

# **Ross Dress for Less Explosion - Methane Gas Intrusion**

Solution to the methane migration concerns



**California, Fairfax, May 31, 2021 ([IssueWire.com](http://IssueWire.com))** - March 24, 1985, was like any other beautiful Sunday for Los Angeles Natives. The Ross Dress for Less department store located in the Fairfax District was filled with employees and bargain shoppers looking for stellar deals on those name-brand items. Fast forward later in the day, the store is under flames with firefighters, police officers, and HAZWOPER suits scrambling to find the source of an explosion that just rocked the Fairfax District of Los Angeles.

Amid dozens of bystanders receiving medical attention, firefighters scramble to find the explosion source. After rigorous investigation, firefighters left the source as inconclusive, triggering concerns for Los Angeles City Officials. Scientists and Engineers were swiftly brought to the site to evaluate the conditions. After Methane Testing it was concluded that a pocket of high pressure and high concentration methane gas exists below the surface of West Los Angeles. This plume of gas forced its way into the Ross Dress for Less building, resulting in the explosion.

### **Methane Mitigation History**

Let's rewind a century earlier in 1902 when the infamous Salt Lake Oil Field was discovered. With aspirations of competing with the Los Angeles City Oil Field, the Salt Lake Oil Field was one of the fastest emerging oil fields in the Los Angeles area. At its peak, Salt Lake had over 300 operating wells producing over 50 million barrels of oil during its operation. The earth's natural sources in this area prove to be dense with high-energy oil which fueled our society for decades. Years later, these oil fields are nearly dry, forcing Oil Tycoons to relocate and search for other sources. Eventually, we are left with a shell of subsurface natural resources and abandoned oil wells in a highly sought-after geographic location.

Considering the demand in the area, developers capitalized by aggressively expanding into the residential and commercial real estate market. During the duration of the 1900s, the Oil Fields were slowly replaced with high-end shopping stores and one of Los Angeles' highest valued communities. Unbeknownst to developers, subsurface methane was waiting to emerge at high pressures and concentrations.

Ultimately, these high-pressure gases find their way through the crevices of cracked foundations and slabs, accumulating inside structures. The unfortunate combination of the high concentration Methane Gas Intrusion, enclosed structures, and an ignition created the chaos of the 1985 Ross Dress for Less Explosion.

Although the safety circumstances throughout the day seemed to improve, a series of Methane Soil Gas Tests showed that the Vapor Gas source was continuing to expel methane. City officials needed a solution to swiftly reduce the risk of additional indoor accumulation and explosion. Engineers added relief points through the city, allowing a controlled burn of subsurface methane gas at ground level. This action proved to be successful and may have saved thousands of lives.

## The Birth of the Methane Mitigation Industry

Within days, the city building officials were now faced with a new task on hand; How can we prevent this from happening again?

The Los Angeles Department of Building and Safety (LADBS) assembled a task force to focus on the Methane Gas Intrusion issues. LADBS brought dozens of Methane Gas Engineering Experts, Scientists, Soil Engineers, Vapor Intrusion Experts, and Methane Consultants together to develop a solution to this unique problem.

The solution combined various disciplines and included several levels of redundancy to ensure that any Methane gas intrusion is limited and controlled in the future.

Although the current methane mitigation process is extensive and requires an in-depth overview and knowledge, the main source of protection comes from the methane barrier.

## Developing Methane Barriers and Vapor Membranes

The newly defined Methane Mitigation Engineers needed to come up with an innovative Construction methodology by designing and constructing a sealant beneath the foundation of structures to ensure that no methane gas or other harmful gas hazards could penetrate a foundation. The safety concerns created a significant essence of urgency for the city to come up with a solution, and LADBS could not afford to allocate the time that testing requires to develop a new construction methodology.

Gas Vapor Intrusion Consultants deferred to existing products in the market to find a [solution to the methane migration concerns](#). The well-developed waterproofing industry contained various materials that were designed to prevent water intrusion into structures. A licensed LADBS Testing Agency rigorously tested these Waterproofing Membranes for use as a Methane Barrier. Methane Test results showed that certain spray-applied asphalt emulsion waterproofing membranes had a very low mass diffusion rate for methane. Considering these materials were already developed and had decades of proven field data, Methane consultants and LADBS together took advantage of this preexisting material and developed the first specifications for methane barriers.

In an effort to develop redundant design approaches, Methane Gas Hazard Engineers established the LADBS Methane Mitigation Standard Plans which define a system with Methane detectors, Methane alarms, and Lowest Level Methane Ventilation fans in areas that have high-risk methane gas intrusion.

In time, the LADBS Methane team developed the present-day Methane Mitigation Standard Plans which outline the LADBS requirements for new construction projects.

## LADBS Methane Mitigation Standard Plans

40 years later LADBS oversees the development of [Methane Mitigation Systems in all-new Construction projects](#) within the City of Los Angeles. These preventive measures have proven to eliminate the risks of methane intrusion inside structures. Over the years neighboring building jurisdictions have followed the footsteps of LADBS by developing their own Methane Mitigation Standards, including the LA County Environmental Programs Division, Orange County Fire Authority (OCFA), City of Long Beach Methane Gas Mitigation, and more. The California Department of Toxic Substance Control has developed the Site Mitigation and Restoration Program to prevent Vapor Intrusion from all subsurface gas hazards.



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