 EN-Advancing Implementation of Nuclear Decommissioning and Environmental Remediation Programmes, 2015
- Decommissioning of nuclear power plants and storage of nuclear waste in Europe - comparison of organization models and policy perspectives, 2017
- Decommissioning of Nuclear Power Plants and Storage of Nuclear Waste in Western Europe and the US - Lessons Learned and Perspectives for Asian Nuclear Countries, 2017
- Evaluation of nuclear decommissioning and waste management, 2012
- IAEA Bulletin, April 2016 - Decommissioning and Environmental Remediation, April 2016
- IAEA Nuclear Energy Series No. NW-T-1.10 - Advancing Implementation of Decommissioning and Environmental Remediation Programmes, 2016
- Nuclear Decommissioning Overview , 2016
- Nuclear decommissioning, wiki 2018
- Nuclear Science and Technology 核科学与技术, 2017, 5(2), 49-53
- Proceedings of an International Conference Held in Madrid, Spain, 23–27 May 2016, 2017
- 台電(2014)_Decommissioning Plan for Nuclear Power Plants in Taiwan
- U.S. Congress(1993)_Aging Nuclear Power Plants Managing Plant Life and Decommissioning-Chap 4. Decommissioning Nuclear Power Plants
- Westinghouse(2011)_NS-IMS-0005_Westinhouse Nuclear Power Plant Decommissioning Plans
- Boing(2006)_IAEA_Decommissioning of Nuclear Facilities
- IAEA(2004)_IAEA Technical Reports Series No. 420_Transition from Operation to Decommissioning of Nuclear Installation
- NRC(2000)_NUREG-1628_Staff Responses to Frequently Asked Questions Concerning Decommissioning of Nuclear Power Reactors

- NRC(2006)_NUREG-1757 Vol.1_Decommissioning Process for Materials Licensees
- NRC_Fact sheet_Decommissioning Nuclear Power Plants
- NRC_Decommissioning Guidance
- NRC(2000)_RG 1.184_Decommissioning of Nuclear Power Reactors
- EC(2002)_Environmental Impact Assessment for the Decommissioning of Nuclear Installations Vol.2
- 施建樑(2011)_核電廠除役規劃與管理
- NEA(2002)_The Decommissioning and Dismantling of Nuclear Facilities-Status, Approaches, Challenges
- NRC(2011)_Annual Report_Status of the Decommissioning Program
- McGrath(2016)_PREDEC 2016_EPRI Guidance for Transition from Operations to Decommissioning
- IAEA(2004)_IAEA Technical Reports Series No.420_Transition from Operation to Decommissioning of Nuclear Installations
- 陳勝朗(2002)_台電核能月刊_核設施除役技術之訴求
- IAEA(2004)_IAEA Safety Series No.36_Safety Considerations in the Transition from Operation to Decommissioning of Nuclear Facilities
- RNSWG(2010)_Radiological Monitoring Technical Guidance Note 2-Environmental Radiological Monitoring
- NRC_NRC Radiological Effluent and Environmental Monitoring Programs
- 喬凌寰(2002)_出國報告_赴德國 Framatome ANP 公司實習核設施除役管理及除役工法相關技術

國外核能電廠除役法規

- baldauf-New Jersey Comments Decommissioning Power Plants
- cowan-NRC Commission Meeting on Decommissioning Rulemaking
- engelhart-Decommissioning Reactor Rulemaking
- mccullum-NRC's Rulemaking Effort on Power Reactor Decommissioning - Industry perspective
- noordennen-Power Reactor Decommissioning Rulemaking
- weisenmiller-State of California Decommissioning Rulemaking
- IAEA TECDOC No. 1816 - Model Regulations for Decommissioning of Facilities - Model Regulations for Decommissioning of Facilities, 2017
- IAEA(2014)_General Safety Requirements Part 6 No. GSR Part 6_Decommissioning

of Facility

- Official Gazette(2011)_JV9_Rules on Operational Safety of Radiation or Nuclear Facilities
- IAEA(2005)_IAEA Safety Reports Series No.45_Standard Format and Content for Safety Related Decommissioning Documents
- IAEA(2008)_IAEA Safety Guide No. WS-G-5.2_Safety Assessment for the Decommissioning of Facilities Using Radioactive Material
- IAEA(2010)_IAEA GSR Part 1_促進安全的政府、法律和監管框架
- Batandjieva(2006)_R2D2P_IAEA Safety Standards Relevant to Decommissioning
- 原能會(2014)_核子反應器設施除役計畫導則
- 王錫勳(2013)_第 13 屆兩岸核能學術交流研討會_核能電廠除役安全管制規劃
- 原能會(2003)_核子反應器設施管制法
- 原能會(1991)_核能電廠除役管理方針
- NRC(2011)_NRC RG DG-4014_DECOMMISSIONING PLANNING DURING OPERATIONS
- Fanfarillo_EUNDETRAF_Regulatory Aspects of Decommissioning-SOGIN
- 蕭海南_台電核能月刊_美國核能電廠除役工作之法規作業
- 經濟部(2011)_核能發電後端營運基金放射性廢棄物貯存回饋要點
- AEC(2009)_環境輻射監測規範
- NEA(2003)_The Regulatory Challenges of Decommissioning Nuclear Reactors

國外核能電廠除役策略

- IAEA(2011)_IAEA Nuclear Energy Series No.NW-G-2.1_Policies and Strategies for the Decommissioning of Nuclear and Radiological Facilities
- Lariaia(2008)_WNU- Summer Institute_Decommissioning (technical knowledge experience; national strategies policies; main issues; future trends)
- NDA(2016)_Nuclear Decommissioning Authority Strategy effective from April 2016
- Lariaia(2015)_Workshop on Development of Specific decontamination Technique_Assessment of Decommissioning Strategies
- IAEA(2005)_IAEA TECDOC 1478_Selection of decommissioning strategies-Issues and factors
- CANDESCO(2014)_International Benchmarking on Decommissioning Strategies
- NEA(2003)_NEA News No.21.2_Decommissioning policies, strategies and costs- an international overview

- IAEA(2007)_Safety Reports No.50_Decommissioning Strategies for Facilities Using Radioactive Material
- OECD(2006)_NEA No. 6038_Selecting Strategies for the Decommissioning of Nuclear Facilities- A Status Report
- NS(2018)_Nuclear Safety 網站資料_Decommissioning strategies _ Science
- Mele(2012)_IAEA Nuclear Energy Management School_Deciding on Decommissioning Strategy
- Suh(2018)_Progress in Nuclear Energy vol.106_Decisions on nuclear decommissioning strategies-Historical review
- UKAEA(2002)_UKAEA's Strategy for the Decommissioning of its Nuclear Licenced Sites
- Lariaia(2011)_2nd Annual Nuclear Decommissioning Conference_Assessment of Decommissioning Strategies
- NEA No.6924 - Applying Decommissioning Experience to the Design and Operation of New Nuclear Power Plants, 2010
- assessment of decommissioning strategies
- Journal of Nuclear Science and Technology, Vol. 52, No. 3, 371–387, 2015
- Nuclear Decommissioning - from Case-Studies to a Proposed Typology of Risk, 2013
- 陳勝朗(2017)_核電廠除役策略與技能自主化
- 陳勝朗(2017)_世界核電除役大會_推廣核電廠退役策略與技能自主化戰略研究
- 陳勝朗、陳布燦()_國內核電廠除役策略之芻見
- IAEA(2011)_IAEA Series Guides No. NW-G-2.1_Policies and Strategies for the Decommissioning of Nuclear and Radiological Facilities
- IAEA(2005)_IAEA-TECDOC-1478_ Selection of decommissioning strategies-Issues and factors
- NEA(2003)_Decommissioning Nuclear Power Plants-Policies, Strategies and Cost
- IAEA(2011)_IAEA TECDOC 1657_Design Lessons Drawn from the Decommissioning of Nuclear Facilities
- IAEA(2011)_IAEA Nuclear Energy Series No.NW-G-2.1_Policies and Strategies for the Decommissioning of Nuclear and Radiological Facilities
- Kim(2015)_PAS 65th Annual International Conference_Comparative Study of the Politics of Nuclear Decommissioning Decommissioning btw GB and KOR
- ASN(2009)_ASN policy concerning the decommissioning and delicensing of basic nuclear installations (BNIs) in France

- GOICEA(2011)_SIEN2011_Decommissioning of NPPs in Europe

核能電廠除役廠址特性調查與除役計畫

- 陳勝朗()_核電廠退役場址特性調查與汙染檢測方法及儀器
- NRC(2009)_NUREG-1575 Supp.1_ (MARSAME)Multi-agency Radiation Survey and Assessment of Material and Equipment Manual
- NRC(2006)_NUREG-1757 Vol.2_Consolidated NMSS Decommissioning Guidance
- NRC(1999)_RG 1.179_Standard Format and Content of License Termination Plans for Nuclear Power Reactors
- NRC(2000)_RG 1.185_Standard Format and Content for POST-SHUTDOWN DECOMMISSIONING ACTIVITIES REPORT
- NRC(2003)_NUREG-1700_Standard Review Plan for Evaluating Nuclear Power Reactor License Termination Plans
- TPC(2017)_安全審查報告_台灣電力公司第一核能發電廠除役計畫
- TPC(2016)_核一廠除役計畫總論
- 武及蘭(2017)_除役之廠址輻射特性調查
- INER(2014)_核一廠輻射特性調查計畫
- INER(2014)_核一廠輻射特性調查現場偵檢方案 A
- INER(2014)_核一廠輻射特性調查現場偵檢方案 B
- INER(2014)_核一廠輻射特性調查現場偵檢方案 C
- INER(2014)_核一廠輻射特性調查現場偵檢方案 D
- 武及蘭(2012)_核設施輻射偵檢與場址特性調查簡介
- ITRC(2008)_Decontamination and Decommissioning of Radiologically Contaminated Facilities
- 魏華洲(2012)_核設施除役物料特性調查
- FUKUMURA et al.(2005)_Monte Carlo 2005 Topical Meeting_DEVELOPMENT OF RADIOACTIVITY ESTIMATION CODE SYSTEM
- MARLAP 美國多機構放射實驗分析協議手冊中譯(1011109)
- IAEA(1998)_IAEA Technical Reports Series No.389_Radiological Characterization of Shut Down Nuclear Reactors
- NRC_NUREG-1576 Vol.1_Laboratory Analytical Protocols Manual
- NRC_NUREG-1576 Vol.2_Laboratory Analytical Protocols Manual
- NRC_NUREG-1576 Vol.3_Laboratory Analytical Protocols Manual

- EPA(2000)_Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)_Appendix A-H
- EPA(2000)_Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)_Appendix I-N
- NEA(2013)_Radiological Characterisation for Decommissioning of Nuclear Installations
- IAEA(1999)_IAEA TECDOC-1118_Compliance monitoring for remediated sites
- NRC(1992)_NUREGCR CR-5849_Manual for Conducting Radiological Surveys in Support of License Termination
- NRC(1995)_NUREG-1506_Measurement Methods for Radiological Surveys in Support of New Decommissioning Criteria
- NRC(2002)_NUREG-1761_Radiological Surveys for controlling release of solid materials
- Methods 和量測儀器 for radiological characterization 2014
- The California Office of Systems Integration_System Decommission Planning Guide
- Londy(2014)_Methods for radiological characterisation
- AEC(2017)_核一廠除役計畫安全審查報告
- TUV(2013)_核能電廠除役審查及管制研討會

核能電廠除役除污及切割技術

- A Novel Approach to Spent Fuel Pool Decommissioning, 2011
- Evolution of R&D for nuclear decommissioning, 2017
- German-Japanese Symposium on Technological and Educational Resources on the Decommissioning of Nuclear Facilities, 2015
- The Use of Robotics and Automation in Nuclear Decommissioning, 2005
- 陳勝朗(2017)_核電廠退役作業遙控切割及除污技術與設備系統
- 洪毓翔(2017)_106 年除役訓練_機械切割
- 謝賢德(2017)_106 年除役訓練_化學除污技術介紹
- EC-CND(2009)_Dismantling techniques, Decontamination Techniques, Dissemination of Best Practice, Experience and Know-how
- IAEA(2012)_IAEA Safety Reports Series No.72_Monitoring for Compliance with Remediation Criteria for Sites
- EPA(2006)_Technology Reference Guide for Radiologically Contaminated Surfaces

- IAEA(1999)_IAEA Technical Reports Series No.395_State of the Art Technology for Decontamination and Dismantling of Nuclear Facilities
- Gurau & Deju(2004)_Radioactive Decontamination Technique used in Decommissioning of Nuclear Facilities
- ANT International(2009)_Decontamination and Steam Generator chemical Cleaning
- EPRI(1996)_Decontamination for Decommissioning-EPRI DFD Process
- EPRI(2002)_Development of the EPRI DFDX Chemical Decontamination Process
- DOE(1998)_Pipe Crawler Internal Piping Characterization System_Deactivation and Decommissioning Focus Area
- EPRI(2004)_Development of a Successful Reactor Cavity Decontamination Plan
- IAEA(1998)_IAEA TECDOC-1022_New methods and techniques for decontamination in maintenance or decommissioning operations
- Bushart et al.(2003)_WM' 03_The EPRI DFDX Chemical Decontamination Process
- EPRI(1999)_Experience in the Testing and Application of the EPRI DfD Process-Decontamination for Decommissioning of Reactor Coolant Systems and Plant Components
- Westinhouse(2010)_Chemical Decontamination for Decommissioning
- ANL_Decontamination Technologies
- EPA(2006)_Technology Reference Guide for radioactive contaminated surface
- NEA(2007)_Technology Reference Guide for Radioactive Contaminated Media
- EML(2008)_TechNote_Technologies for Radioactive Decontamination of Building Surfaces
- NEA(1999)_Decontamination Techniques Used in Decommissioning Activities
- Boing_ANL_Decontamination Technologies
- Boing(2006)_IAEA_Decommissioning of Nuclear Facilities-Decontamination Technologies
- IAEA(2005)_Technical Reports Series No.440_Dismantling of Contaminated Stacks at Nuclear Facilities
- NEA(2011)_DECONTAMINATION AND DEMOLITION OF CONCRETE STRUCTURES
- 羅文璉(2011)_核設施混凝土結構體拆除及減廢實務經驗
- Bluegrass_Diamond wire cuts
- EC(1993)_Nuclear Science and Technology-Analysis of results obtained with different cutting techniques and associated filtration systems for dismantling of

radioactive metallic components

- Cutting Technologies (CTI)
- Hyun et al.(2013)_Evaluation Methodology of Remote Dismantling Equipment for Reactor Pressure Vessel in Decommissioning Project
- NEA(2010)_ NEA News No.28.2_Decontamination and dismantling of radioactive concrete structures
- Toshiba(2012)_Development of remote decontamination technology in the reactor building
- IAEA(2002)_ITER EDA DOCUMENTATION SERIES No. 24_ITER Decommissioning Procedures
- Seward & Bakari(2005)_ISARC 2005_The Use of Robotics and Automation in NPP decommissioning
- Kleimann(2009)_2009 America WJTA Conference and Expo_Water abrasive suspension (was) cutting under water in decommissioning NPPs
- Westinghouse(2010)_NS-IMS-0004_PWR Reactor Vessel Internals Segmentation and Packaging
- Reid(2013)_EPRI_Experiences with Reactor Vessel Segmentation
- 陳勝朗(2018)_機器人在核電廠運維作業和除役作業的應用與設計
- J. Li et al.(2017) SG 2017_A novel inspection robot for nuclear station steam generator secondary side with self-localization
- IAEA(1998)_IAEA TECDOC-1037_Assessment and management of ageing of major nuclear power plant components important to safety-CANDU pressure tubes
- Sundar et al.(2012)_Design and developments of inspection robots in Nuclear Environment-a review
- Seungho Kim(2012)_Development Activities for Robotics in KAERI
- NRC(2016)_NUREG-CP-0304_Proceedings of the International Workshop on the Use of Robotic Technologies at Nuclear facilities
- Oikawa(2016)_IRID_R&D on Robots for the Decommissioning of Fukushima Daiichi NPS
- Choi(2005)_The Robots for Nuclear Power Plants
- A. Shippen_CREATEC_RISER-3D Contamination Mapping with a Nuclear-Capable Drone
- Davison(2016)_RIA_Safety Standards and collaborative robots
- Jacoff(2016)_NIST_Standard Test Methods for Evaluating, Purchasing, and Training with Response Robots

- Szilagyi(2016)_DOE_Overview-of-Robotic-Databases-Challenges-and-Opportunities-for-the-Use-of-Robotic-Technologies-at-Nuclear-Facilities
- Zic(2016)_Ontario power generation_Use-of-Robotics-and-Remote-Monitoring-Equipment-for-Reducing-Dose-and-Risk-at-Ontario-Power-Generation
- Tibrea(2016)_Savannah River National Lab_DOE-National-Laboratory-Robotic-System-Applications-for-Nuclear-Facilities-Operations-and-Legacy-Cleanup
- Cato(2016)_Duke Energy_Knight_Use-of-Robotics-for-Dose-Reduction-and-Efficiency-Gains-at-US-Commercial-Nuclear-Facilities
- Rimando(2016)_Office of EM_Challenges-and-Opportunities-for-the-Next-Generation-of-Remote-Systems-and-Robotics-in-the-Decommissioning-of-DOEs-Nuclear-Facilities
- Mallion(2016)OC Robotics_Snake-Arm-Robots-for-Nuclear-Applications
- Gillerman(2016)_NIST_Standards-Development-for-Robotics-and-their-Operators
- Surak(2016)_ASTM_Guidance-on-Robot-Operator-Certification
- Shackelford(2016)_Sellafield_Box Encapsulation Robotics Project
- Qian(2012)_Small Teleoperated Robot for Nuclear radiation and leakage detection
- ITER(2011)_Remote handling system Engineering and R&D Expert-Technocal Specification
- Fang(2013)_ISCCCA-13_The Design of an Miniature Underwater robot for Hazardous Environment
- Swrad(2005)_ISARC 2005_The Use of Robotics and Automation in nuclear decommissioning

除役放射性廢棄物管理

- 陳勝朗(2017)_兩岸核電廠放射性廢棄物管理的實踐與挑戰
- 陳勝朗(2017)_兩岸核電廠放射性廢棄物管理與處置的實踐與發展
- 陳勝朗(2013)_放射性廢棄物管理
- 陳勝朗(2017)_放射性廢棄物管理(含兩岸技術規範)
- 陳勝朗(2017)_放射性廢棄物的管理
- 陳勝朗(2017)_核電廠放射性固體廢棄物清潔解控外釋的量測偵檢儀器與技術
- 黃秉修(2017)_106 年除役訓練_除役廢棄物的處置
- 陳朝福(2017)_除役期間用過核燃料之處理(公開版)

- 王正忠、張峰榮(2011)_台電月刊 346 期_金屬廢棄物解除管制外釋作業執行實務
- NEA(2005)_NEA No.5417_Achieving the Goals of Decommissioning Safety Case
- DOE(2009)_Radioactive Materials Packaging and Transportation Basic Primer
- NRC(2001)_RG 1.143_Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants
- Stockinger(2012)_Nuclear Power Plant Gaseous Waste Treatment System Design
- Extra Packaging_Special Application Asbestos Glove Bags- Asbestos Control Bags
- Extra Packaging_Radioactive Waste Bags
- IAEA(2008)_IAEA Technical Reports Series No.462_Managing Low Radioactivity Material from the Decommissioning
- IAEA(2001)_IAEA Technical Reports Series No.401_Methods for the Minimization of Radioactive Waste from Decontamination and Decommissioning of Nuclear Facilities

核能電廠除役組織與管理

- IAEA Nuclear Energy Series No. NW-T-2.8 - Managing the Unexpected in Decommissioning, 2016
- Nuclear Decommissioning and Legal Risk, 2017
- Safety Reports Series No. 77 - Safety Assessment for Decommissioning, 2013
- 陳勝朗(2016)_核電廠除役專案組織架構規劃評量
- IAEA(2004)_TECDOC 1394_Planning, managing and organizing the decommissioning
- NRC(2003)_NUREG-1757 Vol.3_Consolidated NMSS Decommissioning Guidance
- Energy Institute(2010)_Guidance on managing human and organisational factors in decommissioning
- 張益端_核一廠除役專案管理_除役排程規劃與組織人力管理
- IAEA(2002)_IAEA TECDOC 1305_Safe and effective nuclear power plant life cycle management towards decommissioning
- 周貽新(2011)_核能電廠除役計畫紀錄與長期保存簡介
- 周貽新(2012)_核能電廠除役計畫紀錄與長期保存簡介
- Alemberti et al.(2005)_SIEN 2005_Integrated Decommissioning Management tools
- IAEA(2008)_IAEA Technical Reports Series No. 467_Long Term Preservation of Information for Decommissioning Projects

- IAEA(2002)_IAEA Technical Reports Series No. 411_Record Keeping for the Decommissioning of Nuclear Facilities-Guidelines and Experience

核能電廠除役費用

- Comparison among different decommissioning funds methodologies for nuclear installations, 2007
- 陳勝朗(2016)_除役拆除作業過程-Report of The dismantling of the José Cabrera NPP
- Aker(2005)_Maine Yankee Decommissioning Experience Report Detailed Experiences 1997 - 2004
- 經濟部(2013)_出國考察報告_考察美國除役中核能電廠
- Curry(1999)_WM'99_ENGINEERING ISSUES-PLANNING FOR THE EARLY RETIREMENT OF THE OYSTER CREEK NUCLEAR GENERATING STATION
- 台電(2011)_出國考察報告_赴瑞典參加 EPRI 核電廠除役會議_彭永昌
- ENRESA(2007)_Decommissioning report 1998-2003 Vandellós I NPP
- Gardiner et al.(2002)_WM'02_RANCHO SECO-PLANNING FOR LARGE COMPONENTS
- Ackermann & Backer_Methodology transfer for the preparation NPP decommissioning for leading personnel of the Ignalina NPP and for the representatives of Lithuanian authorities
- Uspuras(2012)_European Forum_LEI Scientific and technical support for decommissioning projects
- YAEC(1993)_SUPPLEMENT TO APPLICANT'S ENVIRONMENTAL REPORT-POST OPERATING LICENSE STAGE-Yankee
- 謝牧謙_日本東海電廠除役計畫(上)
- Rod et al.(2014)_WM2014_Development of Decommissioning Stratge of HBNPP
- 周松霖_台電核能月刊_日本東海電廠除役計畫
- JAPC_Tokai-1Tokai Power Station
- 李崙暉_台電核能月刊_TRR 開始進入除役的階段
- 裴晉哲(2012)_清華阿岡諾反應器 THAR 除役回顧
- PG&E(2015)_HBPP Decommissioning Program-Final Site Restoration Plan Implementation
- EAP(1974)_EPA-520 3-74-007_Radiological surveillance study at the Haddam Neck NPP
- Křištofová et al.(2012)_Workshop on Radiological Characterisation for

Decommissioning_Radiological Characterisation of V1 NPP Technological Systems and Buildings-Activation

- ORNL(1975)_An Example of the Application of the Cuex Methodology- the Calculated Exposure Resulting from Routine Stack Releases from the Haddam Neck NPP
- Zic(2016)_Use of Robotics and Remote Monitoring Equipment for Reducing Dose and Risk Associated with Radiological Work at Ontario Power Generation
- Hanzel & Rapant (2012)_Radiological Characterization of V1 NPP technological systems and buildings-contamination
- Aunuti et al.(2013)_Decommissioning study of Forsmark NPP
- Kaulard & Brendebach(2012)_IRPA 13th_Radiation Protection during Decommissioning of Nuclear Facilities-Experiences and Challenges
- Poskas et al.(2008)_WM2008_Radiological characterization of the Unit 1 at Ignalina NPP
- TLG Services(2014)_Vermont Yankee NPP PSDAR
- Basu et al.(2008)_ISOE European Symposium 2008_Full System Decontamination for Decommissioning-Experiences at NPP Barseback Unit 1&2 applying the AREVA NP GmbH HP CORD® UV AMDA® Technology
- EPRI(2007)_Decommissioning Lessons Learned
- Nuclear Engineering International(1998)_Decontamination for decommissioning at Connecticut Yankee
- Nuclear Engineering International(2001)_Chemical cleaning of fuel assemblies
- Giacomazzo & Hadden(1996)_Shoreham decommissioning technology-Simple and effective
- INTECH(2011)_A Novel Approach to Spent fuel pool decommissioning
- ENRESA_Dismantling and decommissioning of facilities (Jose Cabrera NPP)
- EC(1995)_Nuclear Science and Technology-Survey of VVER reactors with a view to decommissioning requirements

國外核能電廠除役案例及經驗

- BUCKLEY-Operational decommissioning experience in UK, 2016
- Decommissioning & Waste Management in Italy, 2011
- Decommissioning Experience in Spain, 2011
- GALLI-Presentation of TRINO NPP facilities decommissioning activities and Program of the visit to Trino NPP, 2016

- GILLOGLY-Activities of OECD Nuclear Energy Agency in Nuclear Decommissioning and Waste Management, 2016
- IMIELSKI(2016)_Operational Decommissioning Experiences in Germany
- JRC experiences in Decommissioning and Waste Management at its Ispra site & other sites in the EU, 2013
- Operation to Decommissioning Transition, 2014
- Operational Decommissioning - UK Responsibilities & Arisings, 2013
- Operational decommissioning experience in Eastern European Countries, 2011
- Operational Decommissioning Experience in France Radioactive Waste Management and Radiation Protection Issues, 2013
- Operational decommissioning experience in Germany, 2013
- Operational Decommissioning Experience in the UK, 2011
- Operational Decommissioning in Germany, 2011
- Baker-Zion Project Overview
- Middle States Geographer, 2014, 47, 48-59
- Nuclear Decommissioning in Japan - Opportunities for European Companies, 2016
- 陳勝朗(2016)_除役拆除作業過程-Report of The dismantling of the José Cabrera NPP
- Aker(2005)_Maine Yankee Decommissioning Experience Report Detailed Experiences 1997 - 2004
- 經濟部(2013)_出國考察報告_考察美國除役中核能電廠
- Curry(1999)_WM'99_ENGINEERING ISSUES-PLANNING FOR THE EARLY RETIREMENT OF THE OYSTER CREEK NUCLEAR GENERATING STATION
- 台電(2011)_出國考察報告_赴瑞典參加 EPRI 核電廠除役會議_彭永昌
- ENRESA(2007)_Decommissioning report 1998-2003 Vandellós I NPP
- Gardiner et al.(2002)_WM'02_RANCHO SECO-PLANNING FOR LARGE COMPONENTS
- Ackermann & Backer_Methodology transfer for the preparation NPP decommissioning for leading personnel of the Ignalina NPP and for the representatives of Lithuanian authorities
- Uspuras(2012)_European Forum_LEI Scientific and technical support for decommissioning projects
- YAEC(1993)_SUPPLEMENT TO APPLICANT'S ENVIRONMENTAL REPORT-POST OPERATING LICENSE STAGE-Yankee

- 謝牧謙_日本東海電廠除役計畫(上)
- Rod et al.(2014)_WM2014_Development of Decommissioning Stratge of HBNPP
- 周松霖_台電核能月刊_日本東海電廠除役計畫
- JAPC_Tokai-1Tokai Power Station
- 李崙暉_台電核能月刊_TRR 開始進入除役的階段
- 裴晉哲(2012)_清華阿岡諾反應器 THAR 除役回顧
- PG&E(2015)_HBPP Decommissioning Program-Final Site Restoration Plan Implementation
- EAP(1974)_EPA-520 3-74-007_Radiological surveillance study at the Haddam Neck NPP
- Krištofová et al.(2012)_Workshop on Radiological Characterisation for Decommissioning_Radiological Characterisation of V1 NPP Technological Systems and Buildings-Activation
- ORNL(1975)_An Example of the Application of the Cuex Methodology- the Calculated Exposure Resulting from Routine Stack Releases from the Haddam Neck NPP
- Zic(2016)_Use of Robotics and Remote Monitoring Equipment for Reducing Dose and Risk Associated with Radiological Work at Ontario Power Generation
- Hanzel & Rapant (2012)_Radiological Characterization of V1 NPP technological systems and buildings-contamination
- Aunuti et al.(2013)_Decommissioning study of Forsmark NPP
- Kaulard & Brendebach(2012)_IRPA 13th_Radiation Protection during Decommissioning of Nuclear Facilities-Experiences and Challenges
- Poskas et al.(2008)_WM2008_Radiological characterization of the Unit 1 at Ignalina NPP
- TLG Services(2014)_Vermont Yankee NPP PSDAR
- Basu et al.(2008)_ISOE European Symposium 2008_Full System Decontamination for Decommissioning-Experiences at NPP Barseback Unit 1&2 applying the AREVA NP GmbH HP CORD® UV AMDA® Technology
- EPRI(2007)_Decommissioning Lessons Learned
- Nuclear Engineering International(1998)_Decontamination for decommissioning at Connecticut Yankee
- Nuclear Engineering International(2001)_Chemical cleaning of fuel assemblies
- Giacomazzo & Hadden(1996)_Shoreham decommissioning technology-Simple and effective

- INTECH(2011)_A Novel Approach to Spent fuel pool decommissioning
- ENRESA_Dismantling and decommissioning of facilities (Jose Cabrera NPP)
- EC(1995)_Nuclear Science and Technology-Survey of VVER reactors with a view to decommissioning requirements