

Radiation Protection Management Transition from Operations to Decommissioning

Kewaunee Power Station - General Plant information

- Located on 908 acres on west shore of Lake Michigan near Green Bay, Wisconsin
- Began commercial operation June 16, 1974
- Single unit two-loop PWR, 573 MWe (net)
- New S/G – 2001; new vessel head – 2004
- Relicensed to 2033 on February 2011
- Independent Spent Fuel Storage Installation completed in 2009
- ~650 Employees



Decision to Close

- April 2011: Dominion announces Kewaunee Power Station is for sale.
- Oct. 22, 2012: Finding no buyer and citing uneconomic power market prices, Dominion announces that the station will be shut down permanently in second quarter of 2013.
- Feb. 19, 2013: Midwest ISO certifies that shutdown will not affect grid reliability.
- Dominion notifies NRC that Kewaunee will shut down May 7 and proceed to decommissioning.
- Utilize SAFSTOR Decommissioning Alternative

What Changes

- No longer a member of the Institute of Nuclear Power Operations (INPO)
- No longer a member of the National Academy for Nuclear Training
- Change in 10CFR50 license to “possession only” and therefore inspection scheme change
 - NRC Reactor Oversight Process vs IM 2561
 - KPS is the first plant to be decommissioned since ROP was instituted
 - KPS is the first plant to be decommissioned with an extended operating license

Kewaunee Staffing

- 632 persons employed at time of shutdown.
- Reductions in staff:

• May 31, 2013	202 positions
• June 30, 2013	56 positions
• July 31, 2013	46 positions
• August 1 – December 31, 2013	31 positions
• January 1 – September 30, 2014	5 positions
• September 30, 2014 or later	146 positions
• Present Staffing	142 positions
• Planned final staffing	50 positions

People Considerations

- Many personnel are locals and have not worked anywhere else (many long term)
- Sr. Mgmt also affected
- Phases of grief
- Everyone's needs are different (650 stories)
- Strong HR support needed
- Frequent, detailed communication is critical

Organization and Staffing

- Decommissioning Team Formed
 - RP an adjunct assignment initially, made full time in February 2013
- Staffing reductions
 - First reduction May 31, 2013
 - 5 RP/CY management; 15 RP/CY technicians remaining through September 2014
 - Additional reductions throughout 2013
 - Second reduction September 2014

RP Technical Issues

- We had no preplanning - this wasn't in our current picture
- EPRI TR-1003025, Decommissioning Pre-Planning Manual
- Decommissioning Task Outlines (DTO)
 - DTO-4, Pre-Shutdown Recommended Practices
 - Recommended for operating plants
 - Provides input to DTO-17/18
 - Characterize LLW including mixed waste
 - Locate and characterize spills (10 CFR 50.75(g))
 - Locate and characterize onsite disposal (10 CFR 20.302 or 20.2002)

Radiation Protection Program Changes

- Created RP Program procedure to document bases for requirements
- Revised or deleted 113 RP procedures and forms
- Created approximately 37 position papers

Radioactive System Vent and Drain

- RP support for planning and execution
- Controls for potential hot spots and airborne contamination
- Optimization of sequence to minimize generation of radioactive waste
- Optimization of resin transfers to minimize generation of Class B/C waste

Key Lessons Learned

- Full time RP assignment to decommissioning activities was not timely
- Many calculations and licensing submittals to NRC required detailed RP technical review or development after RP staff reductions had occurred
- ODCM set point changes affect Emergency Plan and EALs

Key Lessons Learned

- Benchmark other plant EP LAR submittals
- Maintain or hire RP staff capable of performing and reviewing these calculations
- NEI has established decommissioning working groups in RP and EP

Recommendations

- Address human factors
- Include RP on the core decommissioning team
- Benchmark other decommissioned plants
- Check/update your 50.75(g) file
- Review EPRI TR-1003025
 - Specifically DTO-4 and 17
- Review basis for programs/procedures
- Meet with NRC and ANI

Recommendations

- Maintain adequate RP staff and technical expertise for at least two years after permanent defueling
- Assign RP personnel to decommissioning activities as soon as possible
- Conduct benchmarking and start work on radiological calculations as soon as possible

Recommendations

- Focus on employees
- More than 200 have already redeployed to other positions within the company
- Less than 125 people have left the company and were offered severance benefits

Decommissioning Schedule

- Transfer of spent fuel to ISFSI (2014-2016)
- Dormancy period with dry storage (2017-2069)
- Dismantlement and system removal (2069-2071)
- Site decontamination (2071-2072)
- Site restoration to Greenfield (2072-2073)



What do *we* leave in the time-capsule?

- Despite best intentions, LOTS of grey-matter information will leave
 - Remember how hard it is to know basis of procedure change 5-years ago
- How will 'they' find it when they come back
- Will it tell them what we want them to know
- A good change management plan is critical
- RP/CY position papers