

### Appendix 3: Section 3 Assumptions and Results - Option 2

Requirement	Unit Cost	Units	Reactors	Percentage	Total NPV (7%)	Total NPV (3%)
<b>INDUSTRY IMPLEMENTATION</b>						
<b>Review Existing Circuits Analysis</b> 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)
<b>Conduct Functionality Assessment</b> <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)
<b>Implement Compensatory Measures</b> <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)
<b>Evaluate affected SSCs using Methods 1a and 1b</b> 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)
<b>Evaluate affected SSCs using Method 2</b> 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)
<b>90-Day Response to GL, Compliant NPP</b> 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)
<b>90-Day Response to GL, Non-Compliant NPP</b> 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)
<b>30-Day Response to GL</b> 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)
<b>6 Month Response to GL</b> 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)
<b>Request an exemption or license amendment</b> 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)
<b>Design and Implement physical plant modifications</b> Cost to design and implement physical modifications per reactor	\$1,000,000/reactor		47 reactors	100%	\$ (43,992,285)	\$ (45,644,359)
<b>INDUSTRY IMPLEMENTATION TOTAL</b>					\$ (85,416,997)	\$ (87,779,135)
<b>NRC IMPLEMENTATION</b>						
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)
<b>NRC IMPLEMENTATION TOTAL</b>					\$ (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%)
<b>INDUSTRY OPERATION</b>						
<b>Conduct Functionality Assessment</b> <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%	\$ (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)
<b>Implement Compensatory Measures</b>						
<b>Fire Watches</b>						
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)
<b>Manual Actions</b>						
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)
<b>One Time Reactor Operator Training</b>						
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)
<b>Evaluate affected SSCs using Methods 1a and 1b</b>						
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)
<b>Respond in Writing to Triennial Fire Protection Inspection Findings</b>						
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)
<b>Participate in enforcement conferences, meetings, and Safety Evaluation Review Panels with NRC</b>						
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)
<b>Request an exemption or license amendment</b>						
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)
<b>Design and implement physical plant modifications</b>						
Cost to design and implement physical modifications per reactor	\$1,000,000/reactor		47 reactors	100%	\$ (36,405,670)	\$ (41,880,615)
<b>INDUSTRY OPERATION TOTAL</b>					<b>\$ (78,706,658)</b>	<b>\$ (89,517,677)</b>
<b>NRC OPERATION</b>						
<b>NRC headquarters staff support to regions</b>						
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)
<b>Conduct fire protection significance determination process phase 3 analysis</b>						
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)
<b>Review responses to inspection findings, enforcement actions, Safety Evaluation Review Panels (SERPs)</b>						
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)
<b>Review License Amendment/Exemption Requests</b>						
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)
<b>NRC OPERATION TOTAL</b>					<b>\$ (5,096,462)</b>	<b>\$ (5,826,171)</b>

Results presented in 2005 dollars