IN THE INTERMEDIATE COURT OF APPEALS OF WEST VIRGINIA

WV DIVISION OF HIGHWAYS,

Petitioner,

and

Case No.:
JCN: 2019015684
CCN: 2019002166
DLE: 11-02-2017

LARRY D. SCOTT,

Respondent.

REPLY BRIEF OF RESPONDENT

LARRY D. SCOTT

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STATEMENT OF THE CASE

This workers compensation claim arises out of the death of Larry Scott who contracted a rare form of cancer, undifferentiated pleomorphic sarcoma which is known to be caused by radiation, as a direct and proximate result of his prolonged exposure to radiation in the workplace. He was forty-six years old at the time of his death and had two children to raise with his wife Nancy Scott.

Mr. Scott was employed by the West Virginia Department of Highways as a radiation safety officer, and was required to use ground penetrating nuclear gauges to measure soil and asphalt density. He was exposed to radiation throughout his work-day, six days per week for approximately 10 months annually for 8 years. His exposure was multi-faceted. He spent his days during the road construction season using a Troxler 3430 nuclear gauge that constantly emits radiation even when not in use. His job duties required Mr. Scott to carry the nuclear gauge next to his right shin as he walked to each testing location and as he knelt by the gauge to perform testing. This activity encompassed the entire day. According to Table A-1 at page A-9 of the Troxler 3430 operator's manual, an individual performing this task is exposed to at least 16.83 millirems of radiation per hour. Mr. Scott had a cumulative dose of 330,000 mrem of radiation aimed directly at his shin. In addition to using this nuclear gauge to test soil and asphalt density, his exposure to radiation was further increased because Mr. Scott was also required to test and maintain all nuclear gauges within his district. This added duty required Larry Scott to be in a small enclosed room with multiple nuclear gauges emitting radiation while he performed these activities.

The only safety training in handling nuclear devices consisted of being told to maintain a distance from the device and limit the time with it in his possession. Following the time and distance rule was impossible because the nuclear gauge had to be in his physical possession at all

times. "They say limit your time and distance from your gauge, but that's very hard to do when you have to keep your gauge with you, you've got to carry it." (Scott tr. p. 9-10). Mr. Scott was also required to test and maintain all Troxler 3430 nuclear gauges assigned to the D.O.H. district office. "You always had your gauge with you – it was all day." (Scott tr.p. 24). His exposure exceeded that of his co-workers because "we had five gauges and I was the one that kept them up." During this time they were outputting radiation; "oh yeah, yeah.. even more exposure." (Scott tr. p. 24).

The Troxler 3430 nuclear gauge has a yellow compartment that contains radiation and the testing equipment. A handle approximately 18-24 inches in length is attached to the gauge and is used to carry the device. Mr. Scott held it in his right hand and as a result, the gauge rested next to his leg as he walked or operated the gauge. Photographs taken by Larry Scott and his co-workers illustrate the radiation source adjacent to his right shin. Videotaped testing of the nuclear gauge in this position demonstrated high levels of radiation. Q. "So when you measured it with a Geiger Counter, in the area where it would be beside your legs was---? A. It was extremely high. Q. Extremely high? A. We maxed it out at ten times." (Scott tr. p. 21). His co-worker Greg Quattro testified that the meter used to test the radiation levels maxed out at all three settings. The levels were so alarmingly high that it made the hair stand up on the back of his neck, and caused him not to renew his radiation license.

Mr. Scott was diagnosed with a cancerous soft tissue tumor at the exact spot on his leg where the radiation repeatedly penetrated his shin just below the knee. He endured a grueling ordeal in an attempt to save his life including chemotherapy and amputation of his leg before finally succumbing to the disease. Despite Mr. Scott's years of loyal service, undeniable exposure to radiation and his dying from a rare cancer known to be caused by radiation, his

employer inexplicably refused to recognize the compensability of his claim. Mr. Scott's widow and their minor daughter who is still at home have not received any benefits, but Mrs. Scott has been paying significant deductibles and co-pays for the enormous medical bills.

The Administrative Law Judge concluded that there is a direct causal connection between the prolonged radiation exposure and development of this form of cancer, which is almost exclusively caused by radiation. Consequently, the ALJ concluded that this disease occurred during and in the course of his employment. The employer's claims administrator Encova, subsequently entered an order in this claim reversing its own ruling and accepting the Board of Review Decision. Despite the employer ruling the claim compensable, and thereby waiving any further review, Petitioner is now seeking reversal of the compensability ruling.

SUMMARY OF ARGUMENT

The evidence in this case unequivocally demonstrates that Larry Scott developed a rare form of cancer, known to be caused by radiation, during and in the course of his employment which required him to physically possess a nuclear gauge throughout each workday and constantly be exposed to radiation being emitted by the device. Mr. Scott's exposure was also dramatically increased by his employer requiring him to regularly test and maintain all nuclear gauges used by this D.O.H. headquarters which required him to be inside a small enclosed building with approximately 5 nuclear gauges all of which were emitting radiation while he was confined to that room.

Finding that this workplace radiation was the likely cause of his cancer and ruling the claim compensable is the only logical conclusion and indeed, inescapable based on the indisputable facts and standard for compensability. Incontestable manufacturer data confirms the constant emission of radiation, and compelling medical evidence from oncologists who

specialize in diagnosing and treating radiation induced cancers demonstrates a direct causal connection between the cancerous tumor and Mr. Scott's prolonged exposure.

The disease has its origin in a risk connected with his employment, the existence of this risk is undeniable, and the cancer occurred as a natural incident thereof. The direct causal connection and compensability were concisely described with meticulous references to supporting evidence demonstrating the Administrative Law Judge's complete understanding of the issues presented and her deliberate thought process in reaching those conclusions. The challenges to this well-reasoned Decision are simply without merit.

STATEMENT REGARDING ORAL ARGUMENT

Respondent believes oral argument is appropriate and would be helpful in rendering a decision in this case.

ARGUMENT

A. Standard of Review

West Virginia Code §23-4-1 requires payment of workers compensation benefits to employees "who have received personal injuries in the course of and resulting from their covered employment." Under §23-4-1(f) an occupational disease such as radiation induced cancer is compensable if there is a direct causal connection between the conditions under which the work is performed and the occupational disease. If studies and research clearly link a disease to a particular hazard of the workplace, a prima facie case of causation arises upon proof of exposure. Radiation in the workplace does not have to be the sole or exclusive cause of his cancer. It is also unnecessary to negate all other possible non-occupational causes. The claim is compensable if the radiation was the likely cause of his cancer that followed as a natural incident

of the risk associated with his employment. See §23-4-1(f) and *Casdorph v. West Virginia Office of Insurance Commissioner*, 690 S.E.2d 102 (W.Va. 2009); and *Powell v. State Workmen's Compensation Commissioner* 166 W.Va. 327, 273 S.E.2d 832 (1980).

Appeals from the Workers Compensation Board of Review are controlled by the standards adopted in West Virginia Code §23-5-12a(b). The decision cannot be reversed unless Petitioner demonstrates that its substantial rights have been prejudiced because the Board of Review's findings are (1) In violation of statutory provisions; (2) In excess of the statutory authority or jurisdiction of the Board of Review; (3) Made upon unlawful procedures; (4) Affected by other error of law; (5) Clearly wrong in view of the reliable, probative, and substantial evidence on the whole record; or (6) Arbitrary or capricious or characterized by abuse of discretion or clearly unwarranted exercise of discretion.

Mr. Scott's employer asserts that the compensability ruling violates §23-4-1(f) despite the thorough and well-reasoned explanation of the direct causal connection between the prolonged exposure and development of cancer. Petitioner also claims that the Decision was clearly wrong in view of the reliable, probative and substantial evidence. An objective review of the meticulous analysis provided by the Board of Review confirms that there is not any merit to either claim.

I. The Board of Review Decision is completely consistent with the statutory criteria for compensability. The challenges raised by Petitioner are specifically negated by compelling evidence of radiation exposure causing cancer.

The Administrative Law Judge carefully and thoroughly evaluated the evidence and found compelling proof of radiation exposure causing cancer. The 27-page Decision contains a detailed and in-depth analysis of all testimony and evidence presented by the parties, plus specific findings that all criteria of the compensability statute have been fully satisfied. There is

simply no merit in suggesting that this Decision is clearly erroneous or in violation of this statute.

The issue of compensability raises two questions: was Mr. Scott exposed to radiation and was this radiation a likely cause of his cancer. The A.L.J. correctly concluded that the exposure to radiation was easy to determine because Troxler Laboratories which manufactures the nuclear gauge instructs operators that the gauge constantly emits radiation including when not in use. Operators are expected to be exposed to at least 200 mrem annually. The A.L.J. also noted that "the data relied upon for calculating the cumulative radiation exposure for the claimant was taken directly from Table A-1-Radiation Profile for Model 3430 gauge." (Decision p. 23). Testing also confirms the same radiation levels identified by Troxler. No one could credibly dispute that Mr. Scott was exposed to radiation.

The criticism of the A.L.J.'s reasoning, particularly that the decision does not address the validity of the dosimetry data gathered a significant distance from the radiation source is simply not accurate. The Decision explains that measuring radiation levels several feet from the source does not accurately reflect the radiation absorbed by Larry Scott whose shin was within inches of the nuclear gauge. The A.L.J. found based on Troxler emission data that the emissions absorbed at his shin were an astounding 23,000 times greater than on his chest where the dosimetry badge was worn. Petitioner's self-serving criticism of these calculations cannot override the actual manufacturer data.

Criticism of the conclusion that Petitioner's disability evaluator (Dr. Randolph) and radiation witness (Mr. Karam) were unreliable is equally without merit. The Decision contains a lengthy explanation of the disability evaluator's complete lack of experience and training in any manner related to radiation or its effects. Dr. Randolph also admits that he is not an expert in

causation, diagnosis or treatment of cancer, or radiation and has never been recognized as an expert in either field. The unreliability and lack of qualifications for his conclusions are obvious.

Additionally, Mr. Karam simply emphasized the unreliable dosimetry data gathered several feet from the source and used this immaterial data to artificially lower the radiation levels. His opinions ignore the inescapable fact that radiation dissipates rapidly as it gets farther from the source, and thus, measurements at his chest do not accurately depict the level of radiation at his leg. The flaws in the analysis of these witnesses are addressed throughout the Decision; and most importantly, evaluating the credibility of witnesses is the responsibility of the Board of Review, not this Court.

Larry Scott's treating oncologist, nationally recognized in treating victims of radiation induced cancer unequivocally confirms that Larry Scott's soft tissue cancer was in fact caused by radiation in the workplace. This conclusion is further corroborated by a surgical oncology pathologist who states, "Larry Scott developed a rare form of cancer (known to be primarily caused by radiation) as a direct and proximate result of the prolonged exposure to radiation in the workplace." Furthermore, although it is not necessary to rule out all other potential causes of his cancer, pathology and genetic testing unequivocally eliminate all other possibilities and establish that this rare form of cancer was in fact caused by radiation exposure in his workplace.

II. The medical evidence and manufacturer data overwhelmingly demonstrate the direct causal connection between the deadly soft tissue tumor in his leg and Larry Scott's prolonged radiation exposure at that exact location.

The Administrative Law Judge carefully and thoroughly explained the causal connection and provided an in-depth analysis of how each statutory element was fully satisfied in this case.

The criteria for proving the causal relationship between exposure and development of cancer as required by West Virginia Code §23-4-1(f) are easily met in this case. The Decision explains:

1. There is a direct causal connection between the conditions under which the work was performed and the occupational disease.

> The Troxler 3430 Nuclear Gauge which the claimant used emits radiation. This is set out in the Operator's Manual and was shown by the test conducted by the claimant and other Department of Highway personnel. Further the claimant had such radiation exposure next to his right leg which is where he developed the cancer.

2. The disease can be seen to have followed as a natural incident of the work as a result of the exposure occasioned by the nature of the employment.

> As noted by Mr. Gossman the data relied upon for calculating the cumulative radiation exposure for the claimant was taken directly from Table A-1- "Radiation Profile for Model 3430 Gauge" of the operator's manual.

3. The disease can be fairly traced to the employment as the proximate cause.

> Persuasive evidence has been provided of proximate cause including the evidence from Dr. Grosh. Further Dr. Kaufman opined that the disease was incurred in the course of and as a result of the claimant's employment finding that there is a direct link between the claimant's cancer and the conditions of his employment. Dr. Kaufman found that the origin of the claimant's cancer can be traced directly to the risk connected with the radiation exposure, and the cancer followed as an incident of and proximate result of the claimant's radiation exposure in the workplace.

4. It is clear that the disease does not come from a hazard to which workmen would have been equally exposed outside of the employment.

> The level of radiation to which the claimant was exposed was "not miniscule" as described by Mr. Gossman. Mr. Gossman stated that Troxler as set out in the Nuclear gauge Operator's Manual has determined that under ideal conditions an operator is expected to be exposed to at least 200 millirem (mrems) of radiation annually, and as determined by Mr. Gossman, the claimant's radiation exposure at his leg next to the surface of the gauge was at least 16.83 mrems/hr. He stated that the claimant's cumulative radiation exposure was at least 183,000-333,000 mrem. In addition, the Department of Highways took steps to try to make sure that the public was not exposed to the Gauge. As found by Mr. Gossman, the radiation exposure next to the gauge is 23,000 times greater than 1 meter (or approximately 3 feet) away from where the dosimeters (badge) were worn, and therefore, the dosimeters do not accurately reflect the radiation directed at the claimant's lower leg. He stated that dosimeters located

> 3 feet away from the source would not accurately reflect the radiation directed at the claimant's lower leg. He stated that dosimeters located 3 feet away from the source would not accurately reflect the radiation at the claimant's leg which was inches away from the nuclear gauge. Mr. Gossman stated that the method of calculation he reported is precisely that same kind of calculation found in the "Troxler Licensing Guide" for the determination of dose at various distances from the source.

5. **That the disease is incidental to the character of the business and not independent of the relation of an employer and employee.**

> The Troxler gauge was what the employer Department of Highways used for work duties assigned to the claimant.

6. **The disease appears to have had its origin in the risk connected with the employment and to have followed from that source as a natural consequence.**

> As noted above the claimant carried the gauge next to his right leg, the location where he developed the cancer. Dr. Grosh testified that the claimant had an unusual tumor that arose in a location that is specific to where the radiation was used. Dr. Grosh opined that the radiation at the workplace from the Troxler 3430 nuclear gauge that the claimant worked with at the Department of Highways caused his cancer.

There is simply no merit in claiming that this Decision is erroneous. The evidence overwhelmingly demonstrates that Larry Scott developed this rare form of cancer as a direct and proximate result of the prolonged exposure to radiation.

A. William Grosh, M.D. who specializes in treating radiation induced soft tissue sarcomas, clearly and unequivocally confirms that Larry Scott developed cancer due to the exposure to radiation.

Dr. Grosh is a nationally recognized Board-Certified Oncologist who specializes in radiation induced sarcomas; i.e., tumors caused by radiation. He has practiced oncology at the University of Virginia for 34 years since 1988. Dr. Grosh confirms the direct relationship between the undifferentiated pleomorphic sarcoma and Mr. Scott's prolonged exposure. First, Dr. Grosh explains in his report: "The association between radiation exposure and sarcoma is well-established. In this case, the **development of sarcoma**, a rare tumor in this **location at**

which radiation sources were transported and handled, is strong evidence of radiation exposure and **powerful evidence** that this sarcoma was **radiation induced**."[1]

The exposure is also described by Dr. Grosh, "Mr. Scott developed a high-grade undifferentiated pleomorphic sarcoma in his right lower extremity when he was 44 years old. He had worked with the radiation sources for 8 years using cesium-137 and americium-241 for ground penetrating studies for the West Virginia Department of Transportation. He kept the radiation sources at his right lower extremity in his truck and carried them in his right hand along his right lower extremity while working in the field."

Dr. Grosh elaborated: "The majority of radiation induced sarcomas (RIS) are pleomorphic sarcomas and they tend to be poorly responsive to chemotherapy as was Mr. Scott's." Most importantly, "In my opinion the pleomorphic undifferentiated sarcoma that Larry Scott developed more likely than not arose from radiation exposure from the radiation sources with which he worked." "**To clarify, Larry Scott developed pleomorphic undifferentiated sarcoma during and in the course of his employment as a direct and proximate result of the radiation exposure while at work."**

Dr. Grosh reiterated this causal connection when asked multiple times during his deposition.[2] "The radiation at the workplace from the Troxler 3430 nuclear gauge that he worked with at the Department of Highways caused his cancer." (Grosh tr. p. 30). "The central driver for my thought is that he has an unusual tumor that arose in a location that's specific to where the radiation was used, and his exposures appear adequate to support that as a cause." (p. 30).

[1] See Dr. Grosh's report and deposition testimony.
[2] Depo. tr. p.16,26,27

Additionally, Michael Gossman (claimant's radiation expert) corroborates Dr. Grosh's explanation that no level of radiation is safe. Every person's reaction is different. Some people can withstand radiation while others develop cancer. The relationship between this type of radiation and the body is linear, meaning that there is no safe limit. (Grosh, tr. p. 19). Furthermore, medical studies demonstrate the direct relationship between exposure to radiation and soft tissue tumors, especially undifferentiated pleomorphic sarcoma.

B. Michael Kaufman, M.D., an oncologist pathologist with 49 years experience corroborates that this rare form of cancer which is predominantly caused by radiation was in fact caused by Mr. Scott's prolonged exposure to radiation.

Dr. Kaufman was requested to independently review pathology slides to determine the type of cancer and whether the tumor arose from chronic radiation exposure. After fully evaluating all available evidence and applying his vast experience in this medical specialty, Dr. Kaufman stated: " To clarify, Larry Scott developed a rare form of cancer (known to be primarily caused by radiation) as a direct and proximate result of the prolonged exposure to radiation in the workplace. This disease was incurred in the course of and as a result of his employment as there is a direct link between his cancer and the conditions of his employment. The origin of his cancer can be traced directly to the risk connected with the radiation exposure and the cancer followed as an incident of and proximate result of Larry Scott's radiation exposure in his workplace." "There is ample evidence that chronic exposure to radiation in a given area can give rise to malignancies, particularly sarcomas. There is a direct link in this case and therefore, the cancer can be traced directly to risks of the exposure." (Kaufman report).

C. Medical literature confirms the direct causal relationship between exposure to radiation and development of soft tissue sarcomas.

The medical literature corroborates two important points. First, radiation causes soft tissue sarcomas, especially pleomorphic undifferentiated sarcoma or peripheral nerve sheath tumors; and secondly, this type of cancer is associated with the worst outcomes. See e.g. the multiple medical studies cited by Dr. Grosh in his report including the peer reviewed article, "Radiation-Associated Pleomorphic Sarcoma is Associated with Worse Clinical Outcomes than Sporadic Lesions" published in the Annals of Surgical Oncology. According to this article, undifferentiated pleomorphic sarcomas (the cancer that killed Mr. Scott) is the most common form of radiation-associated sarcomas (RAS).

Moreover, the majority of radiation-associated sarcomas, also known as radiation-induced sarcomas (RIS) are high grade and deep tumors which is exactly the type of tumor in Larry Scott's leg as confirmed by Dr. Grosh, the pathology reports and medical records. See e.g. "Radiation-Induced Soft Tissue Sarcoma" and "Sarcoma Risk after Radiation Exposure." An article "Do Radiation-Associated Sarcomas Have the same Prognosis as Sporadic Soft Tissue Sarcomas" published in the Journal of Oncology further supports the direct linear relationship between radiation and soft tissue sarcomas, especially undifferentiated pleomorphic sarcoma, and the poor survival rate. Dr. Grosh explained that any level of radiation is dangerous and "The majority of radiation induced sarcomas are pleomorphic sarcomas and they tend to be poorly responsive to chemotherapy as was Mr. Scott's." (Grosh report).

Most importantly, the National Academy of Sciences published the most authoritative text on this subject. The "BEIR VII Phase 2 studied the "Health Risks from Exposure to Low Levels of Ionizing Radiation." This exhaustive study describes the biological effects of low dose radiation on the body and clearly reached a consensus that repeated low-dose exposures do in fact cause soft tissue sarcomas. The risk models developed as part of this study describe a direct

correlation between undifferentiated pleomorphic sarcoma and prolonged low-dose radiation which is precisely what occurred in Larry Scott's case.

The BEIR Study which has been updated 7 times is well-recognized and frequently cited as proving the direct causal link between exposure and cancer. The linear no-threshold model reflects a linear and causal relationship between ionizing radiation and human cancer risk which is completely consistent with the conclusion of Dr. Grosh and Dr. Kaufman, and further substantiated by the radiation report of Michel Gossman which cites this study.

D. The Troxler 3430 Operator's Manual and other evidence clearly demonstrate that Larry Scott was exposed to harmful cancer-causing radiation every time that he touched the nuclear gauge.

The inconsistent positions taken by the employer in attempting to outright deny that the gauge emits any radiation and then argue that if emissions occurred, the radiation levels were minimal are both negated by the actual evidence in this case. First, Troxler's data, Table A-1 (p. A-9 of manual) provides the specific levels of radiation continuously emitted from the gauges. The radiation levels immediately next to the gauges are the highest and range from 13 to 26 millirems per hour or an average of 16.83 millirems.

This fact is indisputable as the data was collected by the manufacturer. Furthermore, the manufacturer, in describing "distance" as an effective means of reducing radiation exposure, explains that "Doubling the distance from a radiation source reduces the exposure to one-fourth its original value. If the distance is tripled, the exposure is reduced by a factor of nine, and so on." (manual p. A-6). In Mr. Scott's case, the gauge was against his right leg. The radiation did not have an opportunity to dissipate. The linear-no threshold absorption of at least 16.83 millirems per hour was unavoidable.

The employer's attempt to reduce the radiation levels by measuring radiation several feet from the source is simply an attempt to manipulate favorable evidence. The testimony of Mr. Scott and his co-workers, video and photographic evidence, and Troxler data prove that the gauge was next to his leg for multiple hours daily and as a result, the employer's calculations are meaningless.

Furthermore, Michael S. Gossman, M.S., DABR, FAAPM, FACR who is a leading expert in radiation exposure has calculated the exposure levels based on the gauge being located within inches of his right leg. Importantly, the data supports a "linear-no-threshold (LNT) risk model – that the risk of cancer proceeds in a linear fashion at lower doses without a threshold and that the smallest dose has the potential to cause cancer." (Gossman report). Based on the known continuous emissions from the Troxler data and the manner in which Mr. Scott handled the nuclear gauge, Mr. Gossman calculated his exposure level at 330 Rem (330,000 mrem) over 7 years. (Gossman addendum). This is significant and according to the only oncologist and pathologist in this case (who are the only physicians competent to determine medical causation) this level of radiation was in fact sufficient to cause this radiation induced cancer.

III. Radiation measurements from film badges or dosimeters worn on his chest, several feet from the source do not accurately reflect the actual radiation penetrating Mr. Scott's leg inches away from the nuclear gauge.

Petitioner incorrectly asserts that the Administrative Law Judge did not consider the dosimetry data collected on a badge attached to Mr. Scott's chest. This argument ignores several important factors, most notably, that radiation dissipates rapidly as it gets farther from the source. The employer's disability evaluator and radiation consultant attempt to present an artificially low exposure level by referring to film badges or dosimeters worn on Mr. Scott's chest several feet from the radiation source. Those measurements misrepresent the actual level

of radiation because the rate of decay is significant as the distance increases from the source. The fallacy in Petitioner's argument is illustrated in Troxler's data clearly demonstrating that readings taken several feet from the source will be extremely low. The Troxler Table A-2 explains that "Doubling the distance from a radiation source reduces the exposure to one-fourth its origan value. If the distance is tripled, then the exposure is reduced by a factor of nine, and so on." (Appendix D-6 of Troxler's Manual). The dosimeters were too far away to provide any meaningful data.

Mr. Scott's radiation expert stated, "Whether the gauge is placed directly on the ground or manually held to a low elevation above the ground, the shin and calf region of the radiation worker will receive a greater dose than any other part of the body. Given this fact, it follows that this lower leg region will receive a greater dose than the chest region where his sole personal dosimeter was assigned to be placed." "In this example, for 1 hr. of work, the radiation badge would record a dose of only around 0.00073 mrem, whereas his shin and calf region would receive a radiation dose of 16.83 mrem. **This difference is an astounding 23,000 times greater."** (Gossman report).

Mr. Gossman explained, "the significance in this calculation is to show that a personal dosimeter placed on the chest of the radiation worker is not a good representation of what dose they actually received to his extremity." (Gossman report). "The only reliable scientific method to calculate Larry Scott's cumulative radiation exposure at his leg which is the site of his cancer, is to utilize the known exposure levels provided by Troxler for the radiation emitted at the surface of the gauge which was held next to his leg. Exposure levels 1 meter away are not germane or valid." "The radiation exposure was not miniscule. Mr. Scott's cumulative radiation exposure was at least 183-330 rem (183,000-330,000 mrem), based on Troxler's Table A-1."

Furthermore, "Larry Scott's cumulative radiation exposure was calculated based on a scientifically accepted formula that I rely upon every day in my clinical calculations of patient radiation exposure. This formula is also used routinely by my colleagues and other radiation experts." (Gossman Expert Report II).

In addition to the Troxler data, and Mr. Gossman's calculations based specifically on this data, Larry Scott and his co-workers tested the radiation levels at the exact location where the gauge was positioned next to his leg. Mr. Scott testified that the level of radiation next to his leg was dramatically greater than at his chest. The testing showed "That it was ten-from the – at your shin area, it was roughly ten to thirteen times higher than at your waist or chest." (p. 21) When measured next to his shin, "it was extremely high." (p. 21). Minimal if any radiation was measured at the chest. Consequently, the film badges relied on by Petitioner are not relevant and are inconsequential in determining the actual level of radiation directed at this leg. Their minimal evidentiary value was fully addressed by the Administrative Law Judge who specifically found that the badges located on Mr. Scott's chest several feet from the source, were not an accurate depiction of the radiation penetrating his leg. In addition to citing the calculation of Mr. Gossman based completely on indisputable Troxler data, the A.L.J. had the benefit of Dr. Grosh, a leading oncologist specializing in this type of cancer who explained that due to the extreme distance and rapid dissipation, the film badges worn on his chest were not pertinent.

Furthermore, the employer's hypothesis is also completely negated by the National Academy of Sciences. Mr. Gossman explains: "Additionally, it should be made clear that regulatory limits are not defined as a threshold at which cancer is known to occur. Such hypothesis has been invalidated by the National Academies in their report known as BEIR VII. This report is the seventh in a series of publications concerning radiation health effects called the

'Biologic Effects of Ionizing Radiation (BEIR)' reports. BEIR VII focuses on the health effects of low levels of low linear energy transfer (low-LET) ionizing radiation such as x-rays and gamma rays. I emphasize that their comprehensive review of available biological and biophysical data supports a 'linear-no-threshold' (LNT) risk model-that the risk of cancer proceeds in a linear fashion at lower doses without a threshold and that the smallest dose has the potential to cause a small increase in risk to humans." (Gossman report).

The irrelevance of badges worn on his chest is further illustrated in the A.L.J.'s summation of Mr. Quattro's testimony. "The claimant's leg is getting radiated right next to it as opposed to a badge four or five feet away from it. You still get radiation five, ten, fifteen feet, but it is not nearly as significant as it is when you are right next to it." Dr. Grosh also testified that a badge worn on his chest would not fully describe the exposure on his shin. Dr. Grosh and Dr. Gossman further described a linear relationship with no threshold, meaning that there is no safe lower limit as noted by the A.L.J. It is not necessary to establish the precise level of radiation exposure or to meet a target level from government agencies. All that is necessary is to establish that Mr. Scott was exposed to radiation which cannot be credibly disputed, and that he developed cancer as a result.

The data relied on by the employer is fundamentally flawed and not representative of the actual exposure level and consequently, not relevant to the inquiry.

IV. The disability evaluator, Dr. Randolph hired by Petitioner lacks the experience and qualifications to render opinions regarding radiation exposure or the cause of Larry Scott's rare form of cancer.

The A.L.J. provided a plethora of facts demonstrating Dr. Randolph's unreliability and lack of qualifications to express opinions on the levels of radiation or whether this radiation caused Larry Scott's cancer. Dr. Randolph is a disability evaluator. As noted by the A.L.J., "he is not an

oncologist," "he has no formal training in radiation and is not a radiation expert," "he has never performed any testing to detect radiation levels," "has never conducted any experiments to measure radiation levels on any device," and significantly "he has never treated a patient who claimed to have cancer as a result of radiation exposure in the workplace." (Decision p. 15).

Additionally, Dr. Randolph "does not have any formal training regarding detecting or measuring radiation levels," he has never been recognized in a court of law as an expert in cancer diagnosis and has never been recognized as an expert in cancer treatment." He does not treat cancer patients and "has no experience in treating a patient with undifferentiated pleomorphic sarcoma." Most importantly, "He knew before this case that this type of cancer could be caused by radiation." (Decision p. 15).

In addition to his lack of qualifications, Dr. Randolph's opinions have been categorically proven to be wholly without merit. The most glaring example is his outright refusal to acknowledge a mistake in the medical records because it obviously affects his opinion. Dr. Randolph insisted in his report that Larry Scott, who was diagnosed with cancer on September 25, 2017, had symptoms for two years previously and therefore, it could not be caused by radiation because the time of exposure was insufficient. This hypothesis was based on an incorrect entry of a date on one page of the medical records. Although multiple records and contemporaneous physician notes (in Dr. Randolph' s possession) clearly indicated that the symptoms including a tumor on his leg had manifested themselves 2 months earlier in July of 2017, the transcriptionist accidentally entered 2 years rather than 2 months on one isolated note.

The treating physician, Walter Boardwine, MD. prepared an addendum correcting this error and stating " I did review and the medical assistant that said the conditions started at 2 years ago simply hit the years and not months which are very close together on our electronic

medical records system. My history indicated it was 1st noticed 2 months earlier. We have changed this to 2 months not 2 years as this is incorrect in the history."

Despite having this addendum, the disability evaluator still insisted in his deposition that the symptoms had existed for 2 years. When pressed on the issue, he stated " that doesn't change my opinion one bit, sir." The refusal to acknowledge this basic fact demonstrates his total lack of credibility.

Dr. Randolph's conclusions are riddled with additional mischaracterizations and exaggerations. He insisted in his report and testimony that Larry Scott's rare form of radiation induced cancer was caused by a genetic mutation and that his siblings and children should be immediately tested. According to this witness, Larry Scott had neurofibromatosis also known as the NF-1 mutation and this was the cause of cancer. Importantly, Dr. Randolph insisted that further pathological testing of the biopsy of Mr. Scott's cancerous tumor would confirm the NF1 mutation, and that genetic testing of his siblings would confirm the mutation.

Finally, Dr. Randolph, who is not a pathologist, insisted that the cancer was not radiation related because the original biopsy in 2017 did not mention radiation damage to the surrounding tissue. These assumptions are the foundation for all of his sweeping conclusions. They are each categorially wrong.

A. Larry Scott did not have an NF-1 genetic mutation.

First, pathological testing at the time of diagnosis in 2017, and further pathological analysis by Michael W. Kaufman, M.D. confirm that the NF-1 mutation did not exist and was not a cause of his cancer. Dr. Kaufman's report states: " The fact that Mr. Scott does not demonstrate any indicia of neurofibromatosis nor any of his family members afflicted with other carcinomas is an indication that Mr. Scott does not carry such a somatic mutation. This

conclusion is further supported by the fact that Mr. Scott's identical twin brother underwent genetic testing and does NOT carry the NF-1 mutation nor does he have neurofibromatosis. This negative testing result for the NF-1 mutation on Mr. Scott's brother is conclusive proof that Larry Scott did not have neurofibromatosis or the NF-1 mutation as this is an abnormality that would affect both twins. Consequently, Larry Scott's cancer was not related in any way to any genetic abnormality." (Kaufman Report).

Furthermore, the only mention of neurofibromatosis occurred later in treatment after the cancerous cells naturally mutated as part of the disease; i.e., as the disease progressed rather than causing the disease. Dr. Grosh explained in his deposition that the NF-1 marker developed due to the cancer and was not a cause of the cancer. Cancer causes cellular damage including mutations. "It is a genetic change that occurs in cancer." (p. 22). Dr. Grosh testified "That's not specific for sarcoma; that's a molecular driver seen in many different kinds of malignancy, and does not mean that the person has a germline NF1 mutation." The mutation occurs due to the cancer; it is not the cause, rather, it is the result.

Dr. Kaufman explained in his pathology report "To be clear, Larry Scott did NOT have neurofibromatosis or the NF-1 mutation and it was NOT the cause of his cancer. Additionally, even if this mutation existed, this would only make him susceptible to developing cancer when exposed to radiation; there must be a triggering event to actually cause the cancer. In this circumstance, the radiation would be the triggering event that caused his cancer." Dr. Grosh also explained that even if the NF-1 mutation existed, this would only make him predisposed to developing cancer. This genetic abnormality would "predispose to get malignancies at lower doses of radiation exposure." (Grosh tr. p. 29).

Furthermore, the employer's physician Dr. Randolph admitted during his deposition that Larry Scott did not have any of the multiple indisputable medical symptoms caused by neurofibromatosis. The medical literature and medical community agree that patients with the NF-1 mutation will exhibit the following:

> (1) Multiple café au lait spots on skin, light brown in color like coffee with milk, (2) existence of neurofibromatosis which are benign tumors, (3) freckling around the armpits and groin (4) optic glioma which is a tumor on the optic nerve and (5) two or more Lisch nodules which are tumors on the iris of the eye.

Larry Scott did not have a single one of these symptoms or signs of neurofibromatosis as admitted by Dr. Randolph (Depo. tr. p. 182-188), and confirmed by his wife Nancy Scott and identical twin brother David Scott. [3] They both explained in their affidavits that Larry Scott did not have any of the conditions commonly associated with the NF-1 genetic mutation. Dr. Grosh also testified that he did not have any clinical evidence of neurofibromatosis (p. 21). None of the symptoms existed. (p. 22).

A. There is no medical or factual basis to suggest lack of radiation damage to surrounding tissue.

Dr. Randolph's hypothesis that the cancer could not be caused by radiation due to the alleged lack of damage to the tissue surrounding the cancerous tumor is also completely negated by the medical evidence. First and foremost, the surrounding tissue was never tested because the biopsy did not contain sufficient non-cancerous tissue to test. The fact that the initial biopsy was silent as to tissue damage is not indicative of the lack of damage. Rather, no tissue existed to test. Dr. Kaufman explained in his pathology report "Since there is not any uninvolved tissue to

[3] See affidavits of David Scott and Nancy Scott.

examine, it is impossible to reach the conclusions made by Dr. Randolph. The absence of any comments by Larry Scott's pathologist or physician regarding the surrounding tissue reflects the fact that there was not any tissue to examine and consequently, there is absolutely no basis to suggest that there was not any radiation damage to surrounding tissue. To be clear, the suggestion that the radiation did or did not cause damage to surrounding tissue is complete speculation as there is not any tissue to examine." (Kaufman Report). Importantly, the employer sought additional time for testing by its pathologist, but chose not to submit a report.

To be clear, the employer does not have an oncologist, pathologist, or anyone with experience treating patients with cancer caused by radiation who can dispute the obvious causal connection between Larry Scott's prolonged exposure to radiation in the workplace. The only "experts" offered by the employer are the disability evaluator, Dr. Randolph, and a radiation consultant who is not a physician and is not competent or qualified to render medical diagnoses.

V. The employer's radiation consultant is not competent to render medical conclusions as to causation. Furthermore, his assertions as to the levels of radiation constantly emitted from the gauge and penetrating into Larry Scott's leg are completely contrary to manufacturer data calculating the actual levels of radiation.

The radiation consultant may be able to offer various theories concerning the levels of radiation; however, the repeated attempts to make medical causation findings is completely beyond his level of expertise and training. Only physicians can reach conclusions regarding the causal connection between Larry Scott's exposure to radiation and development of cancer.

This consultant, P.A. Karam, PhD. is not a physician. His degree is in Environmental Sciences. He lacks the medical credentials to render opinions as to causation or the probability of causation as attempted throughout his report. In fact, the opinions of Mr. Karam do not satisfy the rigorous standards established in *Daubert v. Merrell Dow Pharmaceuticals, Inc*., 509 U.S.

579 (1993). These conclusions are not scientifically based or rendered by someone qualified through education, experience or training to make these conclusions.

Furthermore, the report of Mr. Karam is fundamentally flawed in its reliance on scenarios that are completely different than Mr. Scott's work environment. By relying on dosimetry testing several feet from the source, Mr. Karam artificially underestimates and indeed, misrepresents the substantial levels of radiation penetrating Mr. Scott's shin. Mr. Karam does not deny that the nuclear gauge is constantly emitting radiation. He simply chose an invalid, non-representative scenario to artificially reduce the level of exposure. Measuring the level of radiation several feet from the source is not indicative of the level of radiation absorbed when the gauge was next to his leg. Moreover, his acknowledgement of constant emissions bolsters the undeniable conclusion that Mr. Scott was in fact exposed to prolonged radiation. This concession also supports causation under the "no linear threshold" standard that no level of radiation is safe, and most importantly, corroborates the cancer specialists who have determined that the radiation levels were sufficient to cause cancer.

CONCLUSION

There is absolutely no question that Larry Scott's claim is compensable. The statutory criteria for compensability simply requires his cancer to occur as a natural incident of a risk in the workplace. It is indisputable that radiation causes the exact type of cancer that killed Mr. Scott. It is also undeniable that the nuclear gauge constantly emits radiation; and in this case, the level penetrating his leg was certainly not miniscule. The reliable, probative and substantial evidence clearly demonstrates a direct causal connection between the workplace radiation and the deadly tumor. Accordingly, this appeal is without merit and should be denied.

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IN THE INTERMEDIATE COURT OF APPEALS OF WEST VIRGINIA

WV DIVISION OF HIGHWAYS,

Petitioner,

and

Case No.:
JCN: 2019015684
CCN: 2019002166
DLE: 11-02-2017

LARRY D. SCOTT,

Respondent.

CERTIFICATE OF SERVICE

I hereby certify that on the 31st day of October 2022, I served a true and complete copy of the Reply Brief upon the following counsel of record through File and Serve Xpress:

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