# STATE FIRE MARSHAL'S OFFICE

## Firefighter Fatality Investigation

**Investigation Number 05-227-02**

# Chief Lonnie Nicklas

Shepherd Volunteer Fire Department
February 24, 2005

Texas Department of Insurance
Austin, Texas

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## Executive Summary

On February 23, 2005, 39-year-old Shepherd Volunteer Fire Chief Lonnie Nicklas died due to a heart attack.

## Introduction

The Texas State Fire Marshal's Office (SFMO) was notified of the death and Richard Bishop was assigned the firefighter fatality investigation of Shepherd VFD Chief Lonnie Nicklas.

The SFMO commenced this investigation under the authority of Texas Government Code Section 417.0075. The statute requires SFMO to investigate the circumstances surrounding the death of the firefighter, including the cause and origin of the fire, the condition of the structure, and the suppression operation, to determine the factors that may have contributed to the death of Chief Nicklas. The State Fire Marshal is required to coordinate the investigative efforts of local government officials and may enlist established fire service organizations and private entities to assist in the investigation.

## Origin and Cause Investigation

This was not a firefighting incident investigation.

## Building Structure and Systems

No buildings or structures played a factor in the fatality.

## Investigation of the Death of the Firefighter

On February 22, 2005, Chief Nicklas worked his regular job installing bank equipment. After leaving work at 1700 hours, he went to the fire station to conduct training that

evening. The training, which began at about 1900 hours, consisted of classroom work on hazardous materials and traffic control. After Chief Nicklas had finished his portion of the training, he went into the apparatus bay to perform truck maintenance. He repaired a water leak under the tanker, changed the rotor on the front of the utility truck, greased the pump and valve levers on the engine, and pulled out the extrication tool box, weighing about 300 pounds, to inspect the tools. Junior firefighters had been using the tools earlier, and the Chief wanted to verify that all the tools were accounted for and in good working order. He was also going to install wheels under the box for easier removal from the truck. During this time the Chief also climbed 16 steps to the second floor at least six times to retrieve tools and equipment. At the station he began rubbing his stomach and related to his wife, also a Shepherd Volunteer Firefighter, that his stomach didn't feel right. They left for home at about 2300 hours.

On February 23, Chief Nicklas arose at 0500 hours and went to his regular job where he helped install an automated teller machine at a bank. At 1700 hours, the Chief left work and went to the fire station. After pulling the 300 pound extrication tool box out of the truck and checking the self-contained breathing apparatus (SCBAs), he and his wife went to a local café for coffee. While at the café, he related that his stomach had been bothering him all day, which he now described as a "gas bubble." After running an errand, he returned home to work on some deck lights for about an hour. His stomach discomfort continued, and his wife asked him if he wanted to go to the doctor. He declined, and they went to bed at about 2230 hours.

At about 2330 hours, the Chief's wife awoke to find him standing in the doorway complaining of worse stomach pain and a new pain between his shoulder blades. His wife began to call 911, but the Chief insisted she drive him to the hospital. As his wife retrieved her purse and keys, the Chief collapsed. At this point, the Chief’s wife began Cardio-pulmonary Resuscitation (CPR) and called 911 to request an ambulance.

A First Responder (FR) arrived (0003 hours). Finding the Chief unresponsive, with no pulse and no respirations, and CPR in progress, the FR analyzed the Chief’s heart rhythm with an automated external defibrillator (AED). Five shocks (defibrillation attempts) were delivered. Another FR arrived to assist and called 911 to inquire of the whereabouts of the ambulance.

The ambulance arrived on the scene at 0012 hours. Paramedics found the Chief unresponsive, pulseless, and apneic (not breathing) with CPR in progress. A cardiac monitor was attached to the Chief. It revealed ventricular fibrillation (Vfib), and two shocks were administered. After the last shock, his heart rhythm reverted to asystole (no heart beat) and CPR continued.

Chief Nicklas was intubated (a breathing tube inserted into the trachea), and an intravenous (IV) line was placed. Lung sounds were confirmed with bilateral auscultation and fogging of the tube, but no secondary confirmation techniques (carbon dioxide or bulb) were used. After cardiac resuscitation medications and two more shocks were administered, he was placed onto a backboard and stretcher and loaded into the ambulance. The ambulance left the scene *en route* to the hospital at 0029 hours.

At 0042 hours, the ambulance arrived at the hospital. At this point Mr. Nicklas had been in cardiopulmonary arrest for over 40 minutes. Resuscitation measures continued in the

hospital for an additional 23 minutes without an improvement in the Chief's condition. At 0105 hours, the attending physician pronounced the Chief dead, and resuscitation measures were discontinued.

## Personal Protective Equipment Evaluation

Personal protective equipment was not a factor in the fatality.

## Medical Background of Victim

The death certificate, completed by a Justice of the Peace, listed "severe three vessel atherosclerotic heart disease" as the cause of death. The autopsy, completed by a forensic pathologist, listed "severe three-vessel CAD" as the cause of death.

## Findings and Recommendations

The following findings of fact and recommendations are based upon nationally recognized consensus standards for the fire service and are excerpted from published investigation reports provided by the Centers for Disease Control's National Institute for Occupational Safety and Health. While it is unlikely that the following recommendations could have prevented the Firefighter's death, the State Fire Marshal's Office offers these recommendations to reduce the risk of on-the-job heart attacks and sudden cardiac arrest among fire fighters.

All fire departments should be aware of the content of the standards and may choose to develop programs based on them to increase the level of safety for fire department personnel.

- *Provide mandatory pre-placement and annual medical evaluations to* all *fire fighters consistent with NFPA 1582, Standard on Comprehensive Occupational Medical Program for Fire Departments to determine their medical ability to perform duties without presenting a significant risk to the safety and health of themselves or others.*
- *Perform an annual physical performance (physical ability) evaluation to ensure fire fighters are physically capable of performing the essential job tasks of structural fire fighting.*
- *Ensure that fire fighters are cleared for duty by a physician knowledgeable about the physical demands of fire fighting, the personal protective equipment used by fire fighters, and the various components of NFPA 1582, Standard on Comprehensive Occupational Medicine Program for Fire Departments.*