

**SOUTH DAKOTA DEPARTMENT OF LABOR**  
**Division of Labor and Management**

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**JEAN R. MCCARTY,**  
**Personal Representative of the Estate of**  
**MICHAEL R. MCCARTY, Deceased,**  
**Claimant,**

**HF 34, 2003/04**

**DECISION**

v.

**HANDER INC. PLUMBING AND**  
**HEATING,**

**Employer, and**

**ACUITY INSURANCE COMPANY,**  
**Insurer.**

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This is a workers' compensation proceeding before the South Dakota Department of Labor, pursuant to SDCL 62-7-12 and ARSD 47:03:01. J. B. Lammers, of Lammers, Kleibacker & Brown, L.L.P., represents Claimant. Michael S. McKnight, of Boyce, Greenfield, Pashby & Welk, L.L.P., represents Employer/Insurer.

**Issue**

Michael McCarty (McCarty) died suddenly while engaged in employment related duties for Employer. By agreement of the parties, the sole issue presented is whether McCarty's employment or employment related duties constituted a "major contributing cause" of his sudden death, as required by SDCL 62-1-1(7).

**Facts**

McCarty died January 8, 2003, at one of Employer's job sites. He was with two co-workers, Dale Englund and Vince Waddell. The three had been excavating a hole for a drain and sump pump. The hole was approximately 4.5 feet in diameter and between 6.5 and 8 feet deep. The three were taking turns in the hole. One would climb down a ladder in the hole, operate a jackhammer, then shovel loose material up and over the top of the hole. Each man would stay in the hole approximately twenty to thirty minutes at a time, until he wanted a break. The other two would watch from above.

McCarty arrived at the job site about 9 a.m. that morning, right before break time. At about 9:30, the men took their 15 minute break. McCarty was in the hole twice that morning between the 9:30 break and lunch. Waddell testified that he was the last man in the hole before lunch. Assuming the men took their lunch break at noon, and assuming Waddell worked the usual 20 to 30 minute shift, McCarty would have finished his last turn in the hole at or shortly after 11:30.

The men took a half hour lunch break about noon. McCarty did not appear ill or in distress during lunch. The men engaged in the usual conversation, laughed and joked.

McCarty was the third man in the hole after lunch. Again, assuming the usual 20 to 30 minute rotation, McCarty would have taken his turn at or before 1:30 p.m. At the outside, McCarty finished his last turn before lunch at 11:30 a.m. and began his first turn after lunch at 1:30 p.m., a span of no longer than two hours.

Waddell and Englund each testified concerning what happened when McCarty entered the hole the last time. Their testimony differs.

Waddell testified that McCarty was in the hole five to ten minutes before he collapsed. He testified that McCarty threw out seven or eight half-shovels of loose granite and small stones. He was using a spade, and a shovelful would weigh between six and ten pounds. McCarty then ran the jackhammer, used a pick, then threw out more loose material. Waddell testified, "Then [McCarty] went and got the hammer again and started back, just touched it, and let off the handle, and he started reaching for the bank like he'd gotten dizzy is what we first thought. And then he just collapsed."

Waddell was interviewed by OSHA the day after McCarty's death, January 9, 2003. In this interview he stated that McCarty was in the hole five or ten minutes "at the most."

In comparison, England testified that McCarty was in the hole a shorter period of time: "He walked down the ladder and went to pick up the jackhammer and just keeled over." He testified that McCarty had done no work at all. He had not shoveled or operated the jackhammer. On cross examination, Englund testified that McCarty may have done some work, but was in the hole, at most, "[m]aybe a minute or so[.]"

An autopsy performed on January 9, 2003, by Dr. Jerry L. Simmons, of LCM Pathologists, P.C., established that McCarty had suffered a sudden cardiac death. The autopsy showed that McCarty had preexisting significant heart disease.

In the report's Final Summary, Dr. Simmons wrote:

At autopsy, the patient's [sic] displayed severe three vessel coronary heart disease which had resulted in previous significant myocardial infarction with prominent left ventricular scarring and anterior aneurysm formation. No acute changes were identified. The patient's cause of death is most likely secondary to a sudden fatal cardiac arrhythmia or an acute nonvisualized myocardial infarction secondary to his severe coronary heart disease.

Dr. Leicester Owens, Jr., a recently retired cardiovascular and thoracic surgeon, testified for McCarty both through his January 19, 2004, deposition and live at the hearing.

Dr. Owens agreed with the autopsy report, that McCarty died of either a fatal arrhythmia or an acute myocardial infarction.

Dr. Owens opined that McCarty's work activities that day, particularly the shoveling, constituted a major contributing cause of his sudden cardiac death.

Dr. Diana L. Zwicke testified for Employer/Insurer through her May 17, 2004, deposition. She is "a medical physician in the subspecialty of cardiovascular medicine".

Dr. Zwicke performed a medical records and document review for Employer/Insurer. Her deposition includes her written report, as Exhibit #2.

Dr. Zwicke concluded McCarty's employment duties were not a major contributing cause of his death. She concluded that McCarty had not suffered a heart attack, and that his fatal arrhythmia, which could have occurred at any time, was not connected to the work he was doing that day.

### **Analysis**

McCarty had the burden to prove by a preponderance of the evidence "all facts essential to compensation." Westergren v. Baptist Hosp., 1996 SD 69, ¶10, 549 NW2d 390, 393 (citations omitted).

"The fact that an employee dies from a heart attack at his usual place of employment and during his usual hours thereof is not sufficient, in itself, to impose coverage under the Workmen's Compensation Act. The claimant has the burden of establishing a causal connection between the employment and the disability." Kirnan v. Dakota Midland Hosp., 331 NW2d 72, 74 (SD 1983).

The facts establish McCarty suffered from a preexisting heart disease before the date of his sudden death. SDCL 62-1-1(7)(b) applies:

SDCL 62-1-1(7) "Injury" or "personal injury", only injury arising out of and in the course of the employment, and does not include a disease in any form except as it results from the injury. An injury is compensable only if it is established by medical evidence, subject to the following conditions:

(b) If the injury combines with a preexisting disease or condition to cause or prolong disability, impairment, or need for treatment, the condition complained of is compensable if the employment or employment related injury is and remains a major contributing cause of the disability, impairment, or need for treatment.

"[T]o establish the causal relationship between one's employment and his subsequent heart attack, a finding must rest on the testimony of professionals because the field is one in which laymen are not qualified to express an opinion." Deuschle v. Bak Const. Co., 443 NW2d 5 (SD 1989) (citations omitted). "[A] possibility is insufficient and a probability is necessary." Id.

The medical evidence consists of the testimony and reports of Dr. Owens and Dr. Zwicke.

A summary of Dr. Owens' testimony explains the mechanism of McCarty's cardiac incident, and the basis for his opinion:

McCarty was shoveling the day of his death. Work produced by the arms is very inefficient. Dr. Owens pointed to a controlled study of 40 to 50 fairly healthy people shoveling snow. Everyone in the group, but one, reached maximum heart rate while doing only five to seven METS of work. [METS refers to a measurement of the body's oxygen requirements while doing a particular task.] In

comparison, Dr. Owens testified to get your heart rate to the maximum level you would need to produce nine or ten METS of work on a treadmill test.

McCarty's problems were compounded by the fact that the shoveling was being done while he was standing fairly still. His arms were contracting while the rest of his body, particularly his legs, were not doing much work. This would result in a pooling of the blood, tightening of the blood vessels, increasing of his blood pressure, and increasing his heart rate, consuming more oxygen. The heart becomes "ischemic" or lacking in blood supply. "All this happens very, very quickly. In two minutes in the controlled group, most of these healthy subjects had surpassed the heart rate they would have been asked to achieve on a regular stress test." Dr. Owens emphasized that this was a study of fairly healthy people, and that McCarty had three-vessel disease, an aneurysm, and evidence of two previous heart attacks.

Dr. Owens pointed to the "posture" of McCarty's activity. Because the shoveling was largely isometric, or contraction associated with arm exercise, it would send a neurogenic message to the heart "to make an expenditure of energy with a subsequent oxygen requirement that is out of proportion to the work being done[.]" In shoveling, McCarty would also be performing a "Valsalva maneuver", holding his breath as he threw each shovelful. This Valsalva maneuver would increase the pressure in his chest, further restricting the venous blood flow from his legs. The heart would beat faster, against this increased pressure, "increasing the oxygen requirement to a heart that's severely diseased and has limited ability to feed itself because its arteries are blocked up."

Dr. McCarty also found it significant that McCarty died immediately after the men took their lunch break. He testified,

[Y]ou think, well, if all of this were going on, the patient would be better off if he just stopped, take a break for lunch, take a break, let somebody else get down in the hole. In fact, the very cycle of digging, stopping, digging, stopping is known to exacerbate particularly this venous pooling and all of the reflexes that it generated. An abrupt cessation of the activity, person sits down and his heart rate stops - - slows down, but yet his oxygen demand, he's kind of in the negative, and his heart - - the only way he's getting oxygen is his heart is pumping blood to itself, but when he sits down and rests, he has more pooling in his extremities."

Dr. Owens testified that this process continues for an hour or two after the strenuous activity ceases, and, as a result, the person often has a cardiac event during this period of rest.

Dr. Owens testified, "The point of all this is that the work that Mr. McCarty was doing that day was probably as good an example as you could get of applying all of these known factors about the dangers of shoveling and using your arms to produce moderate to severe work." Dr. Owens concluded that McCarty, because of his triple vessel disease, his aneurism and pre-existing heart damage "which is known to have malignant arrhythmias with an increasing incidence . . . was 164 times more likely to have a sudden cardiac death episode while he was doing that work than he would have been likely to have had he not been working at all or had he been doing very light work[.]"

Dr. Owens added, “potentially the last time he was in the hole before lunch and the first time he was in the hole after lunch each had an 80 percent change of causing a sudden death event.” And, to restate his prior opinion, “in Mr. McCarty’s case, his chance of dying at rest was 1/164<sup>th</sup> of what it was doing the work he did that day.”

Dr. Owens is of the opinion that McCarty had not recovered from the earlier exertion when he returned to work after his lunch break. Dr. Owens opined that had McCarty climbed down in the hole after lunch, did no additional work, and just died, the work he did that morning would still have caused his heart event:

Q. (from attorney McKnight) I mean, even if that were to happen, climb down in the hole, hadn’t picked up a shovel, hadn’t picked up a jackhammer, just climbs down in the hole and grabs his chest and keels over, that’s within that period of time from the earlier activity is what you are saying.

A. Yes.

Dr. Zwicke testified for Employer/Insurer. She opined that McCarty did not die of a heart attack; but died of a cardiac arrhythmia unrelated to his work activities. She further testified that because McCarty suffered from many preexisting health problems, his death could have come at any time. She recited McCarty’s pre-existing conditions and risk factors: McCarty had severe undiagnosed three vessel coronary artery disease that had already caused two large myocardial events. These conditions had been present for some time. McCarty had multiple significant cardiac risk factors: he was a male over the age of 45, he had long-standing poorly controlled diabetes, he was an active cigarette smoker, he had a family history of heart disease: His father died at age 40 of an apparent heart attack, he had high cholesterol, and he was mildly overweight.

It should be noted that the two medical experts did not disagree concerning these findings, except perhaps that Dr. Owens considered McCarty “obese.”

Dr. Zwicke thought it significant, in reaching her ultimate opinion, that McCarty had recently passed an physical examination required for his commercial driver’s license. However, the evidence established that this fact is not significant because that examination was not a thorough medical examination and did not specifically screen for cardiac disease.

Dr. Zwicke also assumed, in reaching her opinion, that McCarty regularly performed heavy physical labor in his work for Employer and that his sudden cardiac death occurred “while performing usual and normal duties at his place of employment.” Dr. Zwicke’s assumptions are incorrect. McCarty did not regularly perform heavy physical labor in his job, and, in particular, running a jackhammer and shoveling material over his head was not something he did on a regular basis, if at all.

Dr. Zwicke concluded McCarty could have had a fatal arrhythmia at any time, any place. It just happened at work “where he happened to be that day.” She concluded that McCarty’s death “occurred while he was at work performing moderate physical labor[.]”

In stark contrast to Dr. Owens’ opinion, Dr. Zwicke testified:

I can find **no relationship whatsoever** to allege that his malignant ventricular arrhythmias, that would be the sudden cardiac death caused by the ventricular fibrillation resulting in the sudden cardiac death have any relationship to his employment. (emphasis added).

However, on cross examination she did admit coronary ischemia induced by exercise, particularly in conjunction with McCarty's pre-existing aneurism, could have produced ventricular fibrillation:

Aneurisms frequently can, the area around as I explained before, the area around it is what is in jeopardy of causing first ventricular tachycardia and then ventricular fibrillation.

Dr. Owens testified at the hearing, specifically responding to Dr. Zwicke's deposition testimony. He testified that when the heart becomes ischemic, three things can occur: 1) The heart cell can die. This is referred to as a heart attack or a myocardial infarction; 2) The heart cell can die and the process of dying can trigger ventricular fibrillation and sudden death, or, 3) ventricular fibrillation can occur alone.

To summarize Dr. Zwicke's testimony, she opined that because there was no obvious indication of a heart attack on autopsy, McCarty died due to a cardiac arrhythmia. She concluded that McCarty's work activities played absolutely no part in the cardiac arrhythmia or his sudden death.

In response to Dr. Zwicke's testimony, Dr. Owens testified:

The patient died of sudden cardiac death. There was no other indication in the autopsy that he died from anything else other than some heart related problem.

When somebody keels over and dies, and then there is an autopsy that finds the heart disease that he had, the severe multi-vessel coronary disease, the old heart attacks, the left ventricular aneurysm, the moderate pulmonary congestion, the - - enlargement of both sides of his heart, then it's quite likely that his heart was the reason that he collapsed.

Dr. Zwicke admitted [in her deposition] that ischemia can trigger sudden cardiac death, or - - excuse me, malignant arrhythmia, sudden cardiac death, makes everything else a moot point because it doesn't matter.

The point I'm trying to make here is that the cardiac arrest is the end point. That was the man's injury that day. Didn't make any difference whether he had a heart attack or ventricular arrhythmia.

Dr. Owens testified at the hearing that it was his opinion that McCarty's work activities were a major contributing cause of his sudden cardiac death.

"The trier of fact is free to accept all of, part of, or none of, an expert's opinion." Hanson v. Penrod Constr. Co., 425 NW2d 396, 398 (SD 1988). The value of an expert's opinion is no better than the facts upon which such conclusions are based. Johnson v. Albertsons, 2000 SD 47, ¶25, 610 NW2d 449, 455 (quoting Podio v. American Colloid Co., 83 SD 528, 532, 162 NW2d 385, 387 (1968)).

Dr. Owens' opinions are accepted. His conclusions are persuasive, well-reasoned, and based on an accurate and adequate foundation.

Dr. Zwicke's opinion on causation is rejected. It is based on an inaccurate foundation and is less persuasive than that of Dr. Owens.

### **Conclusion**

McCarty suffered a work-related injury which combined with his preexisting condition to cause his death. Claimant established by a preponderance of the medical evidence that McCarty's employment or employment activities were a major contributing cause of his sudden cardiac death.

Counsel for Claimant shall submit proposed Findings of Fact and Conclusions of Law, and an Order, consistent with this Decision, within 10 days of the receipt of this Decision. Counsel for Employer/Insurer shall have an additional 10 days from the date of receipt of Claimant's proposed Findings of Fact and Conclusions of Law to submit objections. The parties may stipulate to a waiver of formal Findings of Fact and Conclusions of Law. If they do so, Claimant shall submit such stipulation together with an Order consistent with this Decision.

Dated: January 31, 2005.

SOUTH DAKOTA DEPARTMENT OF LABOR

Randy S. Bingner  
Administrative Law Judge