

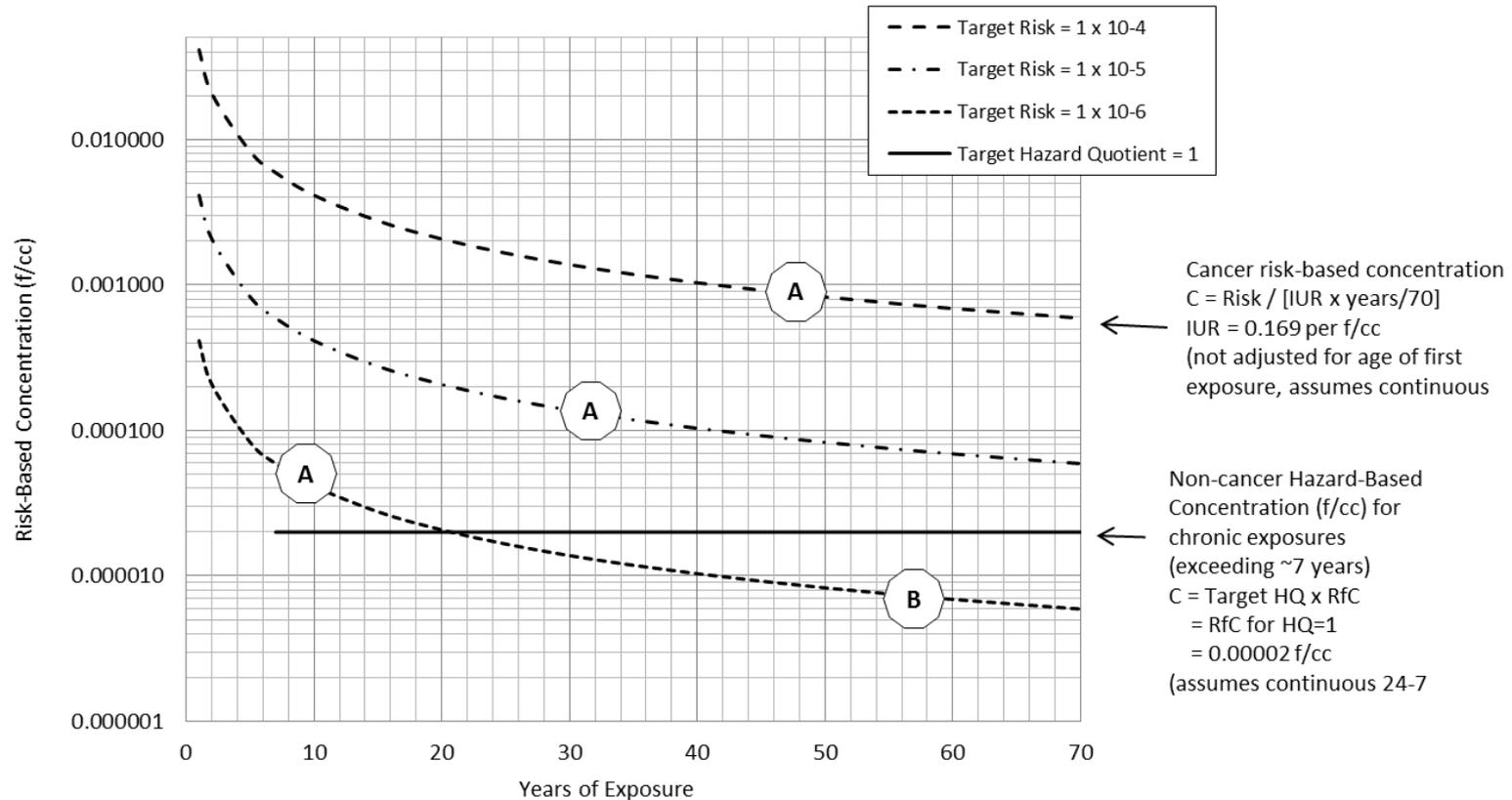
Additional Comments on the EPA Document, “Draft Toxicological Review of Libby Amphibole Asbestos” (EPA/635/r/002a)

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Risk Driver

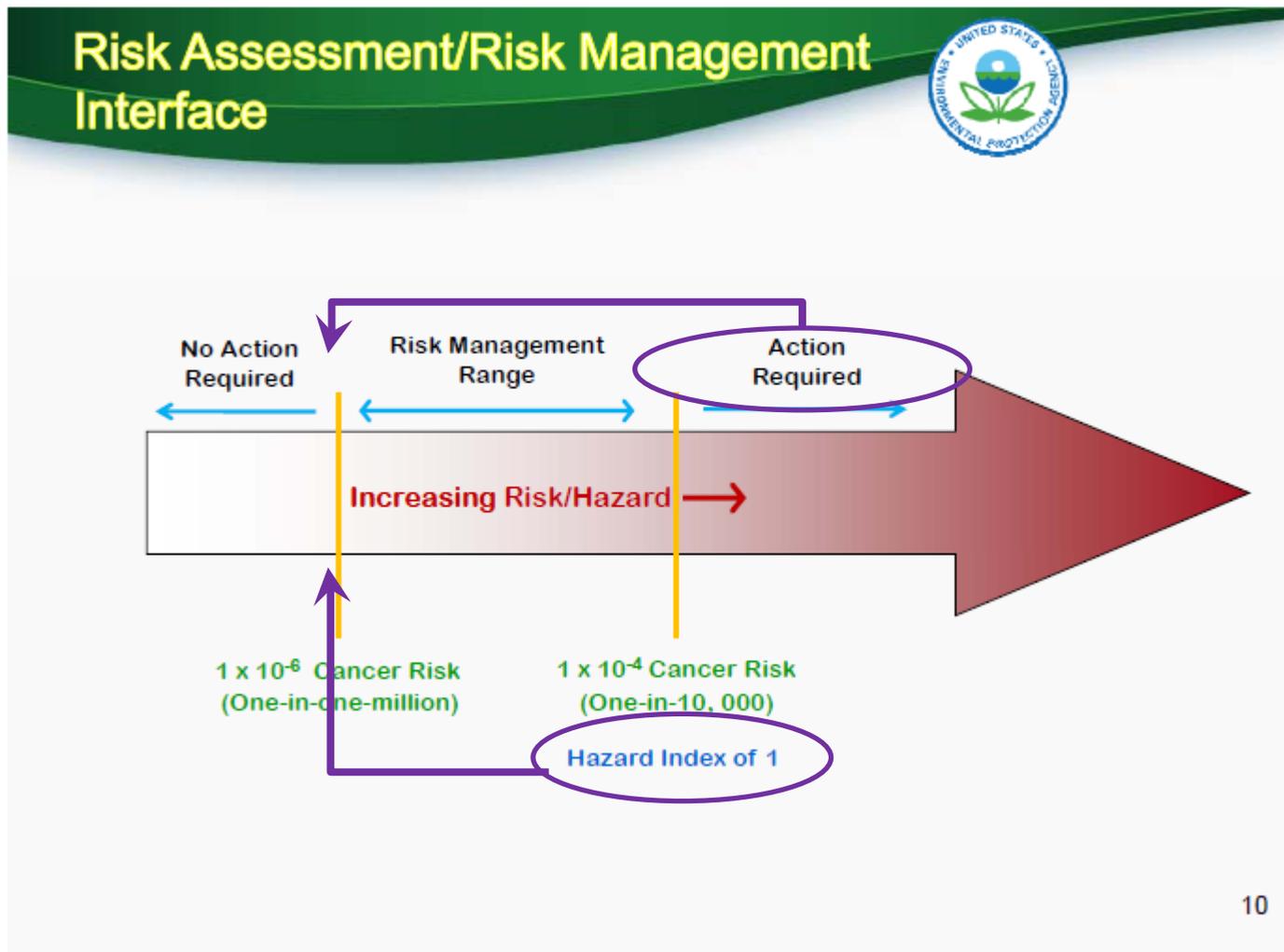
Figure 1. Risk Driver: Cancer versus Non-Cancer



A Cancer risk based exposure concentration *exceeds* concentration for a non-cancer hazard of 1; the **non-cancer health endpoint will drive risk assessment and data quality objectives** (analytical sensitivity)

B Cancer risk based exposure concentration is *lower than* concentration for a non-cancer hazard of 1; the **cancer health endpoint will drive risk assessment and data quality objectives** (analytical sensitivity)

Risk Management Slide Showing Relative Placement of Hazard Index (purple arrows/outlines)



Required Analytical Sensitivity for Non Cancer Health Endpoint Based on Draft RfC

Scenario	EPA 2010 Libby Target Analytical Sensitivity (f/cc)	Required Target Sensitivity for Noncancer Hazard Quotient = 1 using Draft RfC	Factor (number of times lower than EPA Libby)	Required target sensitivity for non-cancer target Hazard Quotient = 0.2 (1 of 5 scenarios)	Factor (number of times lower than EPA Libby)
Residents in yards	0.002	0.00012	16	0.000024	82
Residents in gardens	0.003	0.00024	12	0.000049	62
Child playing on driveway	0.004	0.00024	16	0.000049	82
Driving on Libby roads	0.001	0.00008	12	0.000016	62
Biking in Libby (adult)	0.005	0.00032	15	0.000065	77
Breathing ambient air	0.0000395	0.00002	2		

Per Sample Costs of Laboratory Analysis to meet draft RfC-Required Analytical Sensitivities

Scenario	Required Sensitivity for non-cancer (Target Hazard Quotient = 1) (4)	Typically Achievable Volume of Air Sampled (Liters)	Cost to Analyze Volume to Required Sensitivity for HQ=1	Cost to Analyze for HQ=0.2 (1 of 5 scenarios)
Residents in yards	1.22E-04	600	\$ 15,500	\$ 77,500
Residents in gardens	2.43E-04	600	\$ 7,800	\$ 39,000
Child playing on driveway	2.43E-04	600	\$ 7,800	\$ 39,000
Driving on Libby roads	8.11E-05	2400	\$ 5,800	\$ 29,000
Biking in Libby (adult)	3.24E-04	600	\$ 5,800	\$ 29,000
Breathing ambient air	2.00E-05	14400	\$ 3,900	