SoCalGas

A Sempra Energy utility®

Risk Assessment and Mitigation Phase

(Chapter SCG-Risk-5-QWP)
Incident Involving an Employee
Workpapers

May 17, 2021

Overall Workpaper Description	This workpaper file explains the risk scoring and Risk Spend Efficiency (RSE) quantification. It contains necessary information and sources for calculating the risk score and RSE for respective mitigations and controls filed in the 2021 RAMP.

"Master Inputs" Tab	This sheet contains the major MAVF inputs for risk scoring

"RSE Summary" Tab	This sheet presents a summarized view of RSE scoring

RSE Equation	*Risk Reduction*	$(Pre-Mitigated\ LoRE * Pre-Mitigated\ CoRE) - (Post-Mitigated\ LoRE * Post-Mitigated\ CoRE)$
	Discounted Time	$$1 - \left(\frac{\frac{1}{(1+Benefit\ Discount\ Rate)^{Benefits\ Lifetime}}}{Benefit\ Discount\ Rate} \right)$$
	RSE per $M	$$\frac{Risk\ Reduction * Discounted\ Time}{Total\ Cost\ (\$M)}$$

	Master Inputs

Discount Factors

Benefit Discount Factor   3.00%

MAVF Framework

	Range	Weight
Safety Index	20	60%
Reliability Index	1	23%
Financial Cost	500	15%
Stakeholder Satisfaction Index	100	2%

ID	Mitigation Name	Lifetime Benefit	Total Cost ($k)	% Change in LoRE
SCG-RISK-5-A01	Alternative - Develop internal expertise for expanded safety culture assessment*	1.0	$225	0.02%
SCG-RISK-5-A02	Alternative - OSHA Voluntary Protection Program*	1.0	$350	0.20%
SCG-RISK-5-A03	Alternative - Workplace Violence Training Alternative*	1.0	$50	0.03%
SCG-RISK-5-M04	Creation of a Safety Video Library*	1.0	$50	0.04%
SCG-RISK-5-C02	Drug and Alcohol Testing Programs*	1.0	$498	0.56%
SCG-RISK-5-C04	Employee Safety Training and Awareness Programs*	1.0	$438	0.74%
SCG-RISK-5-C03	Employee Wellness Programs	1.0	$2,648	0.10%
SCG-RISK-5-M05	Expanded Safety Culture Assessments*	1.0	$50	0.02%
SCG-RISK-5-M06	Industrial Hygiene Program Expansion*	1.0	$150	0.35%
SCG-RISK-5-M02	Industrial Hygiene Program Refresh	1.0	$971	0.01%
SCG-RISK-5-C07	Near Miss, Stop the Job and Jobsite Safety Programs*	1.0	$438	0.69%
SCG-RISK-5-M01	OSHA Construction Certification Training*	1.0	$54	0.07%
SCG-RISK-5-M03	Proactive Monitoring and Indoor Air Quality and Chemicals of Concern*	1.0	$60	0.04%
SCG-RISK-5-C05	Safe Driving Programs*	1.0	$1,179	0.51%

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ID	Mitigation Name	Lifetime Benefit	Total Cost ($k)	% Change in LoRE
SCG-RISK-5-C08	Safety Culture Programs*	1.0	$810	0.24%
SCG-RISK-5-C09	Utilizing Industry Best Practices and Benchmarking*	1.0	$1,066	0.20%
SCG-RISK-5-M07	Workplace Violence Prevention Program Enhancements*	5.0	$732	0.11%
SCG-RISK-5-C10	Workplace Violence Prevention Programs*	16.0	$7,698	11.44%

* Mitigation has adjustment in "% Change in LoRE" field to account for variance in RSE calculation.

ID	Mitigation Name	Pre-Mitigated LoRE	CoRE Safety	CoRE Financial	CoRE Reliability
SCG-RISK-5-A01	Alternative - Develop internal expertise for expanded safety culture assessment*	553.09	3.34	0.58	0.00
SCG-RISK-5-A02	Alternative - OSHA Voluntary Protection Program*	553.09	3.34	0.58	0.00
SCG-RISK-5-A03	Alternative - Workplace Violence Training Alternative*	553.09	3.34	0.58	0.00
SCG-RISK-5-M04	Creation of a Safety Video Library*	553.09	3.34	0.58	0.00
SCG-RISK-5-C02	Drug and Alcohol Testing Programs*	553.09	3.34	0.58	0.00
SCG-RISK-5-C04	Employee Safety Training and Awareness Programs*	553.09	3.34	0.58	0.00
SCG-RISK-5-C03	Employee Wellness Programs	553.09	3.34	0.58	0.00
SCG-RISK-5-M05	Expanded Safety Culture Assessments*	553.09	3.34	0.58	0.00
SCG-RISK-5-M06	Industrial Hygiene Program Expansion*	553.09	3.34	0.58	0.00
SCG-RISK-5-M02	Industrial Hygiene Program Refresh	553.09	3.34	0.58	0.00
SCG-RISK-5-C07	Near Miss, Stop the Job and Jobsite Safety Programs*	553.09	3.34	0.58	0.00
SCG-RISK-5-M01	OSHA Construction Certification Training*	553.09	3.34	0.58	0.00
SCG-RISK-5-M03	Proactive Monitoring and Indoor Air Quality and Chemicals of Concern*	553.09	3.34	0.58	0.00
SCG-RISK-5-C05	Safe Driving Programs*	553.09	3.34	0.58	0.00

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ID	Mitigation Name	Pre-Mitigated LoRE	CoRE Safety	CoRE Financial	CoRE Reliability
SCG-RISK-5-C08	Safety Culture Programs*	553.09	3.34	0.58	0.00
SCG-RISK-5-C09	Utilizing Industry Best Practices and Benchmarking*	553.09	3.34	0.58	0.00
SCG-RISK-5-M07	Workplace Violence Prevention Program Enhancements*	553.09	3.34	0.58	0.00
SCG-RISK-5-C10	Workplace Violence Prevention Programs*	553.09	3.34	0.58	0.00

* Mitigation has adjustment in "% Change in LoRE" field to account for var

ID	Mitigation Name	CoRE Stakeholder Satisfaction	CoRE	Post-Mitigated LoRE	Risk Reduction
SCG-RISK-5-A01	Alternative - Develop internal expertise for expanded safety culture assessment*	0.90	4.82	553.04	0.46
SCG-RISK-5-A02	Alternative - OSHA Voluntary Protection Program*	0.90	4.82	552.53	5.26
SCG-RISK-5-A03	Alternative - Workplace Violence Training Alternative*	0.90	4.82	553.09	0.83
SCG-RISK-5-M04	Creation of a Safety Video Library*	0.90	4.82	552.97	1.12
SCG-RISK-5-C02	Drug and Alcohol Testing Programs*	0.90	4.82	548.12	14.98
SCG-RISK-5-C04	Employee Safety Training and Awareness Programs*	0.90	4.82	547.89	19.62
SCG-RISK-5-C03	Employee Wellness Programs	0.90	4.82	552.53	2.67
SCG-RISK-5-M05	Expanded Safety Culture Assessments*	0.90	4.82	553.04	0.46
SCG-RISK-5-M06	Industrial Hygiene Program Expansion*	0.90	4.82	552.12	9.21
SCG-RISK-5-M02	Industrial Hygiene Program Refresh	0.90	4.82	553.04	0.22
SCG-RISK-5-C07	Near Miss, Stop the Job and Jobsite Safety Programs*	0.90	4.82	551.15	18.41
SCG-RISK-5-M01	OSHA Construction Certification Training*	0.90	4.82	552.90	1.82
SCG-RISK-5-M03	Proactive Monitoring and Indoor Air Quality and Chemicals of Concern*	0.90	4.82	552.98	1.03
SCG-RISK-5-C05	Safe Driving Programs*	0.90	4.82	518.32	13.60

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ID	Mitigation Name	CoRE Stakeholder Satisfaction	CoRE	Post-Mitigated LoRE	Risk Reduction
SCG-RISK-5-C08	Safety Culture Programs*	0.90	4.82	552.41	6.44
SCG-RISK-5-C09	Utilizing Industry Best Practices and Benchmarking*	0.90	4.82	552.53	5.27
SCG-RISK-5-M07	Workplace Violence Prevention Program Enhancements*	0.90	4.82	553.09	2.99
SCG-RISK-5-C10	Workplace Violence Prevention Programs*	0.90	4.82	553.07	305.20

* Mitigation has adjustment in "% Change in LoRE" field to account for var

ID	Mitigation Name	Discounted Time	RSE per $Million	Data Sources
SCG-RISK-5-A01	Alternative - Develop internal expertise for expanded safety culture assessment*	0.97	2.00	>Internal OSHA Reportable Incident Rate & Safety Consequence data >SME Input
SCG-RISK-5-A02	Alternative - OSHA Voluntary Protection Program*	0.97	14.60	>Internal OSHA Reportable Incident Rate & Safety Consequence data >SME Input
SCG-RISK-5-A03	Alternative - Workplace Violence Training Alternative*	0.97	16.10	>SME Input
SCG-RISK-5-M04	Creation of a Safety Video Library*	0.97	21.70	> Effectiveness of an Online Training System: Proceedings of the National Academy of Sciences of the United States of America >SME Input
SCG-RISK-5-C02	Drug and Alcohol Testing Programs*	0.97	29.20	> Historical SoCalGas Drug & Alcohol Testing Results [2015 - 2019] >Drug and Alcohol Related Injury Incident Rate: National Council on Alcoholism and Drug Dependence >Drug and Alcohol Related Vehicular Incident Rate: National Highway Traffic Safety Administration
SCG-RISK-5-C04	Employee Safety Training and Awareness Programs*	0.97	43.50	>Internal OSHA Reportable Incident Rate & Safety Consequence data >SME Input
SCG-RISK-5-C03	Employee Wellness Programs	0.97	0.98	>Internal OSHA Reportable Incident Rate & Safety Consequence data >SME Input
SCG-RISK-5-M05	Expanded Safety Culture Assessments*	0.97	8.90	>Internal OSHA Reportable Incident Rate & Safety Consequence data >SME Input
SCG-RISK-5-M06	Industrial Hygiene Program Expansion*	0.97	59.60	>Internal OSHA Reportable Incident Rate & Safety Consequence data >Internal Resource Count >Increased Productivity / Hygiene Effectiveness: National Library of Medicine >SME Input
SCG-RISK-5-M02	Industrial Hygiene Program Refresh	0.97	0.22	>Internal OSHA Reportable Incident Rate & Safety Consequence data >Increased Productivity / Hygiene Effectiveness: National Library of Medicine >SME Input
SCG-RISK-5-C07	Near Miss, Stop the Job and Jobsite Safety Programs*	0.97	40.80	>Quality Management 20128 - 2020 Trending Data
SCG-RISK-5-M01	OSHA Construction Certification Training*	0.97	32.80	>Internal OSHA Reportable Incident Rate & Safety Consequence data >SME Input
SCG-RISK-5-M03	Proactive Monitoring and Indoor Air Quality and Chemicals of Concern*	0.97	16.70	>Internal OSHA Reportable Incident Rate & Safety Consequence data >Increased Productivity / Hygiene Effectiveness: National Library of Medicine >SME Input
SCG-RISK-5-C05	Safe Driving Programs*	0.97	11.20	>Internal OSHA Reportable Incident Rate & Safety Consequence data >SME Input

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ID	Mitigation Name	Discounted Time	RSE per $Million	Data Sources
SCG-RISK-5-C08	Safety Culture Programs*	0.97	7.72	>Internal OSHA Reportable Incident Rate & Safety Consequence data >SME Input
SCG-RISK-5-C09	Utilizing Industry Best Practices and Benchmarking*	0.97	4.80	>Internal OSHA Reportable Incident Rate & Safety Consequence data >SME Input
SCG-RISK-5-M07	Workplace Violence Prevention Program Enhancements*	4.58	18.70	>Private Sector Workplace Violence Statistics: Department of Justice >SME Input
SCG-RISK-5-C10	Workplace Violence Prevention Programs*	12.56	498.00	>Private Sector Workplace Violence Statistics: Department of Justice >SME Input

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