

Risks Confronting our Workforce

Underground Vault Entries

Normal Air:

78% Nitrogen

21% Oxygen

1% Miscellaneous

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Underground Vault Entries

OXYGEN

19.5%-----21.0%-----23.5%

16%-----19.5% Symptoms

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Underground Vault Entries

What causes an oxygen deficient atmosphere?

1) Oxygen is consumed

Oxidation...Fermentation...Decomposition...Combustion

2) Oxygen is displaced

Natural gas from Keyspan

3) Oxygen is absorbed

Charcoal filters

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Underground Vault Entries

LEL

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Respiratory Contaminants

Particulates

Dusts

Fumes

Fibers

Aerosols

Mists

Smoke

Gases

Vapors

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Particulates

1 Micron = 1 millionth of a meter

<40 microns invisible to the eye

<10 microns – *Respirable*

5-10 microns – Asbestos fiber
concern

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Asbestos

Transite Water Main Pipe: 40%

Non-Friable... Power tools

LUNG CANCER

ASBESTOSIS

MESOTHELIOMA

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CM Crystalline Silica

Jackhammers

By-Pass Electric Shunts

Trenching

Underground Utilities

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Production Control

1. Sodium Hypochlorite
2. Lime
3. Live Parts
4. Energy Control



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Expired Meters



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Laboratory – Chemical World

Skin Contact

Absorption

Ingestion

Inhalation



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Acute versus
Chronic



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Transportation

Aerosols

Flammable Gases & Liquids

Electric Hazards

Welding / Acetylene

CNG

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“Lower Explosive Limit” or LEL

Propane - 2.1⁰% to 9.5⁰%

Gasoline - 1.4⁰% to 7.6⁰%

Methane - 5⁰% to 15⁰%

Acetylene - 2.5⁰% to 100⁰%

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Field Issues

Lyme Disease

West Nile Virus

Heat Stress

Roadside



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