SUMMARY OF VTRA STUDY AREA RISK METRIC COMPARISONS BY VTRA 2015 WHAT-IF CASE
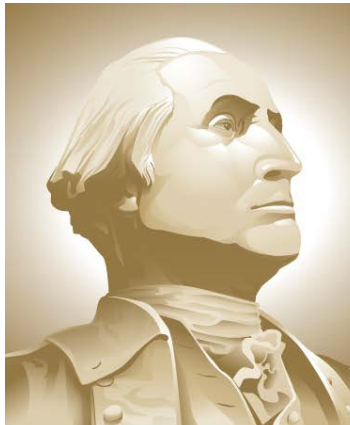
Jason R.W. Merrick (VCU) and J. Rene van Dorp (GW)

August 9th - 10th , 2016

Summary Risk Comparison

		OIL_2500_MORE	OIL_1000_2500	OIL_1_1000	OIL_0_1	TOTAL_OIL
VTRA '15 BASE CASE	Base Case % Potential Annual Oil Loss	42.0%	12.3%	45.3%	0.5%	100.0%
	Base Case % Potenial Annual Accident Frequency	0.01%	0.01%	1.8%	98.2%	100.0%
	Average potential spill size per accident (in m^3)	6,798	1,619	46.9	0.01	1.8
	Probability of at least one accident in 1 year by spill size	0.05%	0.06%	7.5%	98.7%	98.8%
	Probability of at least one accident in 10 year by spill size	0.50%	0.61%	54.2%	100.0%	100.0%
	Probability of at least one accident in 25 years by spill size	1.24%	1.52%	85.8%	100.0%	100.0%
		OIL_2500_MORE	OIL_1000_2500	OIL_1_1000	OIL_0_1	TOTAL_OIL
VTRA '15 US-KM-CA 1598	Base Case % Potential Annual Oil Loss	91.1% (+49.11%| x2.17)	20.0% (+7.71%| x1.63)	72.8% (+27.54%| x1.61)	0.5% (+0.08%| x1.17)	184.4% (+84.4%| x1.84)
	Base Case % Potenial Annual Accident Frequency	0.03% (+0.02%| x2.72)	0.02% (+0.01%| x1.56)	1.9% (+0.16%| x1.09)	108.9% (+10.7%| x1.11)	110.9% (+10.9%| x1.11)
	Average potential spill size per accident (in m^3)	5413 (-1385 | x0.80)	1693 (+75 | x1.05)	69.2 (+22.3 | x1.48)	0.01 (+0.00 | x1.06)	3.0 (+1.2 | x1.66)
	Probability of at least one accident in 1 year by spill size	0.14% (+0.09%| x2.72)	0.10% (+0.03%| x1.56)	8.2% (+0.64%| x1.09)	99.2% (+0.48% | x1.00)	99.3% (+0.45%| x1.00)
	Probability of at least one accident in 10 year by spill size	1.35% (+0.85%| x2.71)	0.95% (+0.34%| x1.55)	57.3% (+3.09%| x1.06)	100.0% (0.00%| x1.00)	100.0% (0.00%| x1.00)
	Probability of at least one accident in 25 years by spill size	3.35% (+2.10%| x2.70)	2.36% (+0.84%| x1.55)	88.1% (+2.27%| x1.03)	100.0% (0.00%| x1.00)	100.0% (0.00%| x1.00)

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VTRA '15 US - 230	Base Case % Potential Annual Oil Loss	72.3% (+30.28%| x1.72)	13.2% (+0.95%| x1.08)	45.6% (+0.37%| x1.01)	0.5% (+0.04%| x1.08)	131.6% (+31.6%| x1.32)
	Base Case % Potenial Annual Accident Frequency	0.02% (+0.01%| x1.61)	0.01% (+0.00%| x1.08)	1.8% (+0.00%| x1.00)	102.1% (+3.9%| x1.04)	103.9% (+3.9%| x1.04)
	Average potential spill size per accident (in m^3)	7289 (+491 | x1.07)	1608 (-11 | x0.99)	47.1 (+0.3 | x1.01)	0.01 (+0.00 | x1.04)	2.3 (+0.5 | x1.27)
	Probability of at least one accident in 1 year by spill size	0.08% (+0.03%| x1.60)	0.07% (+0.01%| x1.08)	7.5% (+0.02%| x1.00)	98.9% (+0.20% | x1.00)	99.0% (+0.19%| x1.00)
	Probability of at least one accident in 10 year by spill size	0.80% (+0.30%| x1.60)	0.66% (+0.05%| x1.08)	54.3% (+0.09%| x1.00)	100.0% (0.00%| x1.00)	100.0% (0.00%| x1.00)
	Probability of at least one accident in 25 years by spill size	1.98% (+0.74%| x1.60)	1.65% (+0.13%| x1.08)	85.9% (+0.07%| x1.00)	100.0% (0.00%| x1.00)	100.0% (0.00%| x1.00)

Summary Risk Comparison

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VTRA '15 KM - 348	Base Case % Potential Annual Oil Loss	57.5% (+15.46%| x1.37)	17.7% (+5.42%| x1.44)	45.6% (+0.31%| x1.01)	0.5% (-0.01%| x0.98)	121.2% (+21.2%| x1.21)
	Base Case % Potenial Annual Accident Frequency	0.02% (+0.01%| x1.95)	0.02% (+0.01%| x1.37)	1.8% (-0.01%| x1.00)	99.3% (+1.1%| x1.01)	101.1% (+1.1%| x1.01)
	Average potential spill size per accident (in m^3)	4771 (-2028 | x0.70)	1708 (+89 | x1.06)	47.4 (+0.5 | x1.01)	0.01 (0.00 | x0.97)	2.2 (+0.4 | x1.20)
	Probability of at least one accident in 1 year by spill size	0.10% (+0.05%| x1.95)	0.08% (+0.02%| x1.37)	7.5% (-0.03%| x1.00)	98.8% (+0.06% | x1.00)	98.9% (+0.06%| x1.00)
	Probability of at least one accident in 10 year by spill size	0.97% (+0.47%| x1.95)	0.83% (+0.22%| x1.36)	54.1% (-0.15%| x1.00)	100.0% (0.00%| x1.00)	100.0% (0.00%| x1.00)
	Probability of at least one accident in 25 years by spill size	2.41% (+1.16%| x1.94)	2.07% (+0.55%| x1.36)	85.7% (-0.12%| x1.00)	100.0% (0.00%| x1.00)	100.0% (0.00%| x1.00)

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US - KM - CA - LN 2248	Base Case % Potential Annual Oil Loss	96.4% (+54.37%| x2.29)	20.2% (+7.99%| x1.65)	86.9% (+41.64%| x1.92)	0.7% (+0.26%| x1.56)	204.3% (+104.3%| x2.04)
	Base Case % Potenial Annual Accident Frequency	0.03% (+0.02%| x2.81)	0.02% (+0.01%| x1.58)	2.0% (+0.28%| x1.16)	114.9% (+16.7%| x1.17)	117.0% (+17.0%| x1.17)
	Average potential spill size per accident (in m^3)	5545 (-1253 | x0.82)	1692 (+73 | x1.05)	77.8 (+30.9 | x1.66)	0.01 (+0.00 | x1.34)	3.2 (+1.4 | x1.75)
	Probability of at least one accident in 1 year by spill size	0.14% (+0.09%| x2.81)	0.10% (+0.04%| x1.58)	8.6% (+1.12%| x1.15)	99.4% (+0.67% | x1.01)	99.4% (+0.63%| x1.01)
	Probability of at least one accident in 10 year by spill size	1.40% (+0.90%| x2.80)	0.96% (+0.35%| x1.58)	59.5% (+5.27%| x1.10)	100.0% (0.00%| x1.00)	100.0% (0.00%| x1.00)
	Probability of at least one accident in 25 years by spill size	3.45% (+2.21%| x2.78)	2.39% (+0.87%| x1.57)	89.5% (+3.73%| x1.04)	100.0% (0.00%| x1.00)	100.0% (0.00%| x1.00)