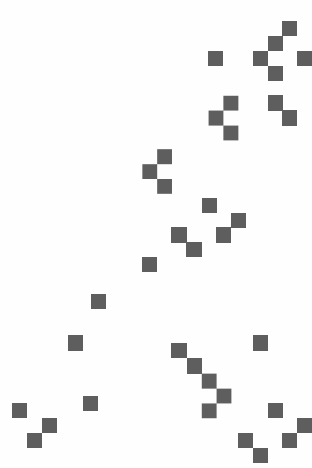
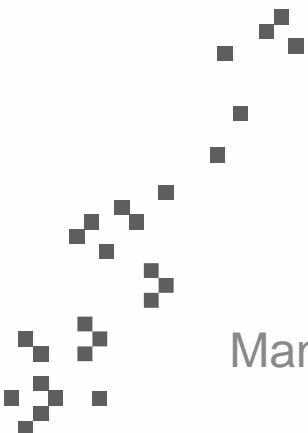




International
Symposium
on **PRE**paration
for **DEC**ommissioning



Applicability of EPRI Decommissioning Pre-Planning Manual to International Decommissioning Projects



Leo Lessard

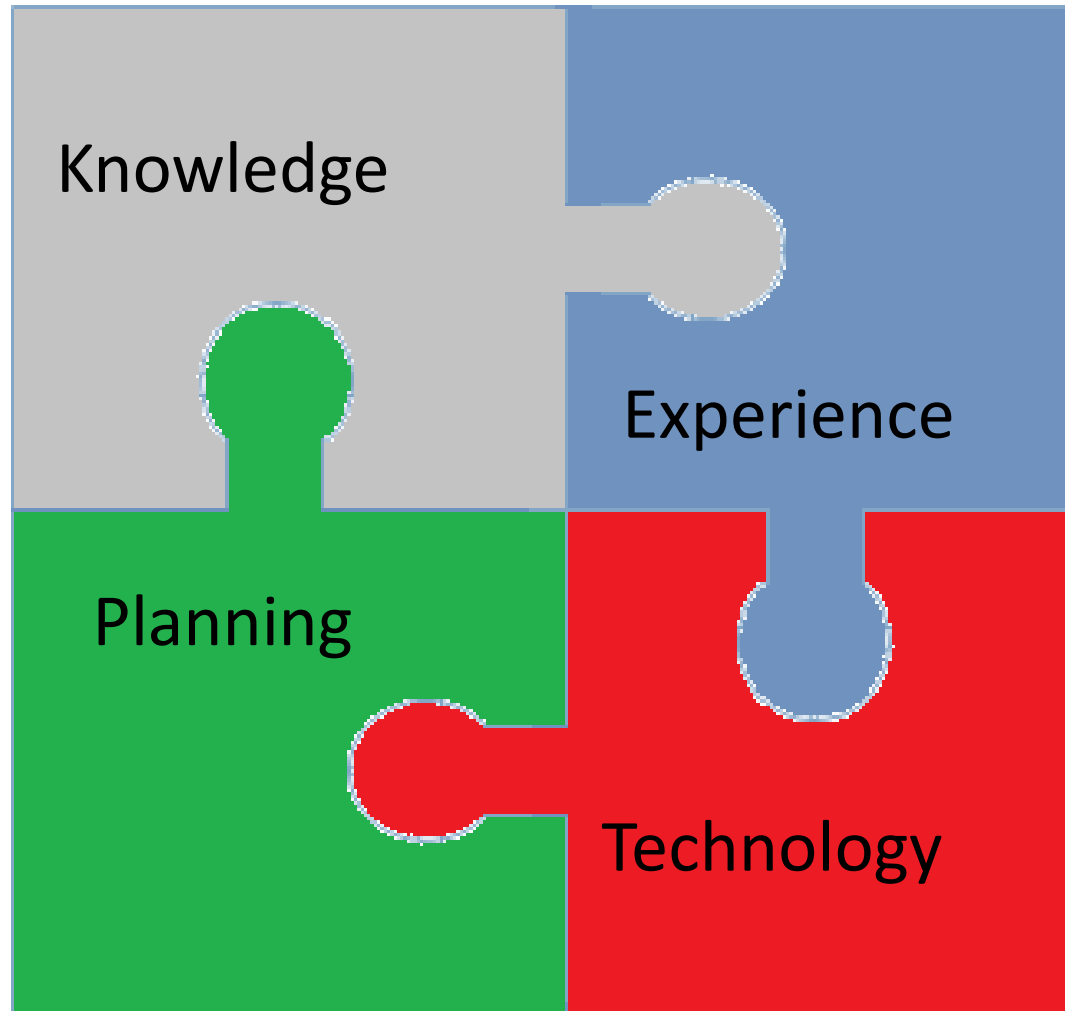
Manager, Commercial Decommissioning Operations, AREVA Inc.

16th February 2016

Objectives

- Present a summary of the EPRI Decommissioning Pre-Planning Manual
- Review potential changes/enhancements to the Manual
- Present a cross-reference matrix between the Manual and IAEA D&D Reports
- Present a cross-reference matrix between the Manual and IAEA Safety Series Report No. 45 (Contents of Decommissioning Plan)

Reactor Decommissioning in “Four Easy Pieces”



- “Decommissioning Pre-Planning Manual”
- EPRI Report #1003025
- Published November 2001
- Prepared by AREVA Inc. (Duke Engineering & Services)
- 2 of the 6 Principal Investigators still with AREVA

- Team identified 65 Key “Decommissioning Activities” that support tactical level planning
- These were Consolidated into 32 Pre-Planning Tasks described as “Decommissioning Task Outlines” (DTOs)
- DTOs define advance planning requirements common at the discipline level (Professional Groupings)
- DTOs are organized into a logical sequence to insure efficient and effective implementation

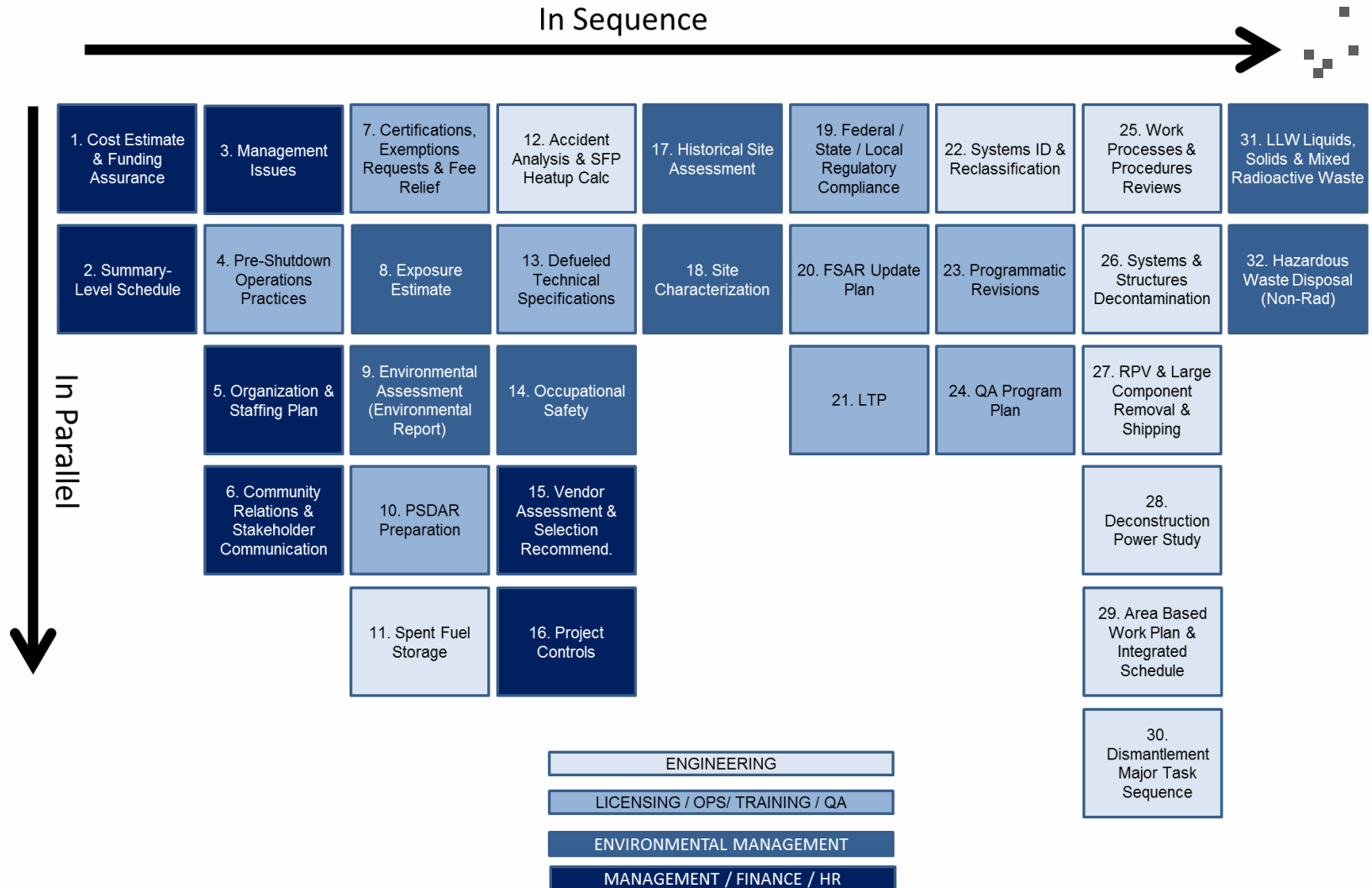
DTOs (1-18) / Decommissioning Activities / Professional Groupings

DTO No.	EPRI DTO Name	Activity No.	EPRI Activity Name	Professional Groupings
-	N/A	1	Strategic Planning	Management/Finance/HR
		2	Tactical Planning	Management/Finance/HR
		5	DOC/Decom Bid Specifications Development	Management/Finance/HR
		9	Contingencies	Management/Finance/HR
		16	Special Issues for Decommissioning	Management/Finance/HR
1	Cost Estimate & Funding Assurance	6	Decommissioning Cost Estimate	Management/Finance/HR
		8	Funding Assurance	Management/Finance/HR
		24	Tax Status Modification	Licensing/Ops/Training/QA
2	Summary-Level Schedule	4	Schedule	Management/Finance/HR
3	Management Issues	3	Management Structure	Management/Finance/HR
		7	Decommissioning Oversight	Management/Finance/HR
		13	Cultural Transition	Management/Finance/HR
		17	Decommissioning Performance Indicators	Management/Finance/HR
4	Pre-Shutdown Recommended Practices	40	Pre-Shutdown Operations/Maintenance Activities	Licensing/Ops/Training/QA
5	Organization & Staffing Plan	14	Decommissioning Organization & Staffing	Management/Finance/HR
		15	Employee Retention/Release Policies	Management/Finance/HR
6	Community Relations & Stakeholder Communications	12	Community Relations & Stakeholder Communications	Management/Finance/HR
7	Certifications, Exemptions Requests & Fee Relief	18	Certification of Cessation of Operations	Licensing/Ops/Training/QA
		22	Exemptions Requests	Licensing/Ops/Training/QA
		27	Relief from Operational Fees	Licensing/Ops/Training/QA
8	Radiation Exposure Estimate	59	Radiation Exposure Estimate	Environ. Mgmt. and OH&S
9	Environmental Assessment (Environmental Report)	64	Environmental Assessment (Environmental Report) Plan	Environ. Mgmt. and OH&S
10	Post Shutdown Decomm Activities Report (PSDAR)	26	PSDAR Preparation	Licensing/Ops/Training/QA
11	Spent Fuel Storage	43	Spent Fuel Storage Strategy	Engineering
		44	Spent Fuel Pool Island Studies	Engineering
12	Accident Analysis & Spent Fuel Pool Heatup Calculation	45	Accident Analysis & Spent Fuel Pool Heatup Calculation	Engineering
13	Defueled technical Specifications	19	Defueled Technical Specifications	Licensing/Ops/Training/QA
14	Occupational Safety	65	Occupational Safety Program	Environ. Mgmt. and OH&S
15	Vendor Assessment & Selection Recommendations	10	Decommissioning Vendor Selection & Assessment Recommendation	Management/Finance/HR
16	Project Controls	11	Financial Administration	Management/Finance/HR
17	Historical Site Assessment	57	Radiological Historical Site Characterization Plan	Environ. Mgmt. and OH&S
		58	Non-Radiological Historical Site Characterization Plan	Environ. Mgmt. and OH&S
18	Site Characterization	57	Radiological Site Characterization Plan	Environ. Mgmt. and OH&S
		58	Non-Radiological Site Characterization Plan	Environ. Mgmt. and OH&S

DTOs (19-32) / Decommissioning Activities / Professional Groupings

DTO No.	EPRI DTO Name	Activity No.	EPRI Activity Name	Professional Groupings
19	Federal/State/Local Regulatory Compliance	20	Federal and Local Permits	Licensing/Ops/Training/QA
		21	State Compliance	Licensing/Ops/Training/QA
20	Final Safety Analysis Report (FSAR) Update Plan	25	FSAR Update Plan	Licensing/Ops/Training/QA
21	License Termination Plan (LTP)	31	License Termination Plan (LTP)	Licensing/Ops/Training/QA
22	Systems Identification & Reclassification	42	Procedure Revisions Related to Declassification	Engineering
		49	Identification of Support Systems	Engineering
		51	Systems Reclassification	Engineering
23	Programmatic Revisions	23	License Basis/Design Basis Review	Licensing/Ops/Training/QA
		28	Revisions to License Commitments	Licensing/Ops/Training/QA
		29	Withdrawal: Licensing Submittals Supporting Operations	Licensing/Ops/Training/QA
		30	Operations (Certified Fuel Handler) Training Program	Licensing/Ops/Training/QA
		32	Emergency Plan Program	Licensing/Ops/Training/QA
		33	Fire Protection	Licensing/Ops/Training/QA
		34	Security Program	Licensing/Ops/Training/QA
		35	Station Blackout	Licensing/Ops/Training/QA
		36	Maintenance Rule Program	Licensing/Ops/Training/QA
		37	Fitness for Duty Program	Licensing/Ops/Training/QA
38	Safety Reviews (50.59)	Licensing/Ops/Training/QA		
41	Engineering Support Personnel (ESP) Training Program	Licensing/Ops/Training/QA		
24	Quality Assurance (QA) Program	39	QA Program	Licensing/Ops/Training/QA
25	Work Processes & Procedures Reviews	52	Procedure Review Plan	Engineering
		53	Work Process Simplification	Engineering
26	Systems & Structures Decontamination	48	Systems Decontamination Studies	Engineering
27	Reactor Vessel & Large Component Removal & Shipping	46	Reactor Pressure Vessel and Large Component Removal	Engineering
		47	Reactor Pressure Vessel and Large Component Shipping	Engineering
28	Deconstruction Power Supply	50	Deconstruction Power Supply	Engineering
29	Area-Based Work Plan & Integrated Schedule	54	Integrated Schedule	Engineering
		55	Area-Based Work Plan	Engineering
30	Dismantling Major Task Sequence	56	Dismantling Major Task Sequence	Engineering
31	LLW Liquids, Solids & Mixed Radioactive Waste	60	Low-Level Liquid Waste Disposal	Environ. Mgmt. and OH&S
		61	Low-Level Solid Waste Disposal	Environ. Mgmt. and OH&S
		63	Mixed Waste Disposal	Environ. Mgmt. and OH&S
32	Hazardous Waste Disposal (Non-Rad)	62	Hazardous Waste Disposal (Non-Rad)	Environ. Mgmt. and OH&S

Decommissioning Task Outlines (DTO) Sequencing



Potential Enhancements to the Manual

- Dismantling Strategy (early development of potential options)
- Final Status Survey
- Site Closure Plan
- Record Management
- Risk Assessments
- Need for Mitigating Strategies
- Review Changes to Regulatory Environment

The Manual / IAEA Cross Reference Matrix

DTO No.	DTO Name	Activity No.	Activity Name	IAEA REFERENCE																												
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	
1	Cost Estimate & Funding Assurance	6	Decommissioning Cost Estimate	X	X	X	X	X	X	X																			X		X	
		8	Funding Assurance	X	X	X	X	X	X	X																				X		X
		24	Tax Status Modification																										X			
2	Summary-Level Schedule	4	Schedule	X	X	X	X	X	X	X					X	X												X		X		
3	Management Issues	3	Management Structure	X	X	X			X	X	X	X			X	X	X											X		X		
		7	Decommissioning Oversight	X	X	X			X						X	X	X														X	
		13	Cultural Transition			X			X	X	X	X				X	X	X										X			X	
		17	Decommissioning Performance Indicators			X										X	X												X		X	
4	Pre-Shutdown Recommended Practices	40	Pre-Shutdown Operations/Maintenance Activities	X	X	X				X				X	X	X														X		
5	Organization & Staffing Plan	14	Decommissioning Organization & Staffing	X	X	X	X	X	X	X	X				X	X	X											X		X		
		15	Employee Retention/Release Policies	X	X						X	X				X	X	X											X		X	
6	Community Relations & Stakeholder Communications	12	Community Relations & Stakeholder Communications	X	X	X	X	X	X	X	X			X	X	X				X			X			X	X			X		
7	Certifications, Exemptions Requests & Fee Relief	18	Certification of Cessation of Operations																											X		
		22	Exemptions Requests																												X	
		27	Relief from Operational Fees																													
8	Radiation Exposure Estimate	59	Radiation Exposure Estimate	X	X	X			X				X	X	X	X			X											X		
9	Environmental Assessment (Environmental Report)	64	Environmental Assessment (Environmental Report) Plan	X	X	X	X	X	X			X	X	X	X	X				X								X	X	X	X	
10	Post Shutdown Decomm Activities Report (PSDAR)	26	PSDAR Preparation	X	X	X	X	X	X	X			X	X	X	X	X			X								X	X		X	
11	Spent Fuel Storage	43	Spent Fuel Storage Strategy		X		X	X			X	X	X	X	X				X	X											X	
		44	Spent Fuel Pool Island Studies				X	X			X	X	X	X																		X
12	Accident Analysis & Spent Fuel Pool Heatup Calculation	45	Accident Analysis & Spent Fuel Pool Heatup Calculation	X										X	X	X															X	
13	Defueled Technical Specifications	19	Defueled Technical Specifications		X									X	X	X															X	
14	Occupational Safety	65	Occupational Safety Program	X	X	X	X	X	X			X	X	X	X	X					X	X	X	X	X						X	
15	Vendor Assessment & Selection Recommendations	10	Decommissioning Vendor Selection & Assessment Recommendation			X									X	X															X	
16	Project Controls	11	Financial Administration	X											X	X															X	
17	Historical Site Assessment	57	Radiological Historical Site Characterization Plan	X	X	X				X		X	X	X	X					X	X	X	X	X	X				X	X		
		58	Non-Radiological Historical Site Characterization Plan	X	X	X				X		X	X	X	X						X	X	X	X							X	
18	Site Characterization	57	Radiological Site Characterization Plan	X	X	X				X		X	X	X	X					X	X	X	X	X	X				X	X		
		58	Non-Radiological Site Characterization Plan	X	X	X				X		X	X	X	X						X	X	X	X							X	

The Manual / IAEA Cross Reference Matrix (cont'd)

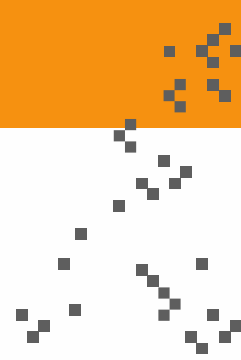
DTO No.	DTO Name	Activity No.	Activity Name	IAEA REFERENCE																											
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]
19	Federal/State/Local Regulatory Compliance	20	Federal and Local Permits			X	X	X	X	X		X	X	X	X	X	X													X	
		21	State Compliance			X	X	X	X	X		X	X	X	X	X	X													X	
20	Final Safety Analysis Report (FSAR) Update Plan	25	FSAR Update Plan			X								X	X	X													X		
21	License Termination Plan (LTP)	31	License Termination Plan (LTP)	X		X	X	X	X					X	X	X						X								X	
22	Systems Identification & Reclassification	42	Procedure Revisions Related to Declassification	X		X					X		X	X	X	X													X		
		49	Identification of Support Systems	X		X					X		X	X	X	X														X	
		51	Systems Reclassification	X		X					X		X	X	X	X														X	
23	Programmatic Revisions	23	License Basis/Design Basis Review	X	X	X					X	X	X	X	X														X		
		28	Revisions to License Commitments	X	X	X					X	X	X	X	X															X	
		29	Withdrawal: Licensing Submittals Supporting Operations	X	X	X								X	X	X														X	
		30	Operations (Certified Fuel Handler) Training Program	X	X	X										X														X	
		32	Emergency Plan Program	X	X	X								X	X	X														X	
		33	Fire Protection											X	X	X														X	
		34	Security Program			X	X							X	X	X														X	
		35	Station Blackout											X	X	X														X	
		36	Maintenance Rule Program	X	X									X	X															X	
		37	Fitness for Duty Program											X	X															X	
		41	Safety Reviews (50.59)	X	X	X					X	X	X	X	X	X														X	
41	Engineering Support Personnel (ESP) Training Program	X		X					X	X	X	X	X	X	X													X			
24	Quality Assurance (QA) Program	39	QA Program	X	X	X			X		X	X	X	X	X	X					X								X		
25	Work Processes & Procedures Reviews	52	Procedure Review Plan	X	X	X			X		X	X	X	X	X														X		
		53	Work Process Simplification	X		X			X		X	X	X	X	X															X	
26	Systems & Structures Decontamination	48	Systems Decontamination Studies			X	X				X		X	X	X				X		X	X	X	X	X				X		
27	Reactor Vessel & Large Component Removal & Shipping	46	Reactor Pressure Vessel and Large Component Removal										X	X	X				X						X				X		
		47	Reactor Pressure Vessel and Large Component Shipping										X	X	X				X										X		
28	Deconstruction Power Supply	50	Deconstruction Power Supply									X	X	X				X											X		
29	Area-Based Work Plan & Integrated Schedule	54	Integrated Schedule			X							X	X	X			X											X		
		55	Area-Based Work Plan			X								X	X	X			X											X	
30	Dismantling Major Task Sequence	56	Dismantling Major Task Sequence		X	X			X				X	X	X	X		X			X								X		
31	LLW Liquids, Solids & Mixed Radioactive Waste	60	Low-Level Liquid Waste Disposal		X	X	X	X			X	X	X	X	X	X		X	X	X	X	X	X	X					X		
		61	Low-Level Solid Waste Disposal		X	X	X	X			X	X	X	X	X	X		X	X	X	X	X	X	X					X		
		63	Mixed Waste Disposal		X	X	X	X			X	X	X	X	X	X		X	X	X	X	X	X	X					X		
32	Hazardous Waste Disposal (Non-Rad)	62	Hazardous Waste Disposal (Non-Rad)		X	X	X	X			X	X	X	X	X	X		X		X	X	X	X	X					X		

IAEA TSR 45 Activities / The Manual DTOs & DAs Matrix

IAEA Decommissioning Plan		EPRI Manual		EPRI Manual	
No.	Activity Title	No.	Activity Name	No.	DTO Name
2.0	Facility Description				
2.1	Site location and description	26 25	PSDAR Preparation FSAR Update Plan	10 20	Post Shutdown Decomm Activities Report (PSDAR) Final Safety Analysis Report (FSAR) Update Plan
2.2	Building and system description	26 25	PSDAR Preparation FSAR Update Plan	10 20	Post Shutdown Decomm Activities Report (PSDAR) Final Safety Analysis Report (FSAR) Update Plan
2.3	Radiological status	57, 58	Radiological & Non-Radiological Site Characterization Plan	17, 18	Historical Site Assessment & Site Characterization
2.4	Facility operating history	57, 58	Radiological & Non-Radiological Site Characterization Plan	17, 18	Historical Site Assessment & Site Characterization
3.0	Decommissioning Strategy				
3.1	Alternatives considered	1 2	Strategic Planning Tactical Planning	- -	N/A N/A
3.2	Rationale for chosen strategy	1 2	Strategic Planning Tactical Planning	- -	N/A N/A
4.0	Project Management				
4.1	Legal and regulatory requirements	20	Federal and Local Permits	19	Federal/State/Local Regulatory Compliance
4.2	Project management approach	3	Management Structure	3	Management Issues
4.3	Project management organization and responsibilities	14	Decommissioning Organization & Staffing	5	Organization & Staffing Plan
4.4	Task management organization and responsibilities	7	Decommissioning Oversight	3	Management Issues
4.5	Safety culture	65	Occupational Safety Program	14	Occupational Safety
4.6	Training	41	Engineering Support Personnel (ESP) Training Program	23	Programmatic Revisions
4.7	Contractor support	5	DOC/Decom Bid Specifications Development	-	N/A
4.8	Schedules	4	Schedule	2	Summary-Level Schedule
5.0	Decommissioning Activities				
5.1	Contaminated structures	57, 58	Radiological & Non-Radiological Site Characterization Plan	17, 18	Historical Site Assessment & Site Characterization
5.2	Contaminated systems and equipment	46 48	Reactor Pressure Vessel and Large Component Removal Systems Decontamination Studies	27 26	Reactor Vessel & Large Component Removal & Shipping Systems & Structures Decontamination
5.3	Soil	64	Environmental Assessment (Environmental Report) Plan	9	Environmental Assessment (Environmental Report)
5.4	Surface and groundwater	64	Environmental Assessment (Environmental Report) Plan	9	Environmental Assessment (Environmental Report)
5.5	Decommissioning schedules	54 56	Integrated Schedule Dismantling Major Task Sequence	29 30	Area-Based Work Plan & Integrated Schedule Dismantling Major Task Sequence
6.0	Surveillance and Maintenance				
6.1	Equipment and systems requiring surveillance and maintenance	36 40	Maintenance Rule Program Pre-Shutdown Operations/Maintenance Activities	23 4	Programmatic Revisions Pre-Shutdown Recommended Practices
6.2	Schedule for surveillance and maintenance	54	Integrated Schedule	29	Area-Based Work Plan & Integrated Schedule
7.0	Waste Management				
7.1	Identification of waste streams	57, 58	Radiological & Non-Radiological Site Characterization Plan	17, 18	Historical Site Assessment & Site Characterization
7.2	Solid radioactive waste	61	Low-Level Solid Waste Disposal	31	LLW Liquids, Solids & Mixed Radioactive Waste
7.3	Liquid radioactive waste	60	Low-Level Liquid Waste Disposal	31	LLW Liquids, Solids & Mixed Radioactive Waste
7.4	Waste containing both radionuclides and other hazardous material	63	Mixed Waste Disposal	31	LLW Liquids, Solids & Mixed Radioactive Waste
8.0	Cost Estimate and Funding Mechanisms				
8.1	Cost estimate	6	Decommissioning Cost Estimate	1	Cost Estimate & Funding Assurance
8.2	Funding mechanisms	8	Funding Assurance	1	Cost Estimate & Funding Assurance
9.0	Safety Assessment				
9.1	Identification of relevant safety criteria	25 23	FSAR Update Plan License Basis/Design Basis Review	20 23	Final Safety Analysis Report (FSAR) Update Plan Programmatic Revisions
9.2	Operational limits and conditions	40	Pre-Shutdown Operations/Maintenance Activities	4	Pre-Shutdown Recommended Practices
9.3	Hazard analysis of normal decommissioning activities	64 45	Environmental Assessment (Environmental Report) Plan Accident Analysis & Spent Fuel Pool Heatup Calculation	9 12	Environmental Assessment (Environmental Report) Accident Analysis & Spent Fuel Pool Heatup Calculation
9.4	Hazard analysis of abnormal events and incidents	45 64	Accident Analysis & Spent Fuel Pool Heatup Calculation Environmental Assessment (Environmental Report) Plan	12 9	Accident Analysis & Spent Fuel Pool Heatup Calculation Environmental Assessment (Environmental Report)

IAEA TSR 45 Activities / The Manual DTOs & DAs Matrix (cont'd)

IAEA Decommissioning Plan		EPRI Manual		EPRI Manual	
No.	Activity Title	No.	Activity Name	No.	DTO Name
9.5	Assessment of potential consequences	45	Accident Analysis & Spent Fuel Pool Heatup Calculation	12	Accident Analysis & Spent Fuel Pool Heatup Calculation
		64	Environmental Assessment (Environmental Report) Plan	9	Environmental Assessment (Environmental Report)
9.6	Preventive and mitigating measures	45	Accident Analysis & Spent Fuel Pool Heatup Calculation	12	Accident Analysis & Spent Fuel Pool Heatup Calculation
		64	Environmental Assessment (Environmental Report) Plan	9	Environmental Assessment (Environmental Report)
9.7	Risk assessment	1	Strategic Planning	-	N/A
		2	Tactical Planning	-	N/A
9.8	Comparison of analysis results with relevant safety criteria	59	Radiation Exposure Estimate	8	Radiation Exposure Estimate
		64	Environmental Assessment (Environmental Report) Plan	9	Environmental Assessment (Environmental Report)
9.9	Conclusions	59	Radiation Exposure Estimate	8	Radiation Exposure Estimate
		64	Environmental Assessment (Environmental Report) Plan	9	Environmental Assessment (Environmental Report)
10.0 Environmental Assessment					
10.1	Background data	64	Environmental Assessment (Environmental Report) Plan	9	Environmental Assessment (Environmental Report)
10.2	Description of project	64	Environmental Assessment (Environmental Report) Plan	9	Environmental Assessment (Environmental Report)
10.3	Environmental protection programme	64	Environmental Assessment (Environmental Report) Plan	9	Environmental Assessment (Environmental Report)
10.4	Effluent monitoring programme	60	Low-Level Liquid Waste Disposal	31	LLW Liquids, Solids & Mixed Radioactive Waste
10.5	Effluent control programme	60	Low-Level Liquid Waste Disposal	31	LLW Liquids, Solids & Mixed Radioactive Waste
11.0 Health and Safety					
11.1	Radiation protection plan	59	Radiation Exposure Estimate	8	Radiation Exposure Estimate
		52	Procedure Review Plan	25	Work Processes & Procedures Reviews
11.2	Nuclear criticality safety	45	Accident Analysis & Spent Fuel Pool Heatup Calculation	12	Accident Analysis & Spent Fuel Pool Heatup Calculation
11.3	Industrial health and safety plan	65	Occupational Safety Program	14	Occupational Safety
11.4	Audits and inspections	39	QA Program	24	Quality Assurance (QA) Program
11.5	Record keeping programme	39	QA Program	24	Quality Assurance (QA) Program
11.6	Optimization analyses and programme	53	Work Process Simplification	25	Work Processes & Procedures Reviews
11.7	Dose estimation and optimization for major tasks	59	Radiation Exposure Estimate	8	Radiation Exposure Estimate
11.8	Clearance criteria	31	License Termination Plan (LTP)	21	License Termination Plan (LTP)
		57, 58	Radiological & Non-Radiological Site Characterization Plan	17, 18	Historical Site Assessment & Site Characterization
11.9	Final release criteria	31	License Termination Plan (LTP)	21	License Termination Plan (LTP)
		57, 58	Radiological & Non-Radiological Site Characterization Plan	17, 18	Historical Site Assessment & Site Characterization
12.0 Quality Assurance					
12.1	Organization	39	QA Program	24	Quality Assurance (QA) Program
12.2	Quality assurance programme	39	QA Program	24	Quality Assurance (QA) Program
12.3	Document control	39	QA Program	24	Quality Assurance (QA) Program
12.4	Control of measuring and test equipment	39	QA Program	24	Quality Assurance (QA) Program
12.5	Corrective actions	39	QA Program	24	Quality Assurance (QA) Program
12.6	Quality assurance records	39	QA Program	24	Quality Assurance (QA) Program
12.7	Audits and surveillance	39	QA Program	24	Quality Assurance (QA) Program
12.8	Lessons learned programme	39	QA Program	24	Quality Assurance (QA) Program
13.0 Emergency Planning					
13.1	Organization and responsibilities	32	Emergency Plan Program	23	Programmatic Revisions
13.2	Emergency situations	32	Emergency Plan Program	23	Programmatic Revisions
13.3	Records	32	Emergency Plan Program	23	Programmatic Revisions
14.0 Physical Security and Safeguards					
14.1	Organization and responsibilities	34	Security Program	23	Programmatic Revisions
14.2	Physical security programme and measures	34	Security Program	23	Programmatic Revisions
14.3	Safeguards programme and measures	34	Security Program	23	Programmatic Revisions
15.0 Final Radiation Survey					
15.1	Final Radiation Survey	31	License Termination Plan (LTP)	21	License Termination Plan (LTP)



- “Decommissioning Pre-Planning Manual” continues to be an important reference for reactor D&D planning, both in the U.S. and internationally
- The Manual would benefit from updates and enhancements
- EPRI-IAEA Matrices are very useful decommissioning planning tools
- EPRI-IAEA Matrices are excellent communication and training tools to be maintained as living documents for the duration of the Decommissioning Life Cycles

Reference Material

- [1] *IAEA Safety Standards - Decommissioning of Facilities*, General Safety Requirements Part 6 (No. GSR Part 6), 2014.
- [2] *IAEA Safety Standards - Decommissioning of Nuclear Power Reactors and Research Reactors*, Safety Guide No. WS-G-2.1, 1999.
- [3] *Standard Format and Content for Safety Related Decommissioning Documents*, Safety Reports Series No. 45, 2005.
- [4] *Selection of Decommissioning Strategies: Issues and Factors*, IAEA-TECDOC-1478, 2005.
- [5] *Policies and Strategies for the Decommissioning of Nuclear and Radiological Facilities*, IAEA Nuclear Energy Series No. NW-G-2.1, 2011.
- [6] *Integrated Approach to Planning the Remediation of Sites Undergoing Decommissioning*, IAEA Nuclear Energy Series No. NW-T-3.3, 2009.
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