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Nota di contenuto	Controlling Hydrocarbon Emissions from Tank Vessel Loading; Copyright; PREFACE; ACKNOWLEDGMENTS; Contents; EXECUTIVE SUMMARY; THE FEASIBILITY OF VAPOR CONTROL; SAFETY AND OPERATIONAL COMPLEXITY; COSTS AND ECONOMIC IMPACTS; POTENTIAL REGULATORY CONFLICT; CONCLUSIONS AND RECOMMENDATIONS; 1 INTRODUCTION; LAWS AND REGULATIONS CONCERNING AIR QUALITY AND MARITIME SAFETY; The Clean Air Act and the States; Coast Guard Authority in Marine Safety; ESTIMATING EMISSIONS; Sources of Emissions; Emission Factors; Vessel Population; Trade; Emissions Calculations; Locations of Emissions Loading Ports for Domestic Oil and Gasoline Loading Ports for Crude Oil and Gasoline Exports; FOCUS FOR ASSESSMENT; 2 CURRENT PRACTICES ON TANK VESSELS; INLAND TANK BARGES; Cargo Handling; Manning Requirements for Loading and Unloading; Loading and Discharging Procedures; TANKSHIPS; Arrangement of Typical Tankship; Combination Carriers; Ocean Barges; Cargo Tank and Pipeline Arrangements; Product and Chemical Carriers; Crude Carriers; Cargo Pumps; Tank Ventilation; Inert Gas Systems; Ballast Arrangements; Segregated Ballast Tanks; Clean Ballast Tanks; Ballast in Cargo Tanks

Ullaging During Loading and Discharging; Manning and Personnel; Deck and Engine Officers; Unlicensed Personnel; Loading Procedures; Unloading Procedures; Washing Cargo Tanks; Water Washing; Crude Oil Washing; 3 VAPOR CONTROL TECHNOLOGY; MAXIMUM CONTROL OF EMISSIONS; Closed Loading of Tank Vessels; Hydrocarbon Vapor Recovery and Disposal Systems; When Combustion Is Preferable to Recovery; When Recovery Is Preferable to Combustion; Recovery Followed by Combustion; Combustion Processes; Open Flares; Enclosed Flares; Incineration; Recovery Processes; Lean Oil Absorption; Direct Refrigeration
Carbon Bed Adsorption; Alternative and Emerging Technologies; Catalytic Combustion; Vapor-Suppressing Foams; Molecular Layer Vapor Barrier; Biofiltration; Membrane Separation; VAPOR BALANCING AS AN ADJUNCT TO VAPOR CONTROL; OPERATING PROCEDURES TO REDUCE EMISSIONS FROM TANKSHIPS; Ballasting Emissions; Loading Emissions; Loading into Gas-Free Cargo Tanks; Loading to 70 Percent of Capacity; HYDROCARBON VAPOR CONTROL SYSTEMS: ASSUMPTIONS FOR PURPOSES OF ASSESSMENT; Vapor Collection Headers; Tank Gauging and Alarms for Inerted Tank Vessels; Special Considerations for Tank Vessel Inert Gas Systems
Dockside Tank Level and Alarm System for Tank Barge Loading; Vapor-Handling System for Terminals; 4 SAFETY CONCERNS; ACCIDENT SCENARIOS; HISTORICAL ACCIDENT DATA; General Marine Liquid Transfer Accident Data; Marine Liquid Transfer Accidents with Vapor Control and Recovery Systems; Vapor Control and Recovery Systems in the Petrochemical Industry; POTENTIAL HAZARDS OF VAPOR CONTROL AND RECOVERY SYSTEMS; General Hazards; Specific Hazards of Vapor Control and Recovery Systems; Vapor Balancing; Carbon Adsorption; Combustion Systems; Absorption; Refrigeration
TECHNOLOGIES TO REDUCE THE RISK OF FIRE AND EXPLOSION
