

PWR Totals

SYSTEM For underground piping segments in the system:	DESIGN INFORMATION																	
	One or more underground segments?	Safety Related?	Contains Licensed Radioactive Material?	Contains Environmentally Hazardous Material?	Predominant material on the exterior side of the piping. Enter "1" for all that apply								Piping Classes Enter a "1" for all that apply				Subjected to Sec XI quarterly O&M flow tests?	Comments, including piping materials "C" or "O"
					AL	CU	C*	FE	O*	P	S	SS	1	2	3H	E		
System	1 or blank	1,0	1,0	1,0														
Typical Underground Systems																		
Aux./Emergency Feedwater System (PWR)	28	22	12	3	0	0	1	0	0	0	17	13	0	0	0	18	12	0
Auxiliary Steam System	9	1	8	0	0	0	1	2	0	0	6	0	0	0	0	1	0	0
Carbon Dioxide (CO2) Supply System	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Chilled Water System	4	0	4	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0
Closed/Component Cooling Water System	6	1	5	0	0	0	1	0	0	0	4	0	0	0	0	1	0	0
Cooling Tower Blowdown	6	0	6	4	0	0	0	0	3	2	1	0	0	0	0	0	0	0
Condensate System	22	7	20	0	0	0	1	3	0	0	13	9	0	1	0	6	7	0
Condensate Demineralizer System	12	0	8	5	0	0	0	0	3	1	7	2	0	0	0	0	0	0
Condensate and Feedwater Chem. Cntl. Sys.	10	0	3	10	0	0	0	3	0	1	6	7	0	0	0	0	0	0
CVC/Makeup and Purification Sys. (PWR)	10	6	9	1	0	0	0	0	0	0	1	9	0	6	0	3	6	0
Demin. Water Storage and Transfer Sys.	3	0	3	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0
Diesel Fuel Oil System	56	45	0	51	0	0	2	3	0	0	44	8	0	2	0	24	9	0
Diesel Lube Oil System	5	3	0	5	0	0	1	0	0	0	4	0	0	0	0	0	0	0
Equipment and Floor Drains System	20	0	16	11	0	0	3	6	3	2	14	9	0	1	0	1	0	0
Emergency/Standby Gas Treatment System	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Essential Service Water System	59	59	10	9	2	4	8	4	0	1	50	10	0	2	0	54	38	0
Essential Air System	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Feedwater System	3	0	3	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0
Fire Protection System (Water)	6	3	0	1	0	0	2	5	0	3	4	0	0	0	0	2	0	0
Fire Protection System (Chemical)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fuel Oil Storage and Transfer System	33	11	2	33	0	0	2	3	1	2	26	3	0	0	0	5	4	0
Gaseous Waste Management System (PWR)	6	1	6	0	0	0	0	0	0	0	6	1	0	0	0	1	0	0
High Pressure Core Spray System (BWR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HPSI System (PWR)	7	7	7	0	0	0	0	0	0	0	0	0	7	0	5	0	0	7
Hydrogen Supply System	13	1	0	10	0	0	1	0	0	0	10	3	0	0	0	0	0	0
Hydrogen Water Chemistry System	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Instrument Air Supply System	7	6	0	0	0	1	0	0	0	0	6	0	0	2	0	0	0	0
Insulating Oil System	2	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Liquid Waste Management System	47	6	46	7	0	0	0	0	3	3	15	33	0	2	0	0	0	0
Lube Oil System	8	0	0	8	0	0	0	0	0	0	8	0	0	0	0	0	1	0
Main Generator Hydrogen Cooling System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Makeup Demineralizer System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nitrogen Supply System	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Nonessential Service Water System	12	0	9	6	0	0	3	0	3	2	9	0	0	0	0	0	2	0
Offgas System (BWR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plant Hot Water System	2	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Potable Water Distribution System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Raw Water Makeup System	4	3	0	1	0	0	0	0	0	0	4	0	0	0	0	3	0	0
Reactor Core Iso. Cooling Sys. (BWR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sanitary Waste Processing System	4	0	0	4	0	0	0	3	0	0	1	1	0	0	0	0	0	0
RHR/LPCI System (BWR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RHR/LPSI System (PWR)	12	10	12	0	0	0	0	0	0	0	0	12	0	10	0	4	7	0
Service Air System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Steam Generator Blowdown System (PWR)	18	7	15	3	0	0	0	0	1	2	15	1	0	0	0	0	0	0
Turbine Drains and Misc. Piping Sys.	9	0	8	2	0	0	1	0	0	0	6	2	0	0	0	0	0	0
Turbine Bldg. Closed Cooling Water System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wastewater Disposal System	15	2	14	7	0	0	0	3	3	7	9	2	0	0	0	0	0	0
Yard Handling and Maintenance System	12	0	12	1	0	0	2	3	2	4	8	1	0	0	0	0	0	0
Water Filtration System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PWR Totals

SYSTEM For underground piping segments in the system:	DESIGN INFORMATION																		
	One or more underground segments?	Safety Related?	Contains Licensed Radioactive Material?	Contains Environmentally Hazardous Material?	Predominant material on the exterior side of the piping. Enter "1" for all that apply								Piping Classes Enter a "1" for all that apply				Subjected to Sec XI quarterly O&M flow tests?	Comments, including piping materials "C" or "O"	
					AL	CU	C*	FE	O*	P	S	SS	1	2	3H	E			3
System	1 or blank	1,0	1,0	1,0													1,0		
Plant Specific Important Underground System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Containment Spray	5	5	3	0	0	0	0	0	0	0	0	0	5	0	1	0	4	2	0
Primary Water Storage and Transfer	5	0	5	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	
Water Treatment Systems	4	0	0	4	0	0	0	0	3	4	0	0	0	0	0	0	0	0	
Miscellaneous Oil Systems	4	1	1	3	0	0	0	0	1	0	4	0	0	0	0	1	0	0	
Circulating Water System	16	4	9	3	0	1	7	0	3	0	11	0	0	0	0	3	0	0	
TOTALS	574	230	306	210	2	7	49	39	31	38	355	172	0	35	0	137	95		

PWR Totals

SYSTEM For underground piping segments in the system:	LEAKAGE EVENT INFORMATION																																			
	Number of Events	2007											Number of Events	2008											Number of Events	2009										
		Initiation, Enter a "1" for the initiator of each leak	Cause Codes, Enter "1" for the most applicable cause of each leak											Initiation, Enter a "1" for the initiator of each leak	Cause Codes, Enter "1" for the most applicable cause of each leak											Initiation, Enter a "1" for the initiator of each leak	Cause Codes, Enter "1" for the most applicable cause of each leak									
System	ID	OD	?	Chk	Gal	GC	Lea	Mec	MIC	O	Ovd	Pit	ID	OD	?	Chk	Gal	GC	Lea	Mec	MIC	O	Ovd	Pit	ID	OD	?	Chk	Gal	GC	Lea	Mec	MIC	O	Ovd	Pit
Plant Specific Important Underground System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Containment Spray	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Primary Water Storage and Transfer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Water Treatment Systems	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	
Miscellaneous Oil Systems	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Circulating Water System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTALS	10	1	6	3	1	0	3	0	0	0	4	1	9	3	5	1	1	0	2	0	3	0	1	0	12	2	8	2	1	0	4	0	1	1	1	3

Fig. 1: Buried Piping by System

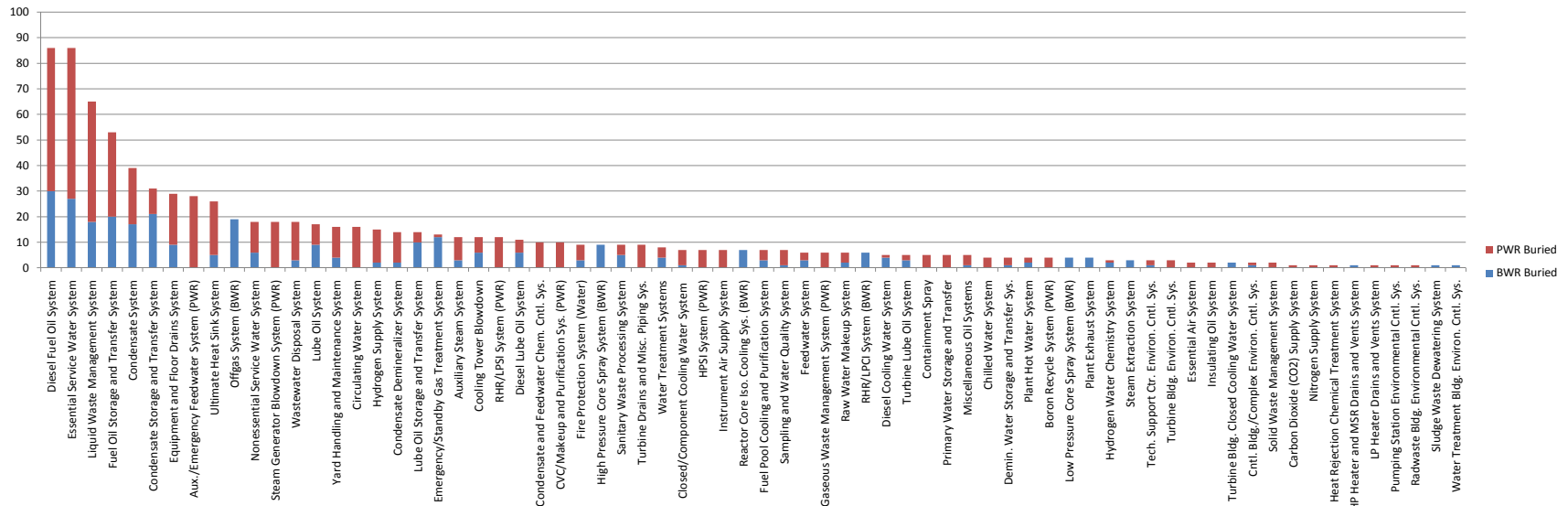


Fig. 2: Buried Systems and Leakage

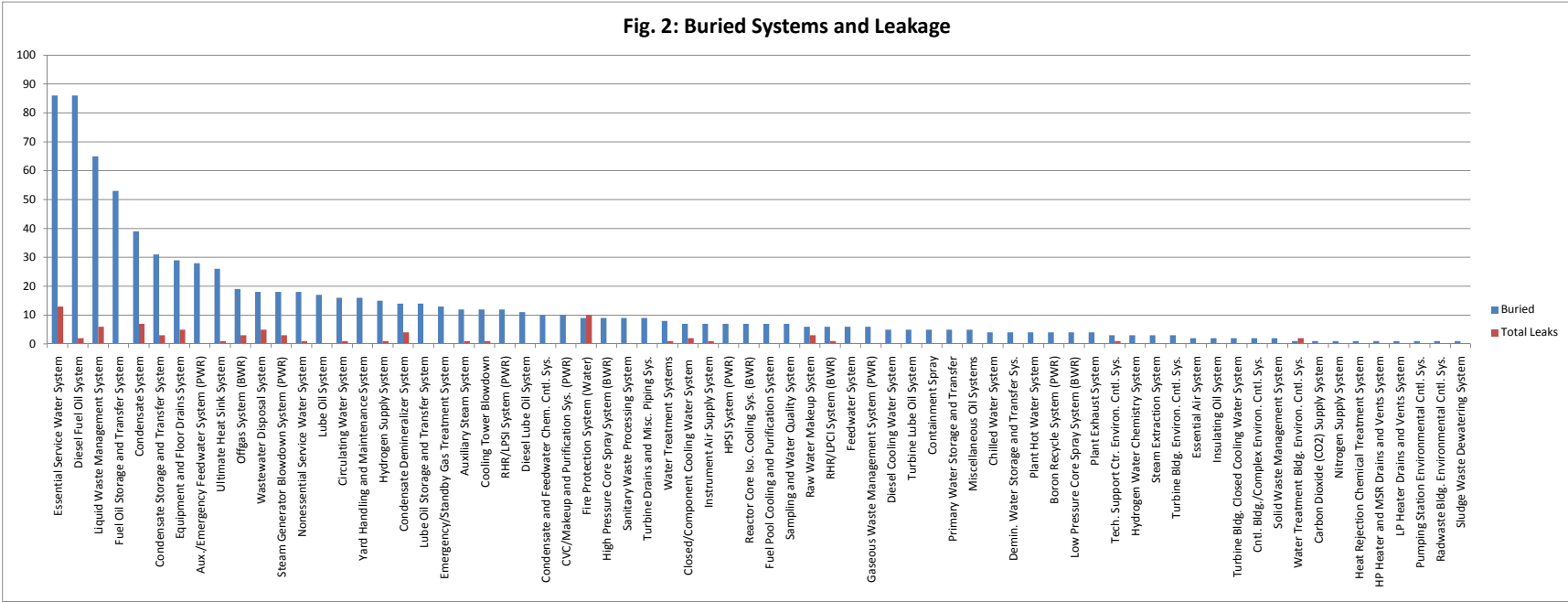


Fig. 3: Ratio of Leaks to Buried Systems

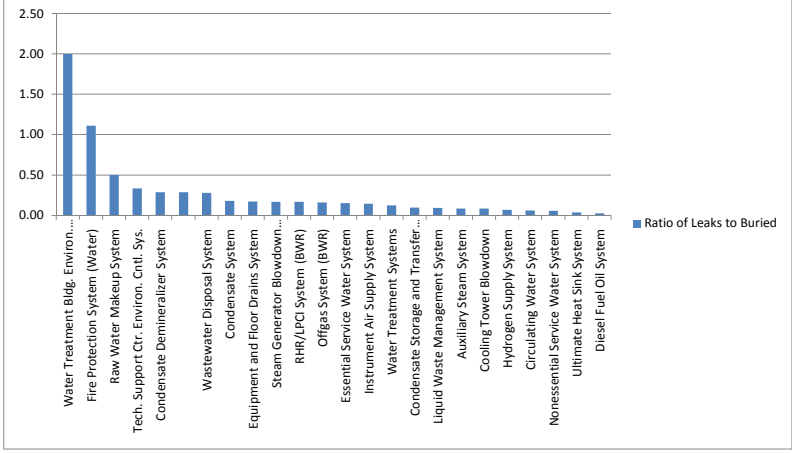


Fig. 4: Piping Materials

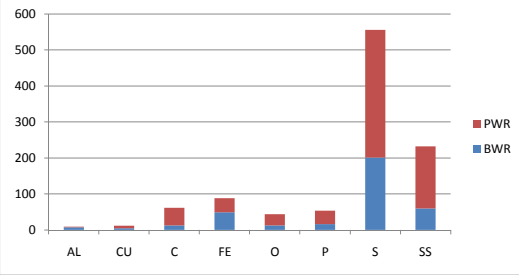


Fig. 5: Importance Category

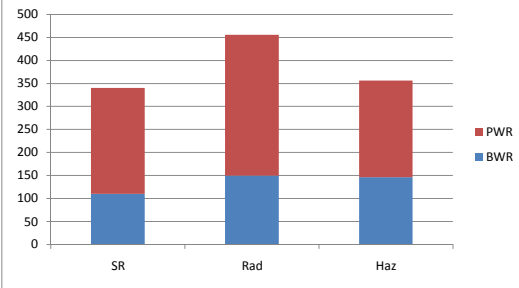


Fig. 6: BWR Leakage Causes

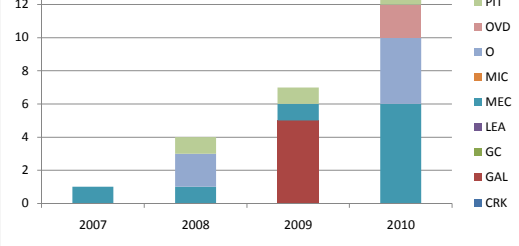


Fig. 7: PWR Leakage Causes

