

Concerned Area Residents for the Environment v. Southview Farm, 834 F. Supp 1422 (1993)

No. 91-CV-6031L UNITED STATES DISTRICT COURT FOR THE WESTERN DISTRICT OF NEW YORK

Counsel for Plaintiffs
Donald W. O'Brien
Woods, Oviatt, Gilman, Sturman & Clarke
Central Trust Bldg.
44 Exchange St., Rochester NY 14614
(716) 454-5370

Counsel for Defendants
John W. Clarke, Althena Jamesson
Harris, Beach & Wilcox
Granite Bldg.
130 E. Main St., Rochester NY 14604
(716) 232-4440
LARIMER
LARIMER, District Judge.

BACKGROUND

This is a citizen suit under the Federal Water Pollution Control Act, also known as the Clean Water Act ("CWA" or "the Act"), 33 U.S.C. ' 1251 *et seq.* Also originally pleaded were several supplemental state claims including negligence, nuisance and trespass. The relevant facts have been set out in this Court's prior decisions on defendants' motions to dismiss and for summary judgment, entered on August 29, 1991 and April 7, 1993 respectively. Familiarity with those decisions is assumed.

On May 19, 1993, a jury returned in a verdict in the trial of this action finding that defendants had violated the CWA on five occasions, and that defendants had committed a common law trespass against each plaintiff. The jury found in favor of defendants on six other alleged CWA violations, and it also found no cause of action on all of the negligence and nuisance claims.

The jury awarded damages on the trespass claims, but the court's determination of a remedy for the CWA claims is contingent upon my resolution of these post-trial motions.

Defendants now move for judgment as a matter of law under Fed.R.Civ.P. 50(b) on the CWA and trespass claims.

Defendants' motion is granted on all of the CWA claims, but otherwise denied.

DISCUSSION

1. Legal Standard

Defendants' burden to prevail on a motion for judgment as a matter of law following a jury verdict in plaintiffs' favor is a strict one. *Stubbs v. Dudley*, 849 F.2d 83, 85 (2d Cir.1988), *cert. denied*, 489 U.S. 1034, 109 S.Ct. 1095, 103 L.Ed.2d 230 (1989). The court should grant the motion "only when (1) there is such a complete absence of evidence supporting the verdict that the jury's findings could only have been the result of sheer surmise and conjecture, or (2) there is such an

overwhelming amount of evidence in favor of the movant that reasonable and fair minded men could not arrive at a verdict against him." *Mattivi v. South African Marine Corp., "Huguenot"*, 618 F.2d 163, 167-68 (2d Cir.1980). If the evidence, viewed in the light most favorable to plaintiffs, was sufficient to have allowed a reasonable juror to arrive at a verdict for plaintiffs, the motion must be denied. *Konik v. Champlain Valley Physicians Hosp.*, 733 F.2d 1007, 1013 (2d Cir.1984), *cert. denied*, 469 U.S. 884, 105 S.Ct. 253, 83 L.Ed.2d 190 (1984).

In deciding the motion, the court must draw all reasonable inferences, and resolve all questions of credibility, in plaintiffs' favor. *Id.* "[T]he trial court cannot assess the weight of conflicting evidence, pass on the credibility of the witnesses, or substitute its judgment for that of the jury." *Mattivi*, 618 F.2d at 167.

Despite the heavy burden placed on the moving party, however, when it is clear that the evidence does not support the verdict, the motion must be granted. "It is error to deny a judgment notwithstanding the verdict when it is clear that the evidence and its inferences cannot reasonably support a judgment in favor of the opposing party." *Erickson v. Pierce County*, 960 F.2d 801, 804 (9th Cir.), *cert. denied*, U.S. , 113 S.Ct. 815, 121 L.Ed.2d 687 (1992); *see also Shatkin v. McDonnell Douglas Corp.*, 727 F.2d 202, 207 (2d Cir.1984) (district court erred in denying motion for judgment n.o.v. in view of insufficiency of the evidence to support plaintiff's claim).

In addition, a mere scintilla of evidence will not suffice to support a verdict. *Meyers v. Ideal Basic Indus., Inc.*, 940 F.2d 1379, 1383 (10th Cir.1991), *cert. denied*, U.S. , 112 S.Ct. 935, 117 L.Ed.2d 106 (1992). "The jury's role as the finder of fact does not entitle it to return a verdict based only on confusion, speculation or prejudice; its verdict must be reasonably based on evidence presented at trial." *Michelman v. Clark-Schwebel Fiber Glass Corp.*, 534 F.2d 1036, 1042 (2d Cir.), *cert. denied*, 429 U.S. 885, 97 S.Ct. 236, 50 L.Ed.2d 166 (1976). If, after viewing all the evidence most favorably to plaintiffs, the court cannot say that the jury could reasonably have returned the verdict in their favor, it is the court's duty to set the verdict aside. *Id.*

2. July 12, 1989 and August 22, 1989 CWA Violations

The jury found that CWA violations occurred on five dates: July 12, 1989; July 13, 1989; August 22, 1989; September 26, 1990; and April 15, 1991. Defendants allege that there is no evidence that the July 12, 1989 and August 22, 1989 discharges occurred at all.

Plaintiff Philip Karcheski testified at trial about the alleged July 12 violation. He stated that while driving his vehicle on a nearby road at dusk, he saw "tanks pulled by the tractors" going into a certain field. Def.Ex. A at 4. n1 "At that point [he] didn't pay attention" to whether manure was being discharged from the field. *Id.*

His curiosity aroused, Karcheski returned the next evening, July 13, in the company of plaintiff Kirk Bly. Karcheski stated that he saw "the same thing, and still manure trucks were operating the lagoons -- the tanker trucks." *Id.* at 5. He then "went into the field, and the area was just kind of saturated with kind of like liquid manure." *Id.* Some of the manure was exiting the property through a ditch. *Id.* at 6.

Bly also testified at trial. He stated that on July 12, while riding on a road, he "noticed a field on the Wyant farm that had received a large amount of -- a large amount of liquid manure." Def.Ex. B at 6. He stopped his vehicle and looked at the field and a "running light in the far corner of the field" for several minutes, but he did not get out of his vehicle to inspect the field. *Id.*

Bly also testified that when he went back to that spot on July 13, first alone and then with Karcheski, what he saw was "very similar to what [he] observed on the 12th." *Id.* at 8. Walking around with Karcheski, he saw "a slurry type manure" flowing out of the field and eventually into a stream. *Id.* at 9.

As to the August 22 violation, Karcheski testified that on that date he saw "the tankers . . . coming down the road again and entering the same area [as on July 12 and 13] . . ." Def.Ex. A at 8. He stayed for about ten or fifteen minutes, and did not see any liquid manure leaving defendant's property. *Id.*

Bly gave similar testimony. He said that in "the same field, same area" as on July 12 and 13, he "noticed a heavy application of manure had been applied again." Def.Ex. B at 11-12. He did not actually enter the field, and he did not testify that he saw any discharges from the property.

In my view, this testimony is not sufficient to support the jury's finding that discharges occurred on July 12 and August 22. Neither Karcheski nor Bly stated that they actually saw a discharge of manure from the property on either date, and their testimony was not strong enough to support an inference that violations occurred on those days simply because they saw a discharge in the same area on July 13. There are so many variables involved -- the amount of manure spread, the duration of the spreading, the physical condition of the ground, etc. -- that it would be speculation to infer discharges on July 12 or August 22 based on the July 13 incident.

Even assuming that defendants were spreading manure in the exact same manner and place on the 12th as on the 13th, that alone does not warrant drawing the conclusion that a discharge of pollutants into navigable waters occurred on the 12th merely because one allegedly occurred on the 13th. For one thing, there was no evidence of how long defendants had been spreading manure when Karcheski and Bly saw the tank trucks on July 12. Both men said that they noticed manure-spreading going on in the early evening of July 12. Neither knew how long this activity had been going on at that point, which would obviously have a bearing on the amount of manure the field had received. n2

Moreover, the conditions under which the manure was spread on July 13 differed in one highly important respect from the day before, precisely because defendants *had* spread manure on the 12th. If defendants spread manure in the same area on both days, then there must have already been manure on the ground when they began spreading on the 13th. That would obviously make it more likely that the ground would become saturated sooner and the manure would spill out from the field.

Evidence from which the jury could have reasonably inferred a discharge on August 22 is also lacking. Even crediting Bly's statement that the application of manure that day was "heavy," that simply does not warrant the conclusion that some of the manure left the field and entered navigable waters. Bly's statement that the weather that day was "dry," Def.Ex. B at 12, further weakens such an inference.

What remains as to both dates, then, is testimony that manure was applied to defendants' fields, and that testimony is insufficient to find a CWA violation.

I conclude that the jury's finding of a discharge on July 12, 1989 and August 22, 1989 "was sheer surmise and conjecture." *Mattivi*, 618 F.2d at 167 (quoting *Armstrong v. Commerce Tankers Corp.*, 423 F.2d 957, 960 (2d Cir.), *cert. denied*, 400 U.S. 833, 91 S.Ct. 67, 27 L.Ed.2d 65 (1970)). There was simply a "complete absence of substantial evidence supporting the verdict" on this question, *id.* at 169, and the verdict must therefore be set aside as to these two CWA violations.

3. September 26, 1990 and April 15, 1991 CWA Violations

Defendants argue that the September 26, 1990 and April 15, 1991 discharges were "agricultural stormwater discharges," which are specifically excluded from the definition of "point source," 33 U.S.C. ' 1362(14), and hence from the coverage of the Act itself, since only point source discharges of pollutants constitute violations of the Act.

Sally Hunt, a non-party to this action, was called as a witness by plaintiffs. She testified that on September 26, 1990, she observed an application of liquid manure by defendants on a field adjacent to her property. She said that this application was heavier than most, and that the manure "pooled in the corner of [defendants'] field right next to [her] property." Def.Ex. C at 4. She stated that later that day it rained, and the manure "drizzled into the ditch and through the drainage pipe." *Id.*

Bly testified that on September 26, as he was driving near fields surrounding the Hunt residence, he "could see the manure flowing, the tracks made by the equipment, flowing off the end of the fields where there was severe erosion [sic]." Bly Tr., Apr. 30, 1993, at 16. He did not see any tankers. He also noticed that there was discolored water flowing through a ditch along the field. *Id.* at 17.

As to the April 15, 1991 incident, Hunt testified that on that date, defendants "had worked the field and worked all the grass off up to the ditch. And so then they spread manure, and it subsequently rained, and it washed into the ditch." Def.Ex. C at 8. When asked if she had personally observed the manure being washed into the ditch, she replied, "Not myself, but I know they spread it." *Id.*

Plaintiff Bly testified that April 15 was "a wet day" and that a photograph he took that day depicted "water flowing -- water runoff flowing off the field towards the fencepost." Def.Ex. B at 38-39. Other photographs taken that day showed a "close-up of the water run-off showing the brown water, foam in the field," a "stream in Letchworth Park, several yards from the field, which the run-off was coming from showing brown, yellow water and foam." *Id.* at 39.

Plaintiff Karcheski also testified about his observations on April 15. He stated that near the intersection of Middle Reservation and Swyers Roads, he saw "a lot of manure coming off the field through the areas where the banks had fallen away and like, you know, tractors had come in and out, and they leave culverts or furrows and that." He saw "water and manure" in an adjacent ditch. Karcheski Tr. Apr. 28, 1993 p. 20. He stated that "[t]he ground was wet, but [he did]n't recall it raining when [he] was there." *Id.* p. 21.

In addition to this live testimony, two reports prepared by the New York State Department of Environmental Conservation ("DEC") were admitted into evidence. The first, which was prepared in response to a complaint by Hunt to the DEC, stated that "Due to heavy rain in area about 2 PM on 9/26/90 -- Runoff from fields on north side of Swyers Rd. cause[d] manure to run into road ditch. Drainage enters Genesee River through Letchworth State Park property." Def.Ex. G.

The second report was written after an investigation of a complaint by Bly on April 15, 1991. That report stated that "Heavy rain caused manure to run off into streams through park into Genesee River." Def.Ex. G.

In my view, the evidence does not support the verdict as to either of these two discharges. First -- particularly concerning the April 15 discharge -- there was insufficient evidence that any discharge occurred from a point source. Bly's testimony that he saw "water runoff flowing off the

field," in fact, supports precisely the opposite view: that the discharge on this date was simply disparate run-off caused by rainfall. The DEC report was consistent with Bly's testimony, stating only that manure had run off into streams.

Hunt's testimony about the April 15 incident was also inadequate. Although she said that manure had "washed into the ditch," the basis for that statement is not apparent, since Hunt then said that she had not "personally observe[d] it being washed into the ditch," but only that she "kn[e]w they spread it" and she "kn[e]w there was no vegetation" on the field. Def.Ex. C at 8.

Karcheski's testimony was unclear at best as to what caused the alleged discharge. However, his statements that the ground was wet and that there was water in the ditch adjacent to the field, and that "the banks [we]re crumbling down into the ditch," Karcheski Tr. Apr. 28, 1993, p. 28, taken together with Bly's and Hunt's testimony, indicates that this was run-off rather than a point source discharge. n3

There was virtually no evidence at all, then, that a point source discharge occurred on April 15.

Hunt had no personal knowledge that a discharge occurred from a point source, Karcheski's testimony was inconclusive, and Bly's testimony actually supported defendants' position.

The evidence concerning the September 26 discharge is of a different nature, but no less problematic. Hunt did testify that the manure had "pooled" near the edge of the field and, when it rained, the manure "drizzled into the ditch and through the drainage pipe." The DEC report also indicated that the manure had entered streams through a ditch.

There was some evidence, then, that the manure had collected into a pool on defendants' property and that it entered navigable waters through a discrete conveyance, *i.e.*, the ditch.

The inquiry does not end there, however, for in 1987 Congress amended the Act to exclude agricultural stormwater discharges from the definition of "point source." 33 U.S.C. ' 1362(14).

The question, therefore, is whether the September 26 discharge fell within that exclusion.

Unfortunately, neither the Act itself, the regulations promulgated by the Environmental Protection Agency ("EPA"), the legislative history, nor the case law provides much guidance as to the meaning of "agricultural stormwater discharge." The term is not defined in the Act or in any regulations, although "storm water" is defined at 40 C.F.R. ' 122.26(b)(13) as "storm water runoff, snow melt runoff, and surface runoff and drainage."

The legislative history is both sparse and unhelpful, stating only the obvious: that the new language "amends Section 502(14), of the Act, by providing that Agricultural Stormwater Discharges are not defined as a point source." Section-by-Section Analysis, 133 Cong.Rec. H 131 (Jan. 7, 1987), *reprinted in* 1987 U.S.C.C.A.N. 5, 41. Also, the parties have not submitted, and the Court has not found, any cases interpreting this exception.

Nevertheless, both common sense and what little authority there is in this area dictate that the September 26 discharge does fall within the exception. First, the fact that Congress saw fit to add this language to ' 1362(14) suggests that Congress believed that, without an express exception, agricultural stormwater discharges *could* be considered point-source discharges. In other words, the amendment excepted from the scope of the Act certain discharges which would otherwise constitute point-source discharges.

That view is reinforced by certain other amendments enacted in 1987 dealing with other, non-agricultural stormwater discharges. For example, ' 1342(l) was amended to provide that permits are not required for discharges through discrete conveyances of stormwater runoff associated with certain types of industrial activity, so long as the water is uncontaminated by contact with raw materials or certain specified other types of materials. Presumably,

contaminated industrial stormwater discharges would continue to require permits. Since non-point source discharges do not require permits to begin with, this implies that Congress considered discharges of industrial stormwater to be point-source discharges; it was merely exempting some of them from the permit requirement.

With agricultural stormwater discharges, however, Congress went even further, and excluded them completely from the definition of point-source discharges. Agricultural discharges, then, are not simply point-source discharges that do not require a permit; they are not point-source discharges at all, notwithstanding that they might occur through a discrete conveyance.

The fact that Congress saw a need to amend the statute to add a specific exception for agricultural stormwater discharges also suggests that Congress was not concerned simply with disparate, random run-off of rain water; that type of run-off had already been generally held by the courts not to constitute a point-source discharge. *See, e.g., United States v. Earth Sciences, Inc.*, 599 F.2d 368, 373 (10th Cir.1979). If that had been Congress' only concern, the exception would have been unnecessary. It is a fundamental rule of statutory construction that courts should avoid an interpretation of a statute that renders any part of it superfluous. *State of Nevada v. Watkins*, 939 F.2d 710, 715 (9th Cir.1991).

It appears, therefore, that the exception was aimed at *collected* or *channelled* storm water, *i.e.*, storm water discharges which would ordinarily constitute point-source discharges. The fact that the discharge in this case came from a "pool" or ditch, therefore, does not in itself take this case out of the statutory exception created by Congress for agricultural stormwater discharges.

Plaintiffs' contention that "stormwater" means only run-off which is completely unpolluted by contact with any contaminants is not persuasive. Plaintiffs rely for that assertion on a statement by the EPA in the preamble to a Federal Register notice of certain regulations that "some classes of non-stormwater discharges may typically contain only minimal amounts of pollutants.

Congress did not intend that the term stormwater be used to describe any discharge that has a de minimis amount of pollutants." 55 F.R. 47995 (Nov. 16, 1990). That statement, however, can reasonably be read to mean only that the mere fact that a discharge contains a de minimis amount of pollutants does not necessarily mean that it should be treated as a stormwater discharge. In other words, the stormwater or non-stormwater character of the discharge is not determined by the presence or amount of pollutants in the discharge.

Moreover, "storm water," according to the EPA, means "storm water runoff, snow melt runoff, and surface runoff and drainage." 40 C.F.R. ' 122.26(b)(13). "Runoff" has been defined by the Court of Appeals for the District of Columbia Circuit as "wastewaters generated by rainfall that drain over terrain into navigable waters, *picking up pollutants along the way.*" *Natural Resources Defense Council, Inc. v. Costle*, 568 F.2d 1369, 1377 (D.C.Cir.1977). That interpretation is almost self-evidently correct, as it seems virtually impossible for rain water to travel over the ground without picking up at least a minimal amount of pollutants. To think of "stormwater" as including only "pure" rain water unadulterated by any substances on the ground whatsoever would render the agricultural stormwater discharge exception practically meaningless. n4

The cases cited by plaintiffs in support of their interpretation of this exception are distinguishable.

Some of the cases, such as *Sierra Club v. Abston Constr. Co.*, 620 F.2d 41 (5th Cir.1980), and *Residents Against Industrial Landfill Expansion v. Diversified Systems, Inc.*, 804 F.Supp. 1036, 1039 (E.D.Tenn.1992), did not involve agricultural activities. Some, including *Abston* and *United States v. Oxford Royal Mushroom Products*, 487 F.Supp. 852 (E.D.Pa.1980), were decided

before the 1987 CWA amendments which created the exception for agricultural stormwater discharges.

Plaintiffs maintain that a discharge, even if its most immediate cause was rainfall, does not fall within the exception if defendants' activities (such as prior applications of manure) contributed to the discharge. This argument, however, confuses the issue of run-off-versus-point source discharges with the issue of agricultural stormwater discharges. The cases cited by plaintiffs (including my summary judgment decision in this case) addressed the question of when runoff has been sufficiently affected by man to become a point source discharge. That is an entirely different issue from whether a discharge comes within this exception for agricultural stormwater discharges.

Plaintiffs also argue that to hold that the discharges in this case were agricultural stormwater discharges would allow defendants to escape liability under the Act by watching the weather forecasts and applying manure just before a rainstorm. Defendants' liability, though, will not be made limitless by my decision. For example, defendants cannot simply dump a truckload of manure into a storm sewer or ditch and claim that that is an agricultural stormwater discharge, since in that situation the discharge would clearly have been caused by defendants, not by the effects of natural precipitation. In contrast to that scenario, the instant case involves manure lawfully and legitimately applied to defendants' land in the course of agricultural activity, which, as far as the proof showed, would have remained on their land had it not been for a heavy rain. n5 If this activity does not fall within the exception for agricultural stormwater discharges, it is difficult to see what would. This is not a case like *Carr v. Alta Verde Indus., Inc.*, 931 F.2d 1055 (5th Cir. 1991), in which the defendants deliberately cut a spillway out of the embankment of a wastewater holding pond after the pond had become full due to heavy rains. n6 The discharge here involved the natural movement of rain water over the ground, albeit rain water which mixed with manure before running off the field into a ditch. To hold that a point source discharge exists when rain water flows across a farm field and picks up or mixes with fertilizer, however, would have far-reaching effects that I believe were precisely what Congress wanted to avoid when it added this exception for agricultural stormwater discharges.

It is evident that Congress had a definite purpose in mind when it enacted this exception, and that purpose was clearly to exempt certain farming activities from the reach of the Clean Water Act, either because of the importance of those activities to society, or because of the difficulty of regulating them, or both. It is not the function of this court to decide whether this exception is good or bad, or wise or unwise. Rather, the court's task is to apply the statute to the facts before me, and having done so, I find that the only reasonable conclusion is that the discharges here fall within the exception.

I am aware that the jury was instructed that agricultural stormwater discharges are not covered by the Act, and that a jury verdict is not lightly to be set aside. When the facts demand it, however, that is the duty of the court. In fairness to the jury in this case, it should also be noted that (as the preceding discussion should make plain) this is not a simple, straightforward matter in which any layman can easily judge the facts according to his common sense. The parameters of this part of the Act are complex and largely uncharted. That the jury's verdict is insupportable, therefore, is probably less the result of faulty reasoning on their part than a testament to the exceedingly difficult task given them of trying to grasp the subtleties of a labyrinthine statute such as the CWA based solely on a jury charge, a task compounded by the fact that this was merely one issue among many presented to them at the end of the case.

In any event, in my view the evidence was such that no reasonable juror could find that these discharges were not excepted under the Act as agricultural stormwater discharges.

4. Point Source Discharge

Defendants also contend that plaintiffs did not prove that any of the five alleged discharges occurred from a "point source," which is defined as "[a]ny discernible, confined, and discrete conveyance . . . from which pollutants are or may be discharged." 33 U.S.C. ' 1362(14). A discharge of pollutants does not violate the Act unless it emanates from a point source. My ruling on the July 12 and August 22, 1989 discharges makes this issue moot as far as those two alleged violations are concerned. There was insufficient evidence of any discharges on those two days, from a point source or otherwise. Likewise, I have already held that the September 26, 1990 and April 15, 1991 discharges were agricultural stormwater discharge, and therefore were not point-source discharges.

That leaves only one discharge, on July 13, 1989. As to that event, Karcheski testified on direct examination as follows:

Q. Did you observe any of the manure that was there exiting the property?

A. In the ditch.

Q. All right.

A. We didn't notice much on the hills, because it was like -- it wasn't solid stuff. It was just running off, and it was in the ditch, and Kirk [Bly] had come up from that way and said he had been following it down the ditch.

Karcheski Tr. 4/28/93 at 8-9.

Describing his observations on July 13, Bly testified that

As I approached the southeast corner of the field, it was evident that a lot of manure had been applied, and I was starting to walk through a slurry type manure that was flowing under the fence through the ditches and the field. . . . I followed this flow, this lava-like flow of manure down into the park where it meets a small stream and followed that stream even farther to where it meets another stream.

Q. Where does that stream go to?

A. That stream flows approximately a quarter mile to the Genesee River.

Bly Tr. 4/30/93 at 9.

Bly also testified that

[m]anure was flowing off the hilly areas of the field and down into the low spots under the fence, off the field. . . . I continued along the woods in the park to the easterly side of the field and witnessed another event similar to the one on the southeast side, the manure flowing off at a low spot in the field, a depression into another small stream . . .

Id. at 9-10. He stated that he followed the manure in the stream "in [Letchworth] park several hundred yards." *Id.* at 10.

Defendants raised the point-source issue on their prior motions to dismiss and for summary judgment. I denied those motions on the ground that there were issues of fact about whether a point-source discharge occurred. Plaintiffs having presented their proof at trial, the question now

becomes whether the evidence is sufficient to find that the July 13 discharge was from a point source. n7

The Second Circuit recently decided a case which further delineates the nuances of the term "point source." In *United States v. Plaza Health Labs., Inc.*, 3 F.3d 643 (2d Cir. 1993), a two-judge majority held that the district court in a criminal CWA case had erred in ruling that a human being could be a point source.

Although my prior decisions in this action dealt with the point-source issue at some length, the *Plaza Health* decision necessitates some further discussion of the subject, not only because it is the Second Circuit's most recent pronouncement on the question, but also because it modifies in some respects the contours of the case law in this area.

In reaching its conclusion that a person cannot be a point source, the Court of Appeals noted that the "Clean Water Act generally targets industrial and municipal sources of pollutants . . ." 3 F.3d at 646. The court stated that this focus is evidenced in part by the many references in the Act to "owners or operators" of point sources.

The court found further support for this view in the legislative history of the CWA. As an example, the court quoted a Senate report referring to the need to distinguish control of runoff from control "where there are *specific confined conveyances, such as pipes . . .*" *Id.* at 647 (quoting S.Rep. No. 92-414, *reprinted* in 1972 U.S.C.C.A.N. 3668, 3744) (alteration in original).

The court went on to quote the following comments of Senator Robert Dole which were added to the report:

Most of the problems of agricultural pollution deal with non-point sources. Very simply, a non-point source of pollution is one that does not confine its polluting discharges to one fairly specific outlet, such as a sewer pipe, drainage ditch or a conduit; thus, a feedlot would be considered to be a non-point source as would pesticides and fertilizers.

The court concluded that the term "point source" as applied to a human being was at best ambiguous, and that the rule of lenity in criminal cases required a reversal of the defendant's conviction.

In a dissenting opinion, Judge Oakes stated that the term "point source" has been applied to a wide range of polluting techniques, a common feature of which is that the pollutants "reach the navigable waters by human effort or by leaking from a clear point at which waste water was collected by human effort." 3 F.3d at 651.

Judge Oakes also considered what constitutes a nonpoint source discharge, which, he stated, "is, generally, runoff: salt from roads, agricultural chemicals from farmlands, oil from parking lots, and other substances washed by rain, in diffuse patterns, over the land and into navigable waters." 3 F.3d at 652. To attempt to control such discharges, he stated, "could require radical changes in land use patterns which Congress evidently was unwilling to mandate without further study." *Id.* Despite Judge Oakes's dissent, it is clear from reading both the majority and dissenting opinions in *Plaza Health* that the entire court did agree on one thing: that a point source, as the Act itself states, must be "discrete" and "confined." In fact, Judge Oakes opined that persons may be *nonpoint* sources when they deposit waste in a diffuse manner, such as when they "spread fertilizer on the ground or deposit oil in a driveway, leaving it to be washed into nearby rivers." 3 F.3d at 655 n. 6. Similarly, in stating that the Act should be held to cover "a company [which] chooses to use the nation's waters as a dumpsite for waste it has created and gathered in a manageable place," Judge Oakes added in a footnote, "I mean to distinguish a company whose agricultural or other activity leaves pollutants dispersed on the land, which may then find their

way into the nation's waters." 3 F.3d at 655 n. 7. It is evident that even Judge Oakes would not find such an entity liable under the CWA.

Several points may be drawn from *Plaza Health*. First, the court appears to have stepped back somewhat from the line of cases which have taken an expansive view of "point source." It is true that the court distinguished some of those cases on the ground that *Plaza Health* was a criminal case in which the rule of lenity applied, but the court did not state that it would have reached a different conclusion in a civil case. Also, while it would be an exaggeration to say that the court adopted a restrictive reading of "point source," *Plaza Health* did set some limits on the applicability of that term, even where the means of conveyance of a pollutant is discrete, as a human being surely is.

Second, *Plaza Health* emphasized that the focus of the CWA is on industrial and municipal polluters. Although the court was primarily concerned with distinguishing individual human polluters, it is also true that the Act is aimed more at industrial and municipal polluters than at agricultural polluters. n8 The Act specifically protects certain agricultural activities, notably in the exceptions for irrigation return flows and agricultural stormwater discharges.

The timing of the adoption of the irrigation exception is also indicative of Congress' concern with limiting the reach of the Act in the field of agriculture. On November 16, 1977, the Court of Appeals for the District of Columbia Circuit issued a decision holding that the EPA lacked authority to exclude irrigation return flows from the definition of "point source." *Natural Resources Defense Council, Inc. v. Costle*, 568 F.2d 1369 (D.C.Cir. 1977). The amendment inserting the irrigation exception in the Act was enacted by Congress the very next month. Pub.L. 95-217, ' 33(b), 91 Stat. 1577 (Dec. 27, 1977).

It is true, of course, that the Act does not provide a blanket exception for *all* agricultural activities. In particular, it includes a "concentrated animal feeding operation" within the definition of "point source." 33 U.S.C. ' 1362(14). Yet even this is equally *exclusive* as it is *inclusive*. Just as the definition of "point source" effectively defines by exclusion "nonpoint source," *i.e.*, every source of pollutants that is not a point source, n9 so the definition of "concentrated animal feeding operation" as a lot or facility where more than 700 adult dairy cattle are kept for at least forty-five days in any twelve-month period, and where crops are not grown over any portion of the lot or facility, obviously leaves out many types of cattle operations. 40 C.F.R. ' 122.23(B)(1), ' 122.23(b)(3).

In drafting the CWA, then, Congress took pains to protect certain types of agricultural activities from the controls placed on point sources. In part, that appears to be a product of Congress' belief that most agricultural pollution either comes from nonpoint sources, or poses problems of management similar to those of nonpoint sources, which simply do not lend themselves to the kind of control that the CWA provides for with respect to industrial and municipal point sources. n10

It is also noteworthy that Congress enacted these protections for agriculture despite, and quite likely because of, the enormity of the problem posed by nonpoint source pollution in general, and agricultural pollution in particular. n11 There can be no doubt that Congress has become increasingly aware both of the extent of the nonpoint source pollution problem, and of the role played by agriculture in that problem.

As enacted in 1972, the CWA asked states to draft waste treatment management plans, which would include procedures for identifying nonpoint source pollution from various activities, including agriculture. 33 U.S.C. ' 1288(b)(2)(F). In 1977, Congress added the Rural Clean

Water Program, which sought to provide financial incentives to farmers to implement "best management practices" in controlling nonpoint source pollution from their land. 33 U.S.C. ' 1288(j). A 1985 Senate Report stated that it had become "clear that nonpoint source pollution could no longer be ignored. . . . As point sources are brought under control, nonpoint pollution looms as a larger and larger problem." S.Rep. No. 50, 99th Cong., 1st Sess. 7-8 (1985) (quoted in Robert D. Fentress, Comment, *Nonpoint Source Pollution, Groundwater, and the 1987 Water Quality Act: Section 208 Revisited?*, 19 Env'tl.L. 807, text accompanying n. 57 (1989)). In 1987, Congress passed the Water Quality Act, which declared a "national policy that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner so as to enable the goals of this Act to be met through the control of both point and nonpoint sources of pollution." 33 U.S.C. ' 1251(a)(7). The 1987 amendments set up additional state nonpoint source management programs. 33 U.S.C. ' 1329.

What is also apparent, however, is that Congress has been reluctant to attempt outright federal control of agricultural and other nonpoint source pollution, preferring instead to leave most of the responsibility in this area to the states, and to use incentives rather than compulsion. Fentress, *supra*, text accompanying n. 85 (noting more "carrots" than "sticks" in provisions dealing with nonpoint sources). Regarding the irrigation return flow exemption, one commentator has even stated that "the drafters intended all agricultural drainage to be excluded from regulation and, as nonpoint sources, to be covered instead only by the informal planning processes" provided for elsewhere in the Act. John H. Davidson, *Thinking About Nonpoint Sources of Water Pollution and South Dakota Agriculture*, 34 S.D.L.Rev. 20, text accompanying n. 144 (1988/1989).

With these considerations in mind, I conclude that the evidence in this case was not sufficient to establish that the July 13 incident was a point source discharge. The pollutants witnessed by Bly and Karcheski that day consisted of diffuse runoff, and in my view this was not the sort of pollution that Congress intended to be covered by the Act.

The linchpin of plaintiffs' attempt to show that this was a point source discharge is the reference by Bly and Karcheski to a "ditch," which is part of the Act's definition of a point source. 33 U.S.C. ' 1362(14). The term "ditch" suggests a discrete channel; the most apt definitions of "ditch" in Webster's Third New International Dictionary (1981 ed.) are "a long narrow excavation dug in the earth," "a trench for conveying water for drainage or irrigation," and "a natural or artificial usu. narrow watercourse or waterway."

The record, however, shows that on July 13 the liquid simply, and quite naturally, flowed to and through the lowest areas of the field. Describing the "ditch," Karcheski said that "there's kind of like two rises, and like a ditch . . . A low area running in between . . ." Karcheski Tr. 4/28/93 at 6. Similarly, Bly stated that "Manure was flowing off the hilly areas of the field and down into the low spots under the fence, off the field." Bly Tr. 4/30/93 at 9-10. He said that at another part of the same field, he saw "the manure flowing off at a low spot in the field, a depression into another small stream . . ." *Id.* at 10.

The photographs taken by Bly of the October 4, 1991 incident, which occurred at the same area as the July 13, 1989 event, and which was intended to establish that the violation at that field was a continuing one, also do not reveal any "ditch." It appears only that there were some gentle rises or slopes in the field, which of course means that there were relatively low spots as well. Plaintiffs' Ex. 77.

The testimony and photographs do indicate that the liquid eventually flowed off the field into a small stream or rivulet. This stream, however, appears to have been a natural watercourse, which in turn led to other streams and eventually into the Genesee River.

The question, therefore, is how the pollutants reached this stream, and I find that they did so in too diffuse a manner to create a point source discharge. The liquid manure was spread on the field, some of it settled into low-lying areas, and some eventually reached the stream.

This type of discharge lacks some of the essential elements of a point source discharge. The pollutants in this case were not "collected" by human activity; in fact, the opposite occurred -- the manure was dispersed over the ground. Further, once the manure was spread, defendants made no effort to collect or channel it. They did not pour it into a pool or lagoon, for example, nor did the field have any sort of berm or dike intended to make it a self-contained system. This case therefore contrasts with *Oxford Royal Mushroom Products*, 487 F.Supp. 852, in which the waste water was supposed to remain within the field, but flowed out through a break in the surrounding berm.

In short, there was no "system" here, no "physical structures and instrumentalities that systematically act[ed] as a means of conveying pollutants . . . to navigable waterways." *Plaza Health*, 3 F.3d at 646. As one commentator has observed, a "man-induced gathering mechanism plainly is the essential characteristic of a point source," 5 Robert E. Beck, *Waters and Water Rights*, ' 53.01(b)(3) at 216-17 (1991). Such a "mechanism" was absent here.

Furthermore, I do not believe that the vehicles or other devices used to spread the manure on the fields can be considered point sources under these facts. For one thing, they were not "gathering mechanisms" discharging pollutants into navigable waters. Rather, they dispersed the fertilizer onto the *ground*, some of which eventually reached waterways.

This is not to say that polluters may always escape liability under the Act merely by dumping pollutants on the ground. There may be situations where the causal connection is so immediate that the spreading mechanism could be deemed a point source, as, for example, where the pollutant is poured onto a dike at the edge of a river. In this case, though, the connection between defendants' activity and the alleged discharge was too far-removed to consider the tractors or spreaders as point sources. Virtually every manmade pollutant at some time was gathered or collected somewhere, and if a point source discharge could be found merely by tracing the pollutants back to the time at which they were last collected, practically every discharge would be a point source discharge. For example, solid fertilizer sold in bags may have been stored in a shed or truck before being spread on the fields. Surely neither the shed nor the truck would be considered a point source in this scenario.

I also believe that defendants' actions here were the kind of activity that Congress wanted to keep beyond the reach of the Act. The manner in which the manure was spread, and entered the waterways, presents many of the same characteristics of agricultural pollution in general which Congress has found inappropriate for point-source-based, or "end of pipe" controls. On any given day, farmers throughout the country may be applying fertilizer to their fields. Some chemicals from that fertilizer may end up in navigable waters. n12 Trying to trace those chemicals to particular fields or applications, and determining whether the discharges were due to an overapplication of fertilizer, to irrigation return flows, or to stormwater runoff, would pose immense problems.

In that sense, these manure applications were similar to irrigation return flows. Speaking of the exemption for the latter, one writer has stated that

[t]estimony in field hearings suggested that effluent limits based on technological methods may not be appropriate for control of return flow pollutants and the [Senate] committee determined that these sources were practically indistinguishable from any other agricultural runoff, which may or may not involve a similar discrete point of entry into a watercourse. All such sources, regardless of the manner in which the flow was applied to the agricultural lands, and regardless of the discrete nature of the entry point, are more appropriately treated under the requirements of section 208(b)(2)(F).

Davidson, supra, text accompanying n. 115 (citing S.Rep. No. 370, 95th Cong., 1st Sess. 35 (1977)).

In short, Congress believed that control of this kind of pollution could best be accomplished not through conventional technology-based systems, but through "radical changes in land use patterns" which Congress has sought to encourage, but which thus far it has been "unwilling to mandate without further study." *Plaza Health*, 3 F.3d at 652-53 (Oakes, J., dissenting).

I reach this conclusion cognizant of my prior rulings that there were sufficient questions of fact on this issue to overcome defendants' summary judgment and dismissal motions. My decision today does not repudiate those prior rulings. A denial of summary judgment in no way precludes a subsequent entry of judgment as a matter of law after the evidence has been heard at trial, *see, e.g., Voutour v. Vitale*, 761 F.2d 812, 822 (1st Cir.1985), *cert. denied*, 474 U.S. 1100, 106 S.Ct. 879, 88 L.Ed.2d 916 (1986); *Catts Co. v. Gulf Ins. Co.*, 723 F.2d 1494, 1502 (10th Cir.1983), and I do not hold that under *no* set of facts could plaintiffs have prevailed on this issue, or that a discharge of manure can never be a point source discharge. This decision today is based on the evidence actually presented at trial; that evidence did not show a point source discharge.

In sum, I find that there was insufficient evidence to prove that pollutants were discharged from a point source on July 13, 1989 from defendants' fields, as required for a CWA violation.

5. *Trespass Claim*

Defendants maintain that the trespass claim should be dismissed because the testimony of plaintiffs' experts was insufficient to establish that defendants' manure was responsible for nitrates in plaintiffs' wells. Specifically, defendants contend that the expert testimony was too speculative and was not supported by adequate facts, and that the testimony of one expert, Dr. Jeffrey Chiarenzelli, was impermissibly based on the opinion of the other expert, Dr. Dale Baker.

The portions of the trial transcript submitted by defendants in support of their motion reveal that defendants did not object to the testimony that they now seek to challenge. *See* Def.Ex. J, K. To the extent that defendants contend that the testimony of these two men was not admissible, then, I find that defendants waived this issue by failing to make a timely objection at trial. *See United States v. Bilzerian*, 926 F.2d 1285, 1294-95 (2d Cir.) (since expert's general testimony was not objected to at trial, admissibility issue was waived), *cert. denied*, U.S. , 112 S.Ct. 63, 116 L.Ed.2d 39 (1991).

I also reject defendants' argument that the expert testimony was insufficient to support the jury verdict on the trespass claim. Defendants are incorrect in their assertion that plaintiffs' experts' opinions were based wholly on speculation or conjecture unsupported by any facts or data. Baker, for example, opined that Southview's manure application caused nitrates to enter ground water through a process known as nitrification. He stated that this process is caused by microorganisms, and occurs at temperatures above fifty degrees. Def.Ex. J at 25. He also stated

that these nitrates will enter the ground water if there are no crops present to take up the nitrates, and that because nitrates are water soluble, "if water moves, nitrates move with it. There's no retardation of the nitrates by the soil." *Id.* at 26.

Chiarenzelli based his opinion that nitrates found in the plaintiffs' wells had come from Southview Farm on his understanding of water flow and the topography of the area in question. Def.Ex. K at 105-06. He explained how he arrived at his opinion, and his testimony was not simply unsupported speculation.

Defendants' argument that Chiarenzelli's opinion was worthless because it was based on the opinions of Baker is without merit. Baker stated that he believed that the nitrates in the plaintiffs' wells came from Southview because Southview was "the only significant nitrate source up-gradient of the plaintiffs' wells." Def.Ex. K at 105.

I note again that defendants made no objection to the admission of this opinion on this ground at trial. They therefore waived any argument that the testimony was inadmissible. *Bilzerian*, 926 F.2d at 1294-95.

Second, the only authority offered by defendants for the proposition that an expert cannot base an opinion on the opinion of another expert, *United States v. 102.93 Acres of Land*, 154 F.Supp. 258 (E.D.N.Y. 1957), *aff'd*, 257 F.2d 805 (2d Cir.1958), is distinguishable in that the expert in that case based his conclusions on "the advice and counsel of others who were *not* called as witnesses." *Id.* at 261 (emphasis added). Thus, that case implicated a concern that was not present in the instant case, namely, the inability of the adverse party to cross-examine the expert whose opinions underlie the witness' opinion. Baker testified that Southview was indeed a source of nitrates, and defendants had the opportunity to, and did, cross-examine him concerning that opinion. *Cf. American Bearing Co. v. Litton Indus., Inc.*, 540 F.Supp. 1163, 1172 (E.D.Pa.1982) (finding inadmissible economist's testimony based on alleged out-of-court statement of another expert who testified prior to economist, since other expert made no such statement when testifying, and defendant had no opportunity to cross-examine him about it).

Moreover, *102.93 Acres* was decided prior to the adoption of the Federal Rules of Evidence, which expressly permit an expert to base an opinion even on otherwise inadmissible evidence if that evidence is "of a type reasonably relied upon by experts" in the same field. Fed.R.Evid. 703. This rule has been held to permit an expert in one field to base an opinion in part on the opinions of other experts in other fields. *See United States v. 1,014.16 Acres of Land*, 558 F.Supp. 1238 (W.D.Mo.1983), (real estate appraiser could consider opinions of forester and hydrologist in arriving at estimate of property's value, and forester could consider hydrologist's data to frame opinion on effect flooding would have on foliage), *aff'd*. 739 F.2d 1371 (8th Cir.1984).

This view is perfectly sensible. As the district court observed in *1,014.16 Acres*, "[a]n expert cannot be an expert in all fields, and it is reasonable to expect that experts will rely on the opinions of experts in other fields as background material for arriving at an opinion." 558 F.Supp. at 1242.

The import of Chiarenzelli's testimony, then, was merely that if one accepted Baker's opinion that nitrates from Southview entered streams and ground water, those nitrates would tend to be carried toward plaintiffs' property. If the jury did not credit Baker's opinion that the water contained nitrates, they simply would have been unconcerned with the direction of the flow of the water. This was effectively no different from having an expert give an opinion based on hypothetical facts, on the expectation that the jury will find those facts to exist in the actual case before them.

I am equally unpersuaded by defendants' argument that the experts were unable to state with certainty that there was a causal connection between defendants' activities and the nitrates in plaintiffs' wells. First, Baker did not need to testify on that matter. He was called to testify about the leaching of nitrates from manure into ground water, not about the movement of that ground water from defendants' to plaintiffs' property.

Defendants' argument that Baker's opinion was "totally speculative as evidenced by his statements that 'it [nitrate] *probably* does [leach into the groundwater] by the time fall comes' . . .," Def.Mem. at 24, takes Baker's testimony out of context. Baker made this statement in response to a question whether "*all* of the nitrate that's left in the soil . . . necessarily leach[es] into the ground water . . ." Def.Ex. J at 77. He explained that when the weather turned cold in the fall, nitrification would be less likely to occur, so that some nitrates might remain in the soil. Merely because he did not state to an absolute certainty that one hundred percent of the nitrates present would have leached out of the soil by the end of the growing season did not render speculative his opinion that leaching did occur.

Similarly, Chiarenzelli's testimony was not merely speculative about the existence of a connection between nitrate contamination of plaintiffs' wells and defendants' activities at Southview Farm. At one point during cross-examination, defense counsel asked him, "But you concluded that it was highly likely [that there was a connection], even though you could not establish a direct connection; isn't that correct?" Chiarenzelli responded, "Right, you can almost never establish a direct connection." Viewed in context, Chiarenzelli's testimony did not mean that he was simply guessing about this matter; as defense counsel himself stated, Chiarenzelli had "concluded that it was highly likely that there was a causal connection." Def.Ex. K at 135. Furthermore, Chiarenzelli stated earlier in his testimony that in his opinion, "the nitrates in the plaintiffs' wells can only be coming from fields owned, rented and operated by Southview Farm." *Id.* at 105. His statement about never being able to establish a direct connection, then, could reasonably be taken to mean only that it was virtually impossible to prove the connection beyond all doubt, and that it was necessary to infer the connection from circumstantial evidence.

I conclude that Baker's and Chiarenzelli's testimony was properly before the jury and that it gave the jury a sufficient basis for their verdict on the trespass claim. Defendants were free to explore further the foundation of the experts' opinions through cross-examination, and to argue before the jury at the close of the case that the experts were not worthy of credence. *See Daubert v. Merrell Dow Pharmaceuticals*, U.S. , , 113 S.Ct. 2786, 2798, 125 L.Ed.2d 469 (1993) (noting value of cross-examination and presentation of contrary evidence as preferred means of challenging value of expert testimony). Beyond that, the weight to be given the experts' opinions was for the jury to consider, and in my view this evidence was sufficient to support the verdict concerning the trespass claims.

CONCLUSION

Based on the jury verdict rendered on May 19, 1993, judgment is entered in favor of all the plaintiffs on their trespass claim in the following amounts:

Karcheski Family \$ 1000.00

Lois E. Link/

Daniel L. Wilson \$ 1000.00

Fagan Family \$ 1.00

Ferris Family \$ 100.00

Kirk Schroeder \$ 1000.00

Bly Family \$ 1000.00

Defendants' motion for judgment as a matter of law is denied as to the trespass claim.

Based on the jury's verdict, judgment is entered in favor of defendants on plaintiffs' nuisance and negligence claims, and on plaintiffs' Clean Water Act claims with respect to the following dates: November 14, 1989; November 15, 1989; November 16, 1989; February 19, 1991; October 18, 1991; and July 23, 1992.

Defendants' motion for judgment as a matter of law is granted in part, and judgment is entered in favor of defendants on all of plaintiffs' remaining Clean Water Act claims, specifically: July 12, 1989; July 13, 1989; August 22, 1989; September 26, 1990; and April 15, 1991.

IT IS SO ORDERED.

Foot Notes

Footnote n1 References to defendants exhibits are to the exhibits attached to the July 1, 1993 affidavit of John W. Clarke, Esq. in support of the motion *sub judice* (Court document # 63).

Footnote n2 Karcheski stated only that he saw defendants' trucks twice that evening, and that the second time was "maybe an hour or so" after the first. Def.Ex. A at 4.

Footnote n3 In addition, even if Karcheski's testimony would support an inference that the April 15 discharge was not mere run-off, this discharge fell within the statutory exception for agricultural stormwater discharges, as discussed in detail *infra*.

Footnote n4 Title 33 U.S.C. ' 1342(l) does speak of "uncontaminated" industrial stormwater discharges, but that adjective is qualified in that the reference is to stormwater uncontaminated by contact with certain specific types of materials. Presumably, then, stormwater "contaminated" by contact with materials other than those listed is not covered by that section.

Footnote n5 Although Bly did not testify that the discharge was caused by rain, he apparently witnessed the discharge some time after the manure had been spread, since he said that he saw no tankers in the field at the time. His statement that water was flowing through the ditch also

suggests that he arrived after the rain had begun. Thus, his observations, as far as they went, were consistent with Hunt's.

Footnote n6 It should also be noted that the farm in *Carr* was held to be a "concentrated animal feeding operation," which *per se* made it a point source. 33 U.S.C. ' 1362(14). The court in *Carr*, therefore, was not faced with the question of whether the discharges were agricultural stormwater discharges.

In the instant case, I declined to give an instruction on concentrated animal feeding operations because the proof showed that crops were sustained over a portion of Southview Farm, which took it out of the definition of that term. 40 C.F.R. ' 122.23(b)(1).

Footnote n7 Rather than decide this issue after closure of the proof but before the case went to the jury, following clear Second Circuit directives, *see Mattivi v. South African Marine Corp. "Huguenot"*, 618 F.2d 163, 166 (2d Cir. 1980); *Gratian v. General Dynamics*, 587 F.2d 121 (2d Cir. 1978), I submitted the issues to the jury and left the matters to be resolved on post-verdict Rule 50 motions.

Footnote n8 Judge Oakes was in agreement with the majority on this point as well; he stated that "disposers of industrial and municipal waste . . . were the principal targets of the authors of the CWA . . ." 3 F.3d at 655.

Footnote n9 *See Plaza Health*, 3 F.3d at 652 n. 2 ("The cases and commentators all seem to assume that all water pollution is either point source pollution or nonpoint source pollution") (Oakes, J., dissenting); George A. Gould, *Agriculture, Nonpoint Source Pollution, and Federal Law*, 23 U.C.Davis L.Rev. 461, text accompanying n. 83 (1990) ("The Act does not define 'nonpoint source,' but theoretically this would include any water pollution not caused by a point source").

Footnote n10 For example, in enacting the irrigation exception, Congress appears to have shared the EPA's concern that regulation of irrigation return flows would place an "extraordinary burden" on the EPA, which would otherwise have faced the "spectre of millions of applications for permits . . ." *Natural Resources Defense Council*, 568 F.2d at 1377.

Footnote n11 *See* 2 William H. Rodgers, Jr., *Environmental Law: Air and Water* ' 4.9 at 124-25 (1986) (noting estimates suggesting that "nonpoint sources account for up to 99 percent of suspended solids and usually between 50 to 90 percent of other conventional pollutants"); Davidson, *supra*, text accompanying n. 10-11 ("[A]gricultural practices are the principal source of nonpoint source pollution . . .").

Footnote n12 *See* Gould, *supra*, text accompanying n. 57 (citing evidence that "half the nitrogen applied to fields does not reach the plants but enters streams and groundwater").