

IN THE DISTRICT COURT OF THE VIRGIN ISLANDS
DIVISION OF ST. CROIX

COMMISSIONER OF THE DEPARTMENT	:	CIVIL ACTION
OF PLANNING AND NATURAL	:	
RESOURCES, ALICIA V. BARNES,	:	
et al.	:	
	:	
	:	
v.	:	
	:	
CENTURY ALUMINUM COMPANY,	:	
et al.	:	NO. 05-62

MEMORANDUM

Bartle, J.

March 26, 2013

Plaintiffs, Commissioner of the United States Virgin Islands Department of Planning and Natural Resources, Alicia V. Barnes (the "Commissioner"), and the Government of the Virgin Islands (together with the Commissioner, the "Government"), filed this multi-count environmental lawsuit against entities who at various times owned portions of an industrial area in Kingshill, St. Croix on which both an alumina refinery and an oil refinery have operated. These defendants were Century Aluminum Company ("Century"), Virgin Islands Alumina Corporation ("VIALCO"), St. Croix Alumina, LLC ("SCA"), Lockheed Martin Corporation ("Lockheed"), Alcoa World Alumina, LLC, ("Alcoa"), St. Croix Renaissance Group, LLLP ("SCRG"), HOVENSA, LLC ("HOVENSA") and Hess Oil Virgin Islands Corporation ("HOVIC").¹ We have

1. The Virgin Islands Port Authority ("VIPA") and the Virgin Islands Waste Management Authority ("VIWMA") are third-party
(continued...)

previously approved a settlement between the Government and SCA, Alcoa, and SCRG and granted summary judgment in favor of Century. Accordingly, the remaining defendants are VIALCO, Lockheed, HOVENSA, and HOVIC.

There are a number of pending motions under Daubert v. Merrel Dow Pharmaceuticals, 509 U.S. 579 (1993). We will now consider the motion of defendants HOVENSA and HOVIC (together, the "Refinery Defendants") to exclude the expert report and testimony of Kevin J. Boyle, Ph.D. ("Dr. Boyle") and a similar motion filed by Lockheed. There is significant overlap in the arguments in these motions.

I.

The court has a "gatekeeping" function in connection with expert testimony. See Gen. Elec. Co., et al. v. Joiner, 522 U.S. 136, 142 (1997); see also Daubert, 509 U.S. at 589. Rule 702 of the Federal Rules of Evidence provides:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

1. (...continued)
defendants sued by defendants VIALCO and Lockheed and former defendant Century for contribution.

As our Court of Appeals has repeatedly noted, Rule 702 embodies three requirements: qualification, reliability, and fit. Pineda v. Ford Motor Co., 520 F.3d 237, 244 (3d Cir. 2008).

An expert is qualified if he "possess[es] specialized expertise." Schneider ex rel. Estate of Schneider v. Fried, 320 F.3d 396, 404 (3d Cir. 2003). This does not necessarily require formal credentials, as "a broad range of knowledge, skills, and training qualify an expert," and may include informal qualifications such as real-world experience. In re Paoli R.R. Yard PCB Litig., 35 F.3d 717, 741 (3d Cir. 1994). The qualification standard is a liberal one, and an expert may be sufficiently qualified under Rule 702 even if "the trial court does not deem the proposed expert to be the best qualified or because the proposed expert does not have the specialization that the court considers most appropriate." Holbrook v. Lykes Bros. S.S. Co., 80 F.3d 777, 782 (3d Cir. 1996).

To determine reliability, we focus not on the expert's conclusion but on whether that conclusion is "based on the methods and procedures of science rather than on subjective belief or unsupported speculation." Schneider, 320 F.3d at 404 (internal quotation marks omitted). Our analysis may include such factors as:

- (1) whether a method consists of a testable hypothesis;
- (2) whether the method has been subject to peer review;
- (3) the known or potential rate of error;
- (4) the existence and maintenance of standards controlling the technique's operation;
- (5) whether the method is generally accepted;
- (6) the relationship

of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; and (8) the non-judicial uses to which the method has been put.

Pineda, 520 F.3d at 247-48.

"[T]he test of reliability is flexible" and this court possesses a broad latitude in determining reliability. Kumho Tire Co. v. Carmichael, 526 U.S. 137, 141-42 (1999). To be reliable under Daubert, a party need not prove that his or her expert's opinion is "correct." Paoli, 35 F.3d at 744. Instead:

As long as an expert's scientific testimony rests upon good grounds, based on what is known, it should be tested by the adversary process—competing expert testimony and active cross-examination—rather than excluded from jurors' scrutiny for fear that they will not grasp its complexities or satisfactorily weigh its inadequacies.

United States v. Mitchell, 365 F.3d 215, 244 (3d Cir. 2004) (quoting Ruiz-Troche v. Pepsi Cola Bottling Co., 161 F.3d 77, 85 (1st Cir. 1998)).

As for "fit," expert testimony must also "assist the trier of fact to understand the evidence or to determine a fact in issue." Fed. R. Evid. 702. Thus, to "fit," such evidence must bear some relation to the "particular disputed factual issues in the case." United States v. Downing, 753 F.2d 1224, 1237 (3d Cir. 1985). Accordingly, this factor has been described as one of relevance. Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 591 (1993); Paoli, 35 F.3d at 745 & n.13.

II.

Dr. Boyle was retained by the plaintiffs to compute the damages associated with contamination of groundwater on St. Croix. He performed two alternative damages calculations, one based on a "Resource Equivalency Analysis" and the other on a "Total Economic Value" methodology. Dr. Boyle's Resource Equivalency Analysis damage calculation is \$40.7 million, and his Total Economic Value damage calculation is \$129.6 million. These figures should not be added together because the calculations result from alternative methodologies. He concluded that the Refinery Defendants are responsible for 60%-65% of these damages.

The groundwater at issue is from the Kingshill aquifer located in the central and western portions of St. Croix. Although not currently used as a source of freshwater, it has been a source of freshwater for the residents of St. Croix in the past and provides a source of freshwater for the future. Dr. Boyle bases any analysis involving the extent of contamination of this groundwater on the opinions of Dr. Charles Andrews ("Dr. Andrews").

Dr. Boyle collaborated with staff at Stratus Consulting Inc. on the Resource Equivalency Analysis damage calculation. The damages are the costs of buying land to protect areas of the Kingshill aquifer from contamination and diminished recharge. This involves computing the cost of protecting groundwater in the Kingshill aquifer to compensate the residents of St. Croix for groundwater contamination.

Dr. Boyle also utilized the alternative "Total Economic Value" methodology for computing damages. This involves measuring economic values of groundwater use "in terms of each individual's own assessment of well-being." There are two components to this calculation, the "wasteful use" damage calculation and the "benefit transfer of existence values" calculation.

The wasteful use calculation is the value of the loss to the current generation from the wasteful use of water by remediation projects. Waste has allegedly occurred because the Refinery Defendants pump groundwater treated as part of remediation into the Caribbean Sea instead of "using it for productive purposes."

The benefit transfer of existence values calculation involves determining how people value natural resources even when they do not currently use or plan to use the resources in the near future. This calculation requires computing how much money residents of St. Croix would theoretically pay to ensure that uncontaminated groundwater is available for future generations. The calculation determines the value for similar resources at a different location to calculate damages from the failure to protect the Kingshill aquifer from groundwater contamination.

III.

We note that both the Refinery Defendants and Lockheed rely on a New Jersey case in which a Resource Equivalency Analysis for economic damages for groundwater contamination was

found to be not credible. New Jersey Dep't of Env'tl. Prot. v. Essex Chem. Corp., No. A-0367-10T4, 2012 N.J. Super. Unpub. LEXIS 593 (N.J. Super. A.D. March 20, 2012). However, this case involved the findings of fact of a court following a bench trial. This is a significantly different procedural posture from the pretrial Daubert motions presently before the court. Of course, a fact-finder may weigh evidence in any way and find one expert to be less credible than another. It was not an analysis of the reliability, fit, or qualifications of the expert and his opinions, and we accordingly do not find it to be persuasive authority under the circumstances.

We will first address the defendants' arguments regarding the Resource Equivalency Analysis. The Refinery Defendants and Lockheed contend that the Resource Equivalency Analysis is inapplicable to analyses of economic damages for groundwater contamination because it is generally used when there have been injuries to individual wildlife species or habitats. The fact that the analysis is also used for other types of resources damage does not make it inappropriate in the groundwater setting. In his deposition, Dr. Boyle explained that his peers at the University of Illinois performed a survey of state and federal cases involving natural resource damage assessments and found that the Resource Equivalency Analysis was the most commonly used approach for estimating groundwater damages. This type of peer review is sufficient under Daubert.

The Refinery Defendants next contend that Dr. Boyle's application of the Resource Equivalency Analysis is premised on false assumptions and is thus unreliable. The first alleged false assumption is that Dr. Boyle assumes the water beneath the Refinery has been or will be available for the residents of St. Croix to use. They contend that this is false because it is private property. We disagree. The fact that the water is under private property is not relevant for purposes of determining these damages. Dr. Boyle testified in his deposition that there have been "numerous peer reviewed studies" that have looked at the value of groundwater despite it being under private property. Indeed, groundwater is not static but rather flows beyond property borders.

The second alleged false assumption for the Resource Equivalency Analysis is that Dr. Boyle assumes that contamination of groundwater beneath the refinery will prevent the public from extracting groundwater from areas located outside the refinery. Here the Refinery Defendants claim that Dr. Boyle is improperly relying on the declaration of Syed Syedali ("Syedali"), who claimed that the Virgin Islands Department of Planning and Natural Resources is not issuing groundwater appropriation permits in the vicinity of the refinery because of the amount of water being extracted due to the hydrocarbon recovery program. In a separate motion, the Refinery Defendants have moved to strike that declaration. By a Memorandum and Order issued today,

we are denying the motion to strike. Dr. Boyle may accordingly rely on the declaration of Syedali.

The third alleged false assumption on which the Resource Equivalency Analysis is premised is that water beneath the refinery would have been available as a potable resource in its baseline condition. According to defendants, the salinity of the water prevents its use for drinking. The plaintiffs disagree and counter that the water is indeed potable. We cannot determine at this point the level of salinity of the water. This is an issue of fact for trial.

The Refinery Defendants also argue that counting an acre of preserved land as compensation for an acre of lost groundwater overestimates for the services that are allegedly lost. However, Dr. Boyle is recommending purchasing land over the Kingshill Aquifer, in order to protect the groundwater, so this argument fails. Further, defendants contend that Dr. Boyle uses a distorted set of property values by failing to find properties comparable to the refinery and by not using transactions which occurred after the economic recession began. The plaintiffs respond that finding sites "comparable" to the refinery does not accomplish the goal of the Resource Equivalency Analysis, which is to protect an equivalent amount of resources, here groundwater. We agree. The plaintiffs also explain that there were no transactions for large parcels for post-2009, which is why there is no data in 2010 or 2011, following the recent recession. However, there were also no such transactions in 1998

or 1999. The defendants may cross-examine Dr. Boyle on this point, but it does not cause his opinions to be unreliable or fail to fit the case.

We will now turn to the arguments regarding the Total Economic Value approach. The Refinery Defendants and Lockheed maintain that Dr. Boyle's Total Economic Value approach is unreliable. They contend that his wasted use analysis that is part of the Total Economic Value approach fails because it is based on false assumptions.

The first of these alleged false assumptions is that the water is wasted because it is being pumped into the Caribbean Sea as part of the current remediation efforts. The Refinery Defendants and Lockheed contend that since the groundwater under the refinery flows into the Caribbean Sea under natural conditions, it is not wasted. However, it is not clear how much of the groundwater flows into the sea eventually and whether or not the pumped out groundwater could be put to a more productive use. The defendants do not convince us that Dr. Boyle's testimony is unreliable or does not fit this action. He may testify about the wasteful use at trial.

The Refinery Defendants and Lockheed also contend that Dr. Boyle should not have used "market price" to compute damages because the costs that residents are willing to pay the Water and Power Authority for "standpipe water" does not reflect the value that residents put on the "wasted" groundwater. We are not

persuaded. Rather, the price that residents pay for their water provides the value of water to them.

Lockheed also emphasizes that the remediation project was proposed by the plaintiffs, designed by plaintiffs' own expert, and overseen by the United States Environmental Protection Agency ("EPA"). They assert that Dr. Boyle is not qualified to opine that the water is wasted as he is not an environmentalist but an economist. However, plaintiffs counter that Dr. Boyle is not commenting on whether this remediation is appropriate environmentally, but rather whether it imposes economic costs. He is using "wasteful" as an economic term for water that is not being put to productive use, here because of the pumping due to the contamination. Dr. Boyle may testify at trial to these opinions.

Lockheed argues that Dr. Boyle's opinions are unreliable because they were based on the extent of contamination opined by Dr. Andrews. We have addressed Dr. Andrews' opinions in the separate motions regarding them, and as described in a Memorandum and Order issued today, we are not excluding them. Furthermore, it is clear that Dr. Boyle did not "unblinkingly rely" on the opinions of Dr. Andrews. See In Re TMI Litig., 193 F.3d 613, 715 (3d Cir. 1999).

The Refinery Defendants further contend that Dr. Boyle's existence value and benefit transfer analysis fails because it is based on false assumptions. They specifically argue that Dr. Boyle's existence values are unreliable because he

did not conduct a poll of the attitudes of people on St. Croix but instead used an existing meta-analysis equation. They maintain that economists have cautioned that using a meta-analysis in this way can yield unreliable results. However, Dr. Boyle testified in his deposition that these opinions were old, and new opinions of economists have found that meta-analyses are reliable for this purpose. He referred to various peer studies. His testimony in this regard is reliable under Daubert.

Lockheed further argues that the prior studies used in the meta-analysis by Dr. Boyle do not measure the same or similar resource at issue here because the Kingshill aquifer is not used as a source of public drinking water on St. Croix and contains a high level of salinity. However, Dr. Boyle is also looking toward the future and potential emergencies. Indeed, Dr. Boyle explains that the Kingshill aquifer was in fact used as an emergency water source following Hurricane Hugo in 1989 and was the only source of fresh water on the island after the hurricane outside of a limited number of residents who had uncontaminated water in their cisterns.

Lockheed finally argues that the benefit transfer approach has been determined, in a study by Dr. Boyle himself, to have a high error rate. However, Dr. Boyle explained in his deposition that he accordingly used very conservative figures so if there is an error it is that he is underestimating the economic damages. Again, his testimony is reliable under Daubert.

For these reasons, we will deny the motions of the Refinery Defendants and Lockheed to exclude the testimony of Dr. Boyle.