

Appendix 3: Section 3 Assumptions and Results - Option 2

Requirement	Unit Cost	Units	Reactors	Percentage	Total NPV (7%)	Total NPV (3%)
INDUSTRY IMPLEMENTATION						
Review Existing Circuits Analysis Licensee staff time per reactor to review existing circuits analysis assumptions on spurious actuations	\$100.00/hr	80 hrs/reactor	104 reactors	100%	\$ (832,000)	\$ (832,000)
Conduct Functionality Assessment <u>Identify SSCs of reactor potentially affected by multiple spurious actuations.</u> Total reactors affected			47 reactors	10%		
Licensee staff time per reactor with an electronic cable routing tracking system	\$100.00/hr	200 hrs/reactor	5 reactors	50%	\$ (50,000)	\$ (50,000)
Licensee staff time per reactor with a paper cable routing tracking system	\$100.00/hr	400 hrs/reactor	5 reactors	50%	\$ (100,000)	\$ (100,000)
Implement Compensatory Measures <u>Fire Watches</u> Hours per day a fire watch is conducted by a contracted security guard per reactor Average duration of fire watches (in days) Total	\$25.00/hr	24 hrs/day 1,095 days 26,280 hrs	47 reactors	50%	\$ (14,451,465)	\$ (14,994,172)
<u>Manual Actions</u> Licensee staff time to develop manual action procedures and training materials per reactor	\$100.00/hr	180 hrs/reactor	47 reactors	100%	\$ (846,000)	\$ (846,000)
<u>One Time Reactor Operator Training</u> Initial training on manual actions per operator Average number of reactor operators per reactor Total	\$100.00/hr	8 hrs/operator 50 operators/reactor 400 hrs/reactor	47 reactors	100%	\$ (1,880,000)	\$ (1,880,000)
Evaluate affected SSCs using Methods 1a and 1b Licensee staff time to conduct deterministic analyses per reactor	\$100.00/hr	2,500 hrs/reactor	31 reactors	50%	\$ (3,875,000)	\$ (3,875,000)
Licensee staff time to conduct risk informed analyses per reactor	\$100.00/hr	1,500 hrs/reactor	31 reactors	50%	\$ (2,325,000)	\$ (2,325,000)
Evaluate affected SSCs using Method 2 Licensee staff time per reactor to perform a fire PRA	\$100.00/hr	5,500 hrs/reactor	16 reactors	100%	\$ (8,800,000)	\$ (8,800,000)
Licensee staff time per reactor to perform risk- informed analyses consistent with NEI 04-02	\$100.00/hr	2,000 hrs/reactor	16 reactors	100%	\$ (3,200,000)	\$ (3,200,000)
90-Day Response to GL, Compliant NPP Licensee staff labor per reactor to prepare and submit 90-day response to GL	\$100.00/hr	100 hrs/reactor	57 reactors	100%	\$ (570,000)	\$ (570,000)
90-Day Response to GL, Non-Compliant NPP Licensee staff labor per reactor to prepare and submit 90-day response to GL	\$100.00/hr	200 hrs/reactor	47 reactors	100%	\$ (940,000)	\$ (940,000)
30-Day Response to GL Licensee staff labor per reactor to prepare and submit 30-day response to GL	\$100.00/hr	60 hrs/reactor	47 reactors	35%	\$ (98,700)	\$ (98,700)
6 Month Response to GL Licensee staff labor per reactor to prepare and submit 6-month response to GL	\$100.00/hr	400 hrs/reactor	47 reactors	100%	\$ (1,757,009)	\$ (1,825,243)
Request an exemption or license amendment Licensee staff time per reactor to prepare and submit a license amendment or exemption request	\$100.00/hr	400 hrs/reactor	47 reactors	100%	\$ (1,699,537)	\$ (1,798,662)
Design and Implement physical plant modifications Cost to design and implement physical modifications per reactor	\$1,000,000/reactor		47 reactors	100%	\$ (43,992,285)	\$ (45,644,359)
INDUSTRY IMPLEMENTATION TOTAL					\$ (85,416,997)	\$ (87,779,135)
NRC IMPLEMENTATION						
NRC staff time to finalize proposed GL	\$88.00/hr	1,750 hrs	NA	NA	\$ (154,000)	\$ (154,000)
Staff time to review and respond to 30-day response	\$88.00/hr	10 hrs/reactor	47 reactors	35%	\$ (14,476)	\$ (14,476)
Staff time to review and respond to 90-day response	\$88.00/hr	30 hrs/reactor	104 reactors	100%	\$ (274,560)	\$ (274,560)
Staff time to review and respond to 6 month response	\$88.00/hr	80 hrs/reactor	47 reactors	100%	\$ (309,234)	\$ (321,243)
Staff time to review an exemption or license amendment request	\$88.00/hr	200 hrs/reactor	47 reactors	100%	\$ (747,796)	\$ (791,411)
NRC IMPLEMENTATION TOTAL					\$ (1,500,066)	\$ (1,555,690)

Results presented in 2005 dollars

Appendix 3: Section 3 Assumptions and Results - Option 3

Requirement	Unit Cost	Units	Reactors	Percentage	Total NPV (7%)	Total NPV (3%)
INDUSTRY OPERATION						
Conduct Functionality Assessment <u>Identify SSCs of reactor potentially affected by multiple spurious actuations.</u>						
Licensee staff time per reactor with an electronic cable routing tracking system	\$100.00/hr	200 hrs/reactor	47 reactors 5 reactors	10% 50%	\$ (45,269)	\$ (47,851)
Licensee staff time per reactor with a paper cable routing tracking system	\$100.00/hr	400 hrs/reactor	5 reactors	50%	\$ (90,539)	\$ (95,701)
Implement Compensatory Measures <u>Fire Watches</u>						
Hours per day a fire watch is conducted by a contracted security guard per reactor		24 hrs/day				
Average duration of fire watches (in days)		2,190 days				
Total	\$25.00/hr	52,560 hrs	47 reactors	50%	\$ (23,918,525)	\$ (27,515,564)
<u>Manual Actions</u>						
Licensee staff time to develop manual action procedures and training materials per reactor	\$100.00/hr	180 hrs/reactor	47 reactors	100%	\$ (765,959)	\$ (809,633)
<u>One Time Reactor Operator Training</u>						
Initial training on manual actions per operator		8 hrs/operator				
Average number of reactor operators per reactor		50 operators/reactor				
Total	\$100.00/hr	400 hrs/reactor	47 reactors	100%	\$ (1,702,131)	\$ (1,799,185)
Evaluate affected SSCs using Methods 1a and 1b						
Licensee staff time to conduct deterministic analyses per reactor	\$100.00/hr	2,500 hrs/reactor	47 reactors	50%	\$ (5,319,161)	\$ (5,622,454)
Licensee staff time to conduct risk informed analyses per reactor	\$100.00/hr	1,500 hrs/reactor	47 reactors	50%	\$ (3,191,496)	\$ (3,373,473)
Respond in Writing to Triennial Fire Protection Inspection Findings						
Licensee staff labor per reactor per inspection		550 hrs/reactor				
Number of triennial fire protection inspection		2 inspections				
Total	\$100.00/hr	1,100 hrs/reactor	47 reactors	100%	\$ (4,004,624)	\$ (4,606,868)
Participate in enforcement conferences, meetings, and Safety Evaluation Review Panels with NRC						
Licensee holder staff time per reactor per triennial fire protection findings report		150 hrs/reactor				
Number of triennial fire protection inspection reports		2 inspections				
Total	\$100.00/hr	300 hrs/reactor	47 reactors	100%	\$ (1,092,170)	\$ (1,256,418)
Request an exemption or license amendment						
Licensee staff time per reactor to prepare and submit a license amendment or exemption request		400 hrs/reactor				
Number of license exemption or amendment requests submitted per reactor		1.5 /reactor				
Total	\$100.00/hr	600 hrs/reactor	47 reactors	100%	\$ (2,171,114)	\$ (2,509,914)
Design and implement physical plant modifications						
Cost to design and implement physical modifications per reactor	\$1,000,000/reactor		47 reactors	100%	\$ (36,405,670)	\$ (41,880,615)
INDUSTRY OPERATION TOTAL					\$ (78,706,658)	\$ (89,517,677)
NRC OPERATION						
NRC headquarters staff support to regions						
Staff time to support regions in resolving inspection and enforcement actions		1,000 hrs/year				
Number of years		9 years				
Total	\$88.00/hr	9,000 hrs	NA	NA	\$ (613,474)	\$ (705,733)
Conduct fire protection significance determination process phase 3 analysis						
Conduct a phase 3 analysis per reactor per triennial fire protection inspection finding report		340 hrs				
Number of triennial fire protection inspections per reactor		2 inspections				
Total	\$88.00/hr	680 hrs/reactor	47 reactors	100%	\$ (2,246,219)	\$ (2,541,878)
Review responses to inspection findings, enforcement actions, Safety Evaluation Review Panels (SERPs)						
Staff time to resolve inspection findings, enforcement actions, and Safety Evaluation Review Panels (SERPs) per reactor per inspection		200 hrs				
Number of triennial fire protection inspections per reactor		2 inspections				
Total	\$88.00/hr	400 hrs/reactor	47 reactors	100%	\$ (1,281,480)	\$ (1,474,198)
Review License Amendment/Exemption Requests						
Staff time to review an exemption or license amendment request		200 hrs/reactor				
Number of license amendment or exemption requests submitted per reactor		1.5 /reactor				
Total	\$88.00/hr	300 hrs/reactor	47 reactors	100%	\$ (955,290)	\$ (1,104,362)
NRC OPERATION TOTAL					\$ (5,096,462)	\$ (5,826,171)

Results presented in 2005 dollars