

PDR

July 9, 1986

MEMORANDUM FOR: Edward J. Butcher, Chief
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SUBJECT: COUNT OF LIMERICK SURVEILLANCE REQUIREMENTS FOR LCOs
NOT MEETING TS CRITERIA

Surveillance requirements associated with the 42% LCOs that are going to be out of Technical Specifications (TS) because of the Limerick TS split were counted. Only the TS's that do not meet the proposed criteria were counted. We did this to obtain an estimate of the amount of surveillance tests, per year, that are no longer going to be in the TS and are going to be controlled by documents other than TS.

To know how many surveillance tests will be out due to the new criteria, some assumptions were made. Because it is impossible to count all the different surveillance tests without detailed knowledge of the plant, the following assumptions were made:

- ° When a TS requires that temperature, pressure, flow, etc, must be checked, each of those parameters were considered as one surveillance test.
- ° Channel checks, channel functional tests, channel calibrations, starting pumps, etc, vary significantly in the amount of time consumed. We made no distinction because of the time involved. Each item is one test.
- ° In some TS more tests are required if a value is above the one stated on the TS. Retests were not counted.
- ° In all TS in which it is stated that each valve must be checked and does not specify how many valves there are, we assumed that there are 3 valves.

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- ° In TS 3.3.7.9 fire detection instrumentation, we assumed that all instruments must be demonstrated operable, inclusive of those that are in inaccessible areas. (These are required to be demonstrated operable when the plant is in cold shutdown more than 24 hours and they had not been demonstrated operable within the prior six months). The accessible ones are required to be demonstrated once per 6 months.
- ° We assumed that the plant will be in operational condition (mode) 1, 70% of the year (255 days) and in operational condition 2, 2% of the year (7 days).
- ° Some TS apply only in operational condition 3. For counting purposes we assumed that they will apply only 3% of the year (approximately 10 days).
- ° Some TS apply only in operational condition 4. For counting purposes we assumed that they will apply 10% of the year (36 days).
- ° The TS that apply only on operational condition 5, will be applied 15% of the year. (56 days).
- ° For those surveillance requirements that must be done at least once each 18 months, we have normalized them to a yearly basis by application of a 2/3 factor. All the surveillance requirements are quoted on yearly basis.
- ° For LCO 3.4.4 chemistry, special assumptions were made. They are stated in my handwritten attachment to the file copy of this paper.

Enclosure 1 contains the list of all the TS that do not meet the proposed criteria. They are separated into the following groups:

- A. The ones that do not meet the proposed criteria but it has been agreed that they are important to safety and will be retained in the new TS.
- B. Those that actually require power reduction if the LCO is not met.
- *C. Those that also require power reduction but the surveillance requirements must be done only during shutdown.
- D. Those that do not require power reduction.

Attached to the file copy of this paper are my handwritten papers which show all the counts and assumptions used to obtain the number found in Enclosure 1.

*Those systems that have surveillance requirements at frequencies of 18 months and more often, have already been considered in the other groups.

At the moment there are some TS for which we need information to allow us to count how many surveillance tests they require per year. These are the following:

- Group B: LCO 3.7.4 Snubbers
- Group C: LCO 3.6.1.5 Primary containment structural integrity
- Group D: LCO 3.3.7.10 Loose part detection system
- LCO 3.6.1.2 Primary containment leakage.
- LCO 3.7.7 Fire rated assemblies
- LCO 3.8.4.2 Motor operated valves thermal overload protection
- LCO 3.11.3 Solid radwaste treatment
- LCO 3.12.3 Interlaboratory comparison program

Provisional numbers obtained without the LCOs above are:

- Group A: 8673 Surveillance tests per year
- Group B: 2842 Surveillance tests per year
- Group C: 13 Surveillance tests per year
- Group D: 36620 Surveillance tests per year
- Total: 48148

*LCOs
60-40
JK Cook 1-2 million
Surveillance
100,000*

But group A is going to be retained in the future TS, so without it, the total number of surveillance requirements that are going to be removed from TS is 39,475. Of these surveillance requirements, some must be done in cold shutdown/refueling. The following table specifies how many are required to be done in plant operation and how many during shutdown.

	<u>During Operation</u>	<u>During Shutdown</u>
Group B:	2828 (99.5%)	14 (0.5%)
Group C:	0 (0%)	13 (100%)
Group D:	16339 (45%)	20281 (55%)
Total	19167 (49%)	20308 (51%)

If we include the surveillance tests associated with Group A, then the numbers are the following:

Group A	8664 (99.9%)	9 (0.1%)
Total	27831 (58%)	20317 (42%)

We must compare the numbers obtained, for the LCOs that are not going to be retained, with the numbers of surveillance requirements of all the LCOs, to know which percentage it represents. There are three possibilities to obtain that number:

1. Extrapolate the number that we obtained for the 42% LCOs to the 100%, i.e., simply ratio the number, or;

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2. Count the surveillance requirements associated with a few of the LCOs that meet the criteria and then extrapolate or;
3. Count all 58% of the LCOs that meet the criteria.

Each of them have a few problems: a) Extrapolating as in 1) above will give a large uncertainty . Also the 42% LCOs are the less important, so it may be that the other LCOs require more surveillance b) Possibility 2) should be the best choice. The problem is that if we do not select the representative LCOs, the likelihood of obtaining inaccurate results is greater. c) If we try to count the surveillance requirements for 58% of the LCOs, as we did with the 42%, it will take a large amount of time and manpower. I will discuss with you how we should proceed.

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Enclosure:
As stated

Distribution:
TSCB Members
Central Files
TSCB Reading File

(TSCB4 - memo to butcher from recarte)

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IRecarte:d1m SEBryan
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ENCLOSURE

SUMMARY OF ALL THE SURVEILLANCE TEST
OF EACH LCO AND GROUP

List of all the LCOs that do not meet the proposed criteria. Numbers within the parenthesis represent the surveillance requirements that must be done in shutdown.

Group A

LCO 3.1.5	Standby liquid control system	1006	(2)
LCO 3.3.4.1	ATWS Recirculation pump trip actuation instrumentation	2079	(2)
LCO 3.3.5	RCIC Instrumentation	5571	(3)
LCO 3.7.3	Reactor Core isolation cooling system	67	(3)
		TOTAL A = 8673	(9)

The four LCOs above do not meet the proposed criteria, but it has been agreed that they are important to the plant safety and will remain in the TS. They represent 8673 surveillance test per year.

Group B

Their action statement requires power reduction if the LCO is not met.

LCO 3.3.7.4	Remote shutdown system instrumentation and controls	178	(5)
LCO 3.3.9	Feedwater/main turbine trip system actuation instrumentation	2115	(4)
LCO 3.4.4	Chemistry	430	
LCO 3.6.2.2	Suppression pool spray	55	(1)
LCO 3.6.6.1	Primary containment hydrogen recombiner system	16	(4)
LCO 3.6.6.2	Drywell hydrogen mixing system	12	
LCO 3.6.6.3	Drywell and suppression chamber oxygen concentration	36	
LCO 3.7.4	Snubbers		
		TOTAL B = 2842	(14)

Group C

The following two LCOs also require power reduction if the LCO is not met, but its surveillance requirements must be done once each 18 months (only in shutdown)

LCO 3.6.1.5	Primary containment structural integrity		
LCO 3.8.4.1	Primary containment penetration conductor over current protection device	13	(13)
		TOTAL C = 13	(13)

Group D

Action statements of the following LCOs do not require power reduction if the LCO is not met (some of their apply only in operational conditions 4 and 5).

LCO 3.3.7.2	Seismic monitoring instrumentation	39	(11)
LCO 3.3.7.3	Meteorological monitoring instrumentation	4404	
LCO 3.3.7.7	Traversing in-core probe system	5	(5)
LCO 3.3.7.8.1	Chlorine detection system	1486	(1)
LCO 3.3.7.8.2	Toxic gas detection system	1486	(1)
LCO 3.3.7.9	Fire detection instrumentation	1284	
LCO 3.3.7.10	Loose part detection system		
LCO 3.3.7.11	Radioactive liquid effluent monitoring instrumentation	1207	(4)
LCO 3.3.7.12	Radioactive gaseous effluent monitoring instrumentation	3423	(9)
LCO 3.3.8	Turbine overspeed protection system	669	(1)
LCO 3.4.9.1	Hot shutdown. Operational Condition 3	22	(22)
LCO 3.4.9.2	Cold shutdown. Operational Condition 4	73	(73)
LCO 3.6.1.2	Primary containment leakage		
LCO 3.7.5	Sealed source contamination	40	
LCO 3.7.6.1	Fire suppression water system	190	(10)
LCO 3.7.6.2	Spray and/or sprinkler system	420	(65)
LCO 3.7.6.3	CO ₂ systems	88	
LCO 3.7.6.4	Halon systems	39	(1)
LCO 3.7.6.5	Fire hose stations	205	(38)
LCO 3.7.6.6	Yard hire hydrants and hose cart houses	46	(4)
LCO 3.7.7	Fire rated assemblies		
LCO 3.8.4.2	Motor operated valves thermal overload protection		
LCO 3.9.2	Instrumentation (two SRM source monitors)	668	(668)
LCO 3.9.3	Control rod position	19116	(19116)
LCO 3.9.5	Communications (between the control room and refueling flow personnel	108	(108)
*LCO 3.9.10.1	Single control rod removal		
*LCO 3.9.10.2	Multiple control rod removal		
LCO 3.9.11.1	High water level	72	(72)
LCO 3.9.11.2	Low water level	72	(72)
LCO 3.10.5	Oxygen concentration	24	
LCO 3.11.1.1	Concentration (of liquid effluents)	476	
LCO 3.11.1.2	Dose (radioactive effluents)	12	
LCO 3.11.1.3	Liquid radwaste treatment system	12	
LCO 3.11.2.1	Dose rate	208	
LCO 3.11.2.2	Dose, noble-gases	12	

*Its surveillance requirements are complied with TS 4.3.1.1; 3.9.1; 3.9.2; 3.1.1.

LCO 3.11.2.3	Dose, iodine 131, iodine 133, tritium and radionuclides in particulate form	12
LCO 3.11.2.4	Ventilation exhaust treatment system	12
**LCO 3.11.2.5	Explosive gas mixture	
LCO 3.11.2.7	Venting or purging	24
LCO 3.11.3	Solid radwaste treatment	
***LCO 3.11.4	Total dose	
LCO 3.12.1	Monitoring program	618
LCO 3.12.2	Level use census	48
LCO 3.12.3	Interlaboratory Comparison program	

TOTAL D = 36,620 (20,281)

**Its requirements are complied with TS 3.3.7.1.2.

***Its requirements are complied with TS 4.11.1.2; 4.11.2.2 and 4.11.2.3.