

ORDINANCE NO. 9446 (N.S.)

AN ORDINANCE AMENDING THE CODE OF REGULATORY ORDINANCES
RELATED TO TESTING REQUIREMENTS FOR METHANE GAS ON PROJECTS
WITH MASS GRADING

The Board of Supervisors of the County of San Diego ordains as follows:

Section 1. The Board of Supervisors finds and determines that there is a need to protect life, property, and the public welfare by requiring testing for the presence of subsurface methane gas. This ordinance sets forth requirements for subsurface methane testing and mitigation in the unincorporated areas of San Diego County on projects with mass grading where methane gas is found at or above specified levels.

Section 2. Chapter 3 of Division 6 of Title 8 of the Code of Regulatory Ordinances is hereby repealed.

Section 3. Chapter 3 of Division 6 of Title 8 of the Code of Regulatory Ordinances is hereby re-enacted to read as follows:

CHAPTER 3. METHANE GAS TESTING IN THE UNINCORPORATED AREAS OF
SAN DIEGO COUNTY

SEC. 86.301. APPLICABILITY OF CHAPTER.

This chapter shall apply to all lots in the unincorporated areas of the County that have been mass graded, have more than ten feet of fill within ten feet of an enclosed structure and upon which an enclosed structure is to be constructed. The requirements for testing set forth in this chapter shall not apply to lots that have previously been tested for the presence of subsurface methane gas to the satisfaction of the County Official.

SEC. 86.302. DEFINITIONS.

For the purpose of this chapter, the following terms shall be defined as follows:

- (a) "Action Level" refers to the concentration of methane gas at or above 12,500 parts per million by volume (ppmv).
- (b) "County Official" shall mean the Director of Planning and Land Use or his or her authorized representative.
- (c) "Cut" shall mean any act by which soil, sand, gravel or rock is cut into, dug, quarried, uncovered, removed, displaced or relocated and shall include the conditions resulting therefrom.

- (d) “Enclosed Structure” shall mean a roofed structure contained on all sides by walls which are pierced only by windows, vents or customary entrances and exits and for which building permits are required, pursuant to Chapter 1 of Division 1 of Title 5 of the San Diego County Code.
- (e) “Fill” shall mean any act by which soil, sand, gravel, rock or other material is placed during grading operations and shall include the conditions resulting therefrom.
- (f) “Gas Probe” shall mean an installation of two or three gas sampling tips in a single location at different depths to facilitate measurement and sampling of subsurface methane gas.
- (g) “Isotopic Analysis” shall mean an analysis by a state certified laboratory of the stable isotope ratios of carbon ($^{13}\text{C} / ^{12}\text{C}$) and hydrogen ($2\text{H} / 1\text{H}$) using gas chromatography / mass spectrometry testing procedures.
- (h) “Lot” shall mean a lot as described in Section 1110, Definitions (L) of the San Diego County Zoning Ordinance.
- (i) “Mass Grading” or “Mass Graded” shall mean contiguous grading which will support multiple lots and that will alter the existing landform.
- (j) “Methane Gas” is a naturally occurring colorless, odorless and non-toxic combustible gas with the chemical formula CH_4 .
- (k) “Methane Gas Mitigation System” shall mean a system designed by a Registered Professional to prevent the intrusion of soil gas containing methane in excess of the action level into enclosed structures.
- (l) “Registered Professional” shall mean a California Registered Civil Engineer, (or other California Registered Engineer if approved by the County Official) experienced in testing for methane gas and experienced in the design and construction of methane gas mitigation systems to the satisfaction of the County Official.

SEC. 86.303. METHANE MITIGATION.

Prior to the issuance of building permits for an enclosed structure, all lots to which this chapter applies, as specified in section 86.301, shall include a Methane Gas Mitigation System incorporated into the building design that will prevent the intrusion of soil gas containing methane in excess of the action level as defined in 86.302 (a) into enclosed structures. The Methane Gas Mitigation System shall be designed by a

Registered professional as defined in 86.302 (l). Where a Methane Gas Mitigation System has been or will be installed to the satisfaction of the County Official, methane gas testing pursuant with 86.304 is not required.

SEC. 86.304. METHANE TESTING.

Where methane testing has been completed to the satisfaction of the County Official and the gas concentration has been found to be below the action level, installation of a Methane Gas Mitigation System is not required. All methane gas testing shall be in accordance with the requirements of this section unless the County Official approves an alternate work plan pursuant to Section 86.305. All testing shall be supervised by a Registered Professional. Subsurface methane testing protocols shall be as follows:

- (a) Subsurface methane testing shall be performed on all fill lots. For residential lots, one gas probe shall be required near the center of the proposed structure. For commercial or industrial lots, one gas probe shall be required for every 10,000 square feet of first floor area at project specific locations approved by the County Official.
- (b) Installation of the gas probes for subsurface methane testing shall take place no sooner than thirty (30) days after the completion of mass grading operations. For the purposes of this section, mass grading operations shall include the completion of individual building pads.
- (c) Gas probes shall consist of two isolated gas sampling tips. Gas sampling tips shall be installed at the depths indicated in Table 1 as follows:

Table 1. Gas Probe Tip Depths

Depth of Fill Areas	Depths of Sampling Tips	
	Tip #1	Tip #2
Fill – Less than 10 feet	20'	80% of fill depth (5' minimum)
Fill – Greater than 10 feet	20'	5'

- (d) Each gas probe shall be monitored one time each week for four weeks following installation. The four monitoring events shall be comprised of two AM and two PM readings. The AM and PM readings shall be taken on alternating weeks. Monitoring of each gas probe shall include measurement and documentation of the following parameters as indicated in Table 2:

Table 2. Required Measurement Parameters

Parameter	Resolution or Detection Limit	Equipment
Methane Concentration	1,000 ppm	Methane Specific IR Gas Analyzer
Oxygen Concentration	1,000 ppm	Methane Specific IR Gas Analyzer
Carbon Dioxide Concentration	1,000 ppm	Methane Specific IR Gas Analyzer
Gas Probe Pressure	±.2" of Water	Magnehelic Gauge
Barometric Pressure	±.05" of Mercury	Barometer

Monitoring of the following additional parameters may also be required as indicated in Table 3:

Table 3. Additional Measurement Parameters

Parameter	Resolution or Detection Limit	Equipment
Hydrogen Sulfide Concentration	1 ppm	Field Electrochemical
Isotopic Analysis (13C vs. 12C) and (2H vs. 1H)	Per Mil	Laboratory
Surface Flux or	Volume/Unit Area/Hour	Flux Chamber
Surface Sweep	1 ppm	F.I.D.

SEC. 86.305. ALTERNATE WORK PLAN.

If alternate subsurface methane testing protocols are proposed which differ from the requirements contained in Section 86.304 of this ordinance, prior to performing that testing, a work plan shall be submitted to, and approved to the satisfaction of, the County Official. The work plan shall include the project name and the following information:

- (a) The name of the Registered Professional who will be responsible for performing the methane testing.
- (b) A description of the alternate testing protocols to be used including, but not limited to, the location of each proposed gas probe, the proposed depths of all gas probe tips and the frequency of monitoring events.

- (c) A vicinity map and other data to adequately indicate the site location.
- (d) A plan showing the entire site where the methane testing will occur. The plan shall graphically depict the following information:
 - (1) Property lines for each lot and the perimeter of the site.
 - (2) The location of all roads and building pads.
 - (3) The locations and footprints of all proposed structures.
 - (4) The locations of all cut and fill areas, including the depth of all fills.
 - (5) The location of each proposed gas probe.

SEC. 86.306. SUBMITTAL OF REPORT.

Upon completion of all methane testing, the Registered Professional shall submit the following information to the County Official:

- (a) A report documenting the site condition and history including the date that mass grading operations were completed.
- (b) A report addressing the most likely source of the subsurface methane gas with supporting data.
- (c) A report indicating the actual depths of the gas sampling tips, with all of the required data from Table 2 in Section 86.304 including the dates and times of each test, for each probe location. Any additional data that is collected from Table 3 in Section 86.304, or data, which is required under an approved Alternate Work Plan shall also be included in the report.
- (d) A plan showing the location of each methane gas probe on the site and depicting the following information:
 - (1) Property lines for each lot and the perimeter of the site.
 - (2) The location of all roads and building pads.
 - (3) The locations and footprints of all proposed structures.
 - (4) The locations of all cut and fill areas, including the depth of all fills.
- (e) A report with recommended actions based on the results of the methane gas testing. Wherever methane gas has been detected on a site at or above the action level, the recommendations shall include procedures for the mitigation of that methane gas.

SEC. 86.307. IMPLEMENTATION OF RECOMMENDED ACTIONS.

Prior to issuance of a building permit for an enclosed structure, the recommended actions pursuant to Section 86.306 (e) shall be implemented to the satisfaction of the County Official.

Section 4. This ordinance shall be brought to the Board of Supervisors within four months of its effective date for consideration of the test results which have been received by the County, and for a determination as to whether the ordinance should be repealed or continued in effect.

Section 5. This ordinance shall take effect and be in force thirty days after its passage, and before the expiration of fifteen days after its passage, a summary hereof shall be published once with the names of the members of this Board voting for and against it in the San Diego Commerce, a newspaper of general circulation published in the County of San Diego.

PASSED, APPROVED AND ADOPTED this 13th day of March, 2002.

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