



**OFFICE OF THE MEDICAL EXAMINER
701 W. Jefferson St.
Phoenix, AZ 85007**

MEDICAL EXAMINER REPORT

DECEDENT: Sean Misner

CASE: 13-04425

DATE OF EXAMINATION: 07/02/2013

TIME: 0810 Hours

PERSONS PRESENT AT EXAMINATION:

Arizona Forestry Division: Deputy State Forester Jerry Payne

Yavapai County Sheriff's Office: Lieutenant Tom Boelts

PATHOLOGIC DIAGNOSES

- I. Fire-related injuries.
 - A. Thermal injuries.
 - 1. Greater than 95% total body surface area, full thickness burns.
 - 2. Relative sparing of the belt line, dorsum of the left forearm, hands, and feet.
 - 3. Areas of full thickness charring with exposure of the intestines, bones of the knees with thermal fracture of the right femur.
 - 4. Pugilistic posturing.
 - B. Inhalation of products of combustion.
 - 1. See separate Toxicology Report.
 - 2. Soot throughout trachea and bronchi.
 - 3. Cherry red discoloration of musculature.
- II. No evidence of significant natural disease.
- III. See separate Toxicology Report.

CAUSE OF DEATH: Fire related injuries
MANNER: Accident

10/22/2013
Date Signed


**CHRISTOPHER K. POULOS, MD
MEDICAL EXAMINER**

SEAN MISNER

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REPORTED CIRCUMSTANCES OF DEATH

On July 1, 2013, Yavapai County officials requested assistance from the Maricopa County Office of the Medical Examiner with the medicolegal death investigations of 19 firefighters who died in the Yarnell Hill wildfire on June 30, 2013. Under the Maricopa County Manager's authority and direction, the Maricopa County Office of the Medical Examiner examined the firefighters' remains for the purpose of forensic identification and postmortem evaluation. The Maricopa County Office of the Medical Examiner also agreed to provide consultative services to investigating authorities and the Yavapai County Medical Examiner. The Yavapai County Medical Examiner agreed it will certify the firefighters' death certificates. The following Maricopa County Office of the Medical Examiner case numbers were designated for this incident: 13-04425, 13-04426, 13-04427, 13-04428, 13-04429, 13-04430, 13-04431, 13-04432, 13-04433, 13-04434, 13-04435, 13-04436, 13-04437, 13-04438, 13-04439, 13-04440, 13-04441, 13-04442, and 13-04443.

The decedent was a 26-year-old male who was a firefighter involved in a wildfire. The decedent was found deceased after attempting to contain the wildfire.

EXTERNAL EXAMINATION

The body is received in a zippered body pouch secured by evidence seal number 025529.

PHOTOGRAPHS:

Photographs are taken during the exam.

RADIOGRAPHS:

Total body radiographs reveal equipment and clothing debris, a fracture of the right femur, and no projectile fragments or significant surgical hardware.

IDENTIFICATION:

The body is identified by the next of kin's confirmation of tattoos on 7/2/2013.

CLOTHING AND PERSONAL EFFECTS

The body is clad in and accompanied by the following items: miscellaneous metal and cloth fragments within the body pouch, a cloth fragment near the mouth, remnants of cloth adherent to the chest, a metallic bottle near the chest, remnants of a black plastic watch fused with a yellow shirt fragment (watch brand is Armitron All Sport Model), black metal wedding ring (brand Triton with no additional inscriptions), red socks (brand Climalite), blue socks, and charred boots still on the feet (White Boot, size 9-1/2 D), gloves of the hands (brand Wildland Firefighter Protective Gloves), remnants of the belt

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line of pants, a belt with partial sparing of the underlying skin, fragmented pieces of plaid boxer shorts, a fire retardant pouch that is blackened and torn found around the ankles, and a melted bottle fused with the plastic fire retardant pouch.

EVIDENCE OF MEDICAL INTERVENTION

There is no evidence of recent medical intervention.

EVIDENCE OF TRAUMA

EVIDENCE OF THERMAL INJURY: External evidence of thermal injury includes pugilistic posturing, full thickness of burning greater than 95% of the total body surface area with relative sparing (still full thickness burning) of the dorsum of the left forearm, the belt line, and the hands, partial thickness burning of the feet, exposure of the intestines with thermal related changes of the intestines and liver, exposure of the bones of the right wrist, exposure of the bones of the knees bilaterally with a thermal related fractures of the right femur.

INTERNAL EVIDENCE OF INHALATION OF PRODUCTS OF COMBUSTION: Includes soot within the airways, thermal injuries of tongue, and cherry red discoloration of the musculature.

SCARS, TATTOOS AND OTHER IDENTIFYING BODY FEATURES:

A tattoo of the name Philippians 4:13 on the upper aspect of the chest.

GENERAL EXTERNAL EXAMINATION

The unembalmed body is that of a male, 69 inches in height, weighing 131 pounds. Rigor mortis is generalized and livor mortis is indeterminate. The body is cold (refrigerated). The scalp hair is absent secondary to thermal injury. The irides are of indeterminate coloration secondary to marked corneal clouding and thermal injuries. There are no additional lesions of the sclerae or conjunctivae. No petechial hemorrhages are identified on the sclerae, conjunctiva, or oral mucosa. Facial hair is unable to be assessed secondary to thermal injuries. The ears are charred but appear normally formed and the presence of piercings could not be determined. Dentition is natural and in good condition. The trachea is in the midline. The thorax is well developed and symmetrical. The abdominal wall is flat where present; however, the abdominal wall is largely absent secondary to thermal injuries. No palpable intra-abdominal masses are identified. The external genitalia are absent secondary to thermal injuries. The extremities where uninjured are well developed and symmetrical with no evidence of deformity. Fingernails are unremarkable. The feet and toes are not remarkable. The posterior aspects of the torso are symmetrical and devoid of any acute injury patterns aside from the previously described thermal injuries.

INTERNAL EXAMINATION

The body is opened by a standard Y-shaped thoraco abdominal incision. All viscera occupy their appropriate anatomic relationships. Serous surfaces are smooth and glistening throughout except in areas of the abdomen affected by thermal injuries. There is no significant free fluid accumulation or adhesions within the body cavities.

CARDIOVASCULAR SYSTEM

The 375-gram heart occupies its usual mediastinal site. The external configuration is unremarkable. The epicardial surfaces are smooth and glistening. All major vessels arise in their appropriate anatomic relationships. The coronary arteries arise normally and are distributed in a right dominant pattern with no significant atherosclerotic stenosis. The myocardium is firm, red-brown without areas of softening, hemorrhage or gross scarring. No abnormal communications exist between the cardiac chambers. Ventricular thicknesses are: left 1.5 cm, right 0.5 cm, and 1.6 cm. in the interventricular septum. The cardiac valves have thin, pliable leaflets. The valve circumferences are appropriate to the caliber of the cardiac chambers. The valve cusps and surfaces are free of fusion or vegetations.

The aorta is of normal caliber with all major arterial branches arising in their appropriate anatomic relationship. Elasticity is normal. The intimal surfaces are without aneurysm formation or dissection. No systemic venous abnormalities or thrombi are present.

RESPIRATORY SYSTEM

The lungs weigh 575 grams left and 625 grams right. The upper and lower airways contain soot but are otherwise patent and of normal caliber. The pleural surfaces are smooth and glistening. The parenchyma is well expanded, focally firm secondary to thermal changes but otherwise light pink to dark red-purple, exuding minimal amounts of blood and frothy fluid. There are no areas of induration, consolidation, hemorrhage or gross scarring. The pulmonary vessels are patent and of normal caliber.

DIGESTIVE/HEPATOBIILIARY SYSTEM

The oropharynx is remarkable for thermal change of the tongue, but is unobstructed. The esophagus is of normal caliber with a smooth, white mucosal lining. The gastroesophageal junction is well defined. The stomach has intact mucosal surfaces and the lumen contains 50 ml of thick brown fluid. No areas of ulceration, erosion, or hemorrhage or scarring are present. The small and large intestines are externally unremarkable except where affected by thermal injury secondary to charring of the abdominal wall. The small and large intestines are without palpable masses or diverticula. The appendix is present. The lobular tan pancreas is firm, without areas of fat necrosis, gross hemorrhage, or space-occupying lesions. The pancreatic ducts are patent and of normal caliber.

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The 1275-gram liver has a smooth intact capsule, covering red-brown parenchyma. The parenchyma is abnormally firm secondary to thermal changes. No localizing masses, lesions or areas of hemorrhage are evident on external or cut surfaces. The intrahepatic and extrahepatic ducts are patent and of normal caliber. The gallbladder contains viscid bile. The gallbladder mucosa is grossly normal.

GENITOURINARY SYSTEM

The symmetric kidneys weigh 100 grams each. They are similar in size and shape. The capsules strip with ease from the smooth, red-brown cortical surfaces. The cortices are sharply delineated from the medullary pyramids. The calyces, pelves and ureters are unremarkable. The renal vessels are patent and of normal caliber.

The urinary bladder contains 50 ml of dark yellow urine. The mucosal surfaces are flat and pink-tan. The prostate and seminal vesicles are unremarkable.

HEMATOPOIETIC SYSTEM

The 125-gram spleen occupies its usual anatomic site, with an intact, smooth and glistening capsule covering dark purple, moderately firm parenchyma. Regional lymph nodes have their usual distribution and appearance. Rib bone marrow is beefy, red, and unremarkable.

ENDOCRINE SYSTEM

The thyroid and adrenal glands are grossly not remarkable.

NECK

The cervical spine is structurally intact. The hyoid bone and thyroid cartilage are intact. There are no hemorrhages in the strap muscles or soft tissues of the neck. The upper airway is patent, but contains soot.

MUSCULOSKELETAL SYSTEM

The bony framework, supporting musculature and soft tissues are unremarkable except for the previously described thermal related fractures.

NERVOUS SYSTEM

The scalp is reflected in the usual fashion. There are no contusions, lacerations, or abrasions. There is no skull fracture. The 1375-gram brain is covered by thin, clear, delicate leptomeninges. The dura mater and falx cerebri are intact. There is good preservation of cerebral symmetry without flattening of gyri or widening of sulci. Convolutional patterns remain intact. External landmarks are readily identified. There is

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no evidence of herniation or either diffuse or localized swelling. The cerebral vessels are intact with no evidence of aneurysm or thrombosis. Atherosclerotic changes are absent. Multiple coronal sections of cerebrum, cerebellum, and brain stem reveal no localized hemorrhages, masses, or lesions. The ventricular system is symmetrical, non-dilated and filled with clear fluid. The basal ganglia are grossly normal. The atlanto-occipital articulation is grossly normal.

EVIDENCE

Evidence includes a fire retardant shelter.

TOXICOLOGY SPECIMENS

Samples of the following are collected and submitted for toxicological testing: nasal swab, vitreous fluid, iliac blood, cardiac blood, gastric contents, subcutaneous fat, urine, psoas muscle, lung, liver, kidney, spleen, and brain.

FINAL SUMMARY

Based on the autopsy findings and investigative history, as available to me, it is my opinion that Sean Misner, a 26-year-old male, died as a result of Fire related injuries.

The manner of death is Accident.

CKP/gz
D 7/2/13
T 7/3/13

The Maricopa County Medical Examiner's Office is required by statute (A.R.S. § 11-594(A)(2) and (4)) to certify the cause and manner of death following completion of the death investigation of each case over which it assumes jurisdiction, and to promptly execute a death certificate, on a form provided by the state registrar of vital statistics, indicating the cause and manner of death. The form provided by the state registrar of vital statistics includes five manners of death: homicide, suicide, accident, natural, and undetermined. The determination of manner of death is a forensic determination by the pathologist predicated upon the totality of all then-known forensic evidence and other circumstances surrounding the cause of death; it is not a legal determination of criminal or civil responsibility of any person(s) for the death.

MARICOPA COUNTY OFFICE OF THE MEDICAL EXAMINER

REPORT OF TOXICOLOGICAL EXAMINATION

REV CUR
10/22

Case Number: 13-04425
Decedent: SEAN MICHAEL MISNER
Date Submitted: 07/02/2013
Report Date: 07/26/2013

Specimens Collected: NASAL SWAB, VITREOUS, BLOT/FILTER PAPER, ILIAC BLOOD, CARDIAC BLOOD, BILE, GASTRIC, SUBCUTANEOUS ADIPOSE TISSUE, URINE, PSOAS MUSCLE, LUNG TISSUE, LIVER, KIDNEY, SPLEEN, BRAIN

Medical Examiner: CHRISTOPHER K. POULOS, MD

RESULTS*:


Vitreous: None detected for ethanol, methanol, isopropanol and acetone

Iliac Blood: Positive for
Carboxyhemoglobin (41% saturation)
Ibuprofen (<10 mg/L)
None detected for ethanol, methanol, isopropanol, acetone, amphetamine, methamphetamine, phencyclidine, cocaine, benzoylcegonine, methadone, morphine, codeine, benzodiazepines, barbiturates, antihistamines, phenothiazines, tricyclic antidepressants, fentanyl, oxycodone, and acid neutral drugs

Brain and Lung: Positive by GC/MS for
Benzene
Toluene
Xylene

Urine: None detected for amphetamine, methamphetamine, phencyclidine, cocaine, methadone, codeine, antihistamines, phenothiazines, and tricyclic antidepressants

*If results are not listed for any specimen(s), that/those specimen(s) is/are deemed to be on "HOLD"


Norman A. Wade
Laboratory Director