THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND

UNITED STATES OF AMERICA	*	
Plaintiff	*	
vs.	*	CIVIL ACTION NO. MJG-00-2602
WESTVACO CORPORATION	*	
Defendant	*	

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MEMORANDUM OF DECISION – REMEDY PHASE

This case has been proceeding to resolution in phases, discussed herein. In the instant Remedy Phase, the Court has heard evidence, reviewed exhibits, considered the materials submitted by the parties, and had the benefit of the arguments of counsel.

The Court now issues this Memorandum of Decision as its findings of fact and conclusions of law in compliance with Rule 52(a) of the Federal Rules of Civil Procedure. The Court finds the facts stated herein based upon its evaluation of the evidence, including the credibility of witnesses, and the inferences that the Court has found it reasonable to draw from the evidence.

I. INTRODUCTORY STATEMENT

In 1981, Westvaco Corporation ("Westvaco"),[1] operator of a kraft pulp and paper mill located in Maryland and West Virginia, decided to proceed with a major expansion project without obtaining a permit that this Court found to be required. Consequently, for some thirty years, the paper mill has emitted more pollutants than this Court has found that it should.

The Environmental Protection Agency ("EPA"), however, did not commence the instant law suit until the year 2000. While there may be a debate as to how much the EPA can be faulted for the delay in enforcement action, it is not faultless. The delay caused the Government to lose its ability to collect penalties from Westvaco. Moreover, the passage of time, and the 2005 sale of the paper mill by Westvaco to an innocent operator, have made it impracticable to issue a mandatory injunction requiring Westvaco to acquire control equipment and do the necessary construction to install it on the premises.

As discussed herein, the Court finds it appropriate to seek a method of remediation that can be implemented practicably without adverse impact upon the current owner of the paper mill. The Court shall, therefore, conduct further proceedings

[1] Reference to "Westvaco" herein is intended to include Westvaco Corporation and all predecessors in regard to the operation of the Luke Mill.

regarding the possibility of an injunction that would require Westvaco to obtain and utilize emissions credits to provide effective remediation for the excess emissions of pollutants it has caused.

II. BACKGROUND[2]

The Government has sought to have the Court impose pollution control obligations upon Westvaco due to its violation of the Clean Air Act ("CAA"). The Government contends that Westvaco made modifications during an expansion project at a paper production facility known as the Luke Mill without obtaining a preconstruction permit setting forth emission limitations.

A. The Luke Mill

The Luke Mill is a kraft pulp and paper production facility[3] that straddles the Maryland-West Virginia border (the Potomac River) in the area of Luke, Maryland. The papermaking activities are primarily in Maryland, where the digesters, washers, evaporators, bleach plants, power boilers, and paper

[2] More detailed statements of background are found in the Memorandum of Decision Re: First Phase [Document 230] and the Background Statement Re: Pending Summary Judgment Motions [Document 324].

[3] Kraft pulp mills are subject to regulation under the CAA. See 40 C.F.R. § 60.

machines are located. The rest of the mill, including the wood yard, lime kiln, and recovery areas, is located on the other side of the Potomac, in West Virginia.

For power to carry on its pulping and papermaking operations, the Luke Mill relies primarily on steam generated by two power boilers (referred to as Power Boilers 25 and 26), which burn coal to heat water and produce steam. The power boilers emit into the atmosphere, among other things, sulfur dioxide ("SO_2"), a pollutant regulated by the CAA.

The Luke Mill was, at all times relevant prior to May 2, 2005, owned by Westvaco. On that date, Luke Paper Company[4] ("LPC"), acquired the Luke Mill and commenced operating it.

B. Westvaco's Actions

On April 28, 1980, Westvaco initiated a series of development projects at the Luke Mill, known as the Digester Expansion Program ("DEP"), which included plans to rebuild and upgrade the emissions control system. The construction took place between March 29, 1981 and January 26, 1983.

Westvaco applied for, and received, a permit from the State of Maryland to construct the new digesters prior to commencing construction. However, Westvaco assumed that Prevention of

[4] A fully-owned subsidiary of NewPage Corporation ("NewPage").

Significant Deterioration ("PSD") permitting did not apply to the DEP project because SO_2 emissions would remain below the mill's ton-per-day emission limit[5] as contained in its Title V operating permit. Therefore, Westvaco neither applied for nor received a PSD permit from the EPA prior to implementing the DEP. The construction was completed without a PSD permit and without implementation of the Best Available Control Technology ("BACT")[6]. Westvaco proceeded to operate the mill within its operating permit. However, the permit did not include any PSD-based requirements or BACT-based emission limits.

C. Luke Paper Company

On May 2, 2005, LPC[7] became the owner and operator of the Luke Mill. In the Westvaco-LPC Equity and Asset Purchase Agreement (the "Purchase Agreement"), Westvaco retained responsibility for the design, construction, and installation of

[5] Also referred to as a "cap" on its tall-stack, the emissions limit initially was set at 49 tons-per-day at the time the project commenced and later increased to 66 tons-per-day. The EPA has never objected to the Luke Mill's SO_2 cap during a Title V permit review.

[6] BACT is defined in the CAA as "an emission limitation based on the maximum degree of [pollutant] reduction . . . which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for [the] facility . . . ." 42 U.S.C. § 7479(3).

[7] On September 7, 2011, LPC's parent corporation, NewPage (and its subsidiaries including LPC), filed for protection under Chapter 11 of the United States Bankruptcy Code.

any controls determined to be required as a result of this litigation.[8]

As discussed in the Memorandum and Order Re: Motion to Join [Document 279], the Court found it appropriate to add LPC as a party – Intervenor. Status as a party enabled LPC to participate in proceedings regarding matters relating to remedies pertaining to the ongoing operation of the Luke Mill.

C. Statutory Framework

The CAA amendments[9] enacted in 1970 were designed "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population." 42 U.S.C. § 7401(b)(1). According to the House Report on the 1970 Act, Congress intended to "speed up, expand, and intensify the war against air pollution in the United States with a view to assuring that the air we breathe throughout the Nation is wholesome once again." H.R. Rep. No.

[8] LPC had the obligation to operate such controls, but assumed no responsibility with respect to the defense or resolution of the action, specifically agreeing to not interfere in any way with Westvaco's defense or resolution of the litigation. On November 12, 2013, the Bankruptcy Court approved a settlement of adversary proceedings between Westvaco and NewPage, which provided for the rejection of certain aspects of the Purchase Agreement.

[9] Congress first passed the Clean Air Act in 1963.

91-1146, at 1 (1970), reprinted in 1970 U.S. Code Cong. & Ad. News 5356, 5356.

In 1970, Congress created the EPA and charged it with setting National Ambient Air Quality Standards ("NAAQS") for various harmful air pollutants[10] at levels necessary to protect the public health and welfare. 42 U.S.C. §§ 7401, 7409. The EPA must designate areas as "attainment" (meeting the EPA-set pollutant level), "nonattainment" (not meeting the EPA-set pollutant level), or "unclassifiable" for each NAAQS. Id. § 7407(d)(a)(A). The Act delegates to the states "primary responsibility for assuring air quality" within their respective boundaries and requires each state to develop a State Implementation Plan ("SIP"), "which will specify the manner in which [the NAAQS] will be achieved and maintained." Id. § 7410(a). A state submits its SIP to the EPA for review and approval whenever the NAAQS are updated. Id.

In 1977, Congress again amended the CAA and added the PSD provisions in order "to protect the air quality in national parks and similar areas of special scenic or recreational value, and in areas where pollution was within the national ambient standards, while assuring economic growth consistent with such

[10] Including sulfur dioxide, particulate matter, carbon monoxide, ozone, nitrogen oxide, and lead.

protection." Id. § 7470.[11] The PSD provisions establish requirements for preconstruction review and permitting of new or modified sources of air pollution. See id. § 7475. A PSD permit must be acquired before starting construction of a new major emitting facility or modification of an existing facility. Id. § 7475(a)(1)-(2).

A critical element of the PSD application review process is a determination that the proposed facility will be outfitted with best available control technology (BACT) for pollutants. Id. § 7475(a)(4). The restrictions on emissions included in a PSD permit are based on the determination of BACT. Id.

In addition to construction permits, facilities are required to have operating permits, which are regulated under CAA Title V[12] and are issued by state and local permitting authorities. Id. § 7661a(a). Title V makes it unlawful to operate major sources of air pollution "except in compliance with a permit issued by a permitting authority." Id. Title V permits do not generally impose new substantive air quality

[11] An important purpose of the PSD program is to ensure that NAAQS do not become a ceiling. See Sierra Club v. Thomas, 828 F.2d 783, 785 (D.C. Cir. 1987) ("The original focus of the Act was on bringing all regions of the country into compliance with the minimum air quality standards it established. In order to ensure that this air quality floor did not in effect become a ceiling, Congress in 1977 amended the Act by establishing the PSD program . . . .").

[12] Enacted in 1990 and codified at 42 U.S.C. §§ 7661-7661f (2000).

control requirements, but "consolidate into a single document (the operating permit) all of the clean air requirements applicable to a particular source of air pollution" including any applicable PSD emission limits. Sierra Club v. Johnson, 541 F.3d 1257, 1260-61 (11th Cir. 2008).

The EPA is charged with assuring compliance with environmental laws and taking enforcement action against violations. See 42 U.S.C. § 7413(a), (b); 42 U.S.C. § 7477 (providing that EPA "shall, and a State may, take such measures, including issuance of an order, or seeking injunctive relief, as necessary to prevent the construction or modification of a major emitting facility which does not conform to the requirements of this part"); see also Alaska Dep't of Envtl. Conservation v. EPA, 540 U.S. 461, 490 (2004) (noting that Congress "vested EPA with explicit and sweeping authority to enforce CAA 'requirements' relating to the construction and modification of sources under the PSD program").

D. Procedural Setting

On April 19, 1999, the EPA issued Westvaco a Notice of Violation[13] of the CAA pertaining to total reduced sulfur ("TRS") and SO_2 emissions at the Luke Mill. On August 28, 2000, the

[13] Pursuant to 42 U.S.C. § 7413(a).

Government brought this action contending, among other things,[14] that Westvaco had violated the CAA by making "major modifications" to the Luke Mill during two expansion projects without obtaining federal environmental permits or installing BACT.

The instant case has been proceeding to resolution in phases. The Court has heretofore made the following findings.

In the Memorandum of Decision Re: First Phase [Document 230]:

- The digesters and power boilers are part of a multi-part emissions unit that was physically changed and had its method of operation changed during the DEP.
- Power Boilers 25 and 26 were physically changed during the DEP.
- BACT requirements may apply to Power Boilers 25 and 26 if the changes made produced a significant change in emissions.
- Only Power Boiler 25 had the "potential to emit" as that term is defined in 40 C.F.R. § 51.166(b)(4).

[14] Initially, the Government asserted various federal and state law claims, seeking civil penalties and injunctive relief. The Court subsequently dismissed the Government's claims for civil penalties [Document 15], the Government's claims pertaining to operating modifications without a permit and state law claims relating to particulate matter violations [Document 71], and the Government's claim that Westvaco failed to apply for or obtain certain pre-construction permits and emissions offsets relating to nitrogen oxide emissions [Document 100].

In the Memorandum and Order Re Baseline Emissions [Document 247]:

- Prior to the DEP, the Luke Mill's baseline "actual emissions" of SO_2, as defined in the 1980 version of 40 C.F.R. § 52.21(b)(21), are equivalent to the average annual emissions rate, calculated using the emissions monitoring data or other records from the Luke Mill, over a two-year period which is representative of normal source operation.

In the Second Phase Decision Re: Baseline Period and Post-Change Emissions Determination [Document 252]:

> The baseline period for the determination of pre-change "actual emissions" is the two-year period from March 1979 to February 1981.

- The pre-change rate of "actual emissions" shall be determined by reference to the actual physical emissions of SO_2 during the baseline period. This resulted in a pre-change rate of "actual emissions" of 12,228.7 tons per year.[15]

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[15] Calculated as the average of annual actual emissions in the two-year baseline period, i.e., 11,003.7 (from March 1979 to February 1980) and 13,453.7 (from March 1980 to February 1981). See United States Opening Br. Ex. 6, ECF No. 265. From the same set of data, annual emissions for years following the baseline period are:

Mar. 1981 – Feb. 1982: 14420.5
Mar. 1982 – Feb. 1983: 15066.6
Mar. 1983 – Feb. 1984: 14055.6
Mar. 1984 – Feb. 1985: 13267.3

Id.

Annual SO_2 emissions for the years 1973 – 1978, prior to the baseline period, were approximately:

1973 – 18,834
1974 – 18,907
1975 – 16,571
1976 – 14,083
1977 – 14,636
1978 – 11,023

- Post-change rate of "actual emissions" shall be determined by reference to the post-change "potential to emit."

In the Memorandum and Order Re: Post-Change Potential to Emit [Document 282]:

- The Luke Mill's rate of post-change potential to emit is its maximum capacity to emit under its physical and operational design as limited by controls that are legally enforceable, that is, 17,885 tons per year.

- The Luke Mill's post-change potential to emit exceeds its pre-change rate of actual emissions (12,228.7 tons per year) by more than 40 tons per year.

- A PSD permit was required unless there were contemporaneous changes that would also decrease emissions, providing an opportunity to "net" out the differences.[16]

The case has proceeded to the instant remedy phase.

III. DISCUSSION

The Government seeks to have the Court issue an injunction ordering Westvaco to:

- Become compliant with the CAA by installing BACT controls on Power Boiler 25; and

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Ltr. From Gov't Counsel, Mar. 11, 2011 (derived from Def.'s Mot. For Determination on the Proper Standard for Measuring "Post-Change" Emissions and Normal Source Operations Ex. 6, ECF. No. 245-6).

[16] See 40 C.F.R. § 52.21(b)(3)(i) (defining "net emissions increase."). Westvaco subsequently advised the Court that it did not believe further proceedings were necessary with regard to "netting" issues. Def.'s Letter Jul. 18, 2011 [Document 285].

- Mitigate the harm that resulted from its violation by installing BACT controls on Power Boiler 24.

A. The Court's Power to Grant Injunctive Relief

The Court has determined that any claims for civil penalties are barred by the statute of limitations. See Memorandum and Order Re: Motion to Dismiss [Document 15] (holding that the CAA violation occurred at the time of modification and did not constitute continuing violations during the entire period of operation).[17] However, the Court concludes that it may provide for relief other than penalties.

Title 42 U.S.C. § 7413(b)(2006) provides, in pertinent part:

> Any action under this subsection may be brought in the district court of the United States for the district in which the violation is alleged to have occurred . . . such court shall have jurisdiction to restrain such violation, to require compliance . . . and to award any other appropriate relief.

See also United States v. Cinergy Corp., 582 F. Supp. 2d 1055, 1060-61 (S.D. Ind. 2008) (stating that nothing in the CAA

[17] A number of courts have adopted a minority position that each day a facility operates after a major modification without complying with preconstruction requirements is a new and separate violation of the CAA and federal regulations. See, e.g., Sierra Club v. Portland Gen. Electric Co., 663 F. Supp. 2d 983 (D. Or. 2009) (declining to adopt the majority position and holding that the PSD program applies to both construction and operation of a major source).

limits or restricts the full scope of the district court's equitable powers, and "unless otherwise specified by statute, a court has the equitable authority to order a full and complete remedy for harms caused by a past violation, and in doing so may go beyond what is necessary for compliance with the statute"), rev'd on other grounds, 623 F.3d 455 (2010).

In the Memorandum and Order Re: Equitable Relief [Document 326], the Court denied Westvaco's Motion for Summary Judgment based upon the contention that, in the instant case, equitable relief is unavailable. Westvaco seeks to have the Court reconsider this holding. The Court, having reconsidered the matter, again rejects the argument that it is powerless to issue any injunctive relief herein.

In United States v. Midwest Generation, LLC, 720 F.3d 644 (7th Cir. 2012), the Government sued the current owner of a facility for a CAA violation that had occurred many years prior to the time it became the owner. The Government amended the complaint to add the former owner as a party. The Midwest Generation court held that there was no basis for injunctive relief against either the current or former owner. 720 F.3d at 647. However, the basis of the decision is unclear. As to the former owner, situated similarly[18] to Westvaco in the instant

[18] Unlike the circumstances in Midwest Generation, Westvaco

case, the Midwest Generation decision may have been based upon a holding that injunctive relief is subject to the five-year period of limitations applicable to claims for civil fines, penalties, etc. 28 U.S.C. § 2462. However, it may not have been based upon that rationale.

As stated by Judge Simon in United States v. U.S. Steel Corp, 16 F. Supp. 3d 944, 950 (N.D. Ind. 2014):

> Midwest Generation doesn't discuss the concurrent remedy doctrine or the equitable defense of laches and their inapplicability to the government. So, candidly, it is a little difficult to understand the basis for the statements in Midwest Generation that even claims for injunctions have to be brought within five years. But that is what Midwest Generation appears to mandate. And in a hierarchical system of courts, my job as a trial judge is to do as my superiors tell me.

This Court, not bound by Midwest Generation, does not find the decision persuasive and will not follow the result.

In United States v. EME Homer City Generation, L.P., 727 F.3d 274 (3d Cir. 2013), the Government sued both the current and former owners of a facility. The Third Circuit did not adopt the Midwest Generation view that the five year limitations period barred injunctive relief. However, the EME Court held

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was still the owner of Luke Mill at the time the action was filed against it.

that a pre-litigation transfer of ownership barred injunctive relief against the transferor, stating:

> If the EPA does not object within five years of the completion of a facility's modification, then it loses the right to seek civil penalties under the statute of limitations, but can still obtain an injunction requiring the owner or operator to comply with the PSD requirements. But when more than five years have passed since the end of construction and the facility has been taken over by new owners and operators, the Clean Air Act protects their reasonable investment expectations.

727 F.3d at 289.

In the instant case, Westvaco, the party that violated the CAA, continued to own and operate the facility until some five years after the suit was filed. Hence, the issue here presented is whether a culpable defendant may, after suit is filed, effectively immunize itself from any consequences for its violation.

The Court concludes that, despite the transfer of ownership of the Luke Mill, it has the power to provide remedial injunctive relief against Westvaco. However, the transfer of ownership is a circumstance that must be considered in regard to the fashioning of any "appropriate relief."

B. Should There Be No Injunctive Relief?[19]

"An injunction is a matter of equitable discretion; it does not follow from success on the merits as a matter of course." Winter v. NRDC, Inc., 555 U.S. 7, 32 (2008) (citing Weinberger v. Romero-Barcelo, 456 U.S. 305, 313 (1982)). The Supreme Court has articulated a four-factor test to govern the decision whether to grant or deny injunctions in cases arising under federal statutes:

> According to well-established principles of equity, a plaintiff seeking a permanent injunction must satisfy a four-factor test before a court may grant such relief. A plaintiff must demonstrate: (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public

[19] In the instant case, the injunctive relief being requested is mandatory (ordering an affirmative act) rather than prohibitory. "The distinction between these two categories of injunctive relief can best be summed up as follows: a prohibitory injunction is used to prevent a future injury, but a mandatory injunction is used to remedy past injuries." State ex rel. Gen. Motors Corp. v. Indus. Comm., 884 N.E.2d 1075, 1079 (Ohio 2008). Generally, courts are more reluctant to grant a mandatory injunction, and the requirements are stricter than for a prohibitory one. See Calvary Christian Center v. City of Fredericksburg, 800 F. Supp. 2d 760, 765 (E.D. Va. 2011) (citing Wetzel v. Edwards, 635 F.2d 283, 286 (4th Cir. 1980)); see also 11A Charles Alan Wright & Arthur R. Miller, Federal Practice & Procedure § 2942 (2d ed.)(noting that although courts are more reluctant to grant injunctions compelling the doing of some act, it is an equitable tool used whenever circumstances warrant).

> interest would not be disserved by a permanent injunction.

eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 391, (2006).

The Court shall address the eBay factors in turn.

1. Irreparable Harm & Inadequate Remedy at Law

"Environmental injury, by its nature, can seldom be adequately remedied by money damages and is often permanent or at least of long duration, i.e., irreparable. If such injury is sufficiently likely, therefore, the balance of harms will usually favor the issuance of an injunction to protect the environment." Amoco Prod. Co. v. Vill. Of Gambell, 480 U.S. 531, 545 (1987); accord Nat'l Audubon Soc'y v. Dep't of Navy, 422 F.3d 174, 201 (4th Cir. 2005).

Westvaco contends that the Government has not shown that the permit violation caused more than a de minimus impact to the environment. Westvaco's argument relies primarily on two contentions:

- The Luke Mill has been in compliance with all permits such that emissions are constrained within a level protective of public health and welfare as approved by the EPA, so that there have been no emission in excess of what was permissible, and
- Even if there were any excess emissions, the harmful effects were de minimis.

a. Operating Permit Compliance

Westvaco argues that there is no requirement to bring Luke Mill into compliance with the CAA, because it is in full compliance with its operating permit, which incorporates all regulatory obligations including the approved SO_2 cap. In approving the 66 ton-per-day SO_2 cap, the EPA found that "the modeling analysis submitted by Maryland is adequate to justify both protection of the SO[2][ambient air quality standards] and protection of the applicable PSD increments . . . ." Approval and Promulgation of Implementation Plans; Approval of Revision of the Maryland State Implementation Plan, 49 Fed. Reg. 49,457, 49,459 (Dec. 20, 1984). Westvaco contends that since the EPA would not have approved the SO_2 66 ton-per-day cap unless it had been confident that SO_2 emissions of that amount would not harm the public health or welfare, there can be no finding of harmful excess emissions.

It is true that the Luke Mill is – and has been – in compliance with its Title V operating permit. However, the Court has found that Westvaco was required to obtain a PSD permit for the DEP, and did not. An emissions limit set as part of the PSD permitting process is an obligation separate from, and not limited by, the source's obligation to operate within the SO_2 cap. See United States v. Cinergy, 618 F. Supp. 2d 942,

964 (S.D. Ind. 2009) rev'd on other grounds, 623 F.3d 455 (2010).

While PSD permits are construction permits, they are conditioned upon the pre-construction review and determination of BACT for the facility. A determination of BACT means the setting of an emissions limitation "based on the maximum degree of reduction" determined on a case-by-case basis to be achievable for the source, "taking into account energy, environmental, and economic impacts." 40 C.F.R. § 52.21. This emissions limit is then incorporated into the Title V operating permit.

If a source has not complied with the obligation to obtain a PSD permit, as here, the Title V operating permit does not include the BACT emissions limit that would otherwise have been required. This means that the source could release impermissibly high emissions until such time as BACT controls are defined and incorporated. Thus, even though the violation (the failure to obtain a permit) itself is not ongoing, the Luke Mill, for more than thirty years, has been emitting more than it would have in the absence of the violation.

Westvaco asserts that if it had known that the DEP would trigger a PSD review and BACT emissions limits, it would have altered the project in order to avoid triggering PSD. However,

Westvaco pursued the DEP taking the chance that it could avoid a PSD review. "This was a risky strategy," because Westvaco could have been subjected to hefty penalties. Midwest Generation, 720 F.3d at 646. Since Westvaco was not sued until after the limitations period had run, it has not been subjected to penalties. Nevertheless, it must suffer the consequences of the action it chose to take – even if these, or some of these, might have been avoided had it taken a different course of action.

Because Westvaco chose to proceed without PSD review, it was able to operate subject to an emissions limit higher than it should have been.

The fact that Westvaco was in compliance with its operating permit does not require a finding that there were no excess harmful emissions. The Court finds that there were excess emissions.

b. Was There Only a De Minimis Effect?

Even if the Court were to accept Westvaco's operational permit compliance theory, Westvaco caused excess pollutant emissions from the Luke Mill. Trial Tr. 157:3-21, Dec. 21, 2012 On Westvaco's theory, the excess would constitute the amount of SO_2 emitted in excess of the number of tons per day allowed by the operational permit.

Based on Westvaco's own estimate, there were excess SO_2 emissions of about 16,000 tons through 2011, an average of 570 tons per year. Pl.'s Ex. 705. Thus, even if the Court were to find the amount of excess emissions of SO_2[20] to be no more than Westvaco concedes,[21] these exceeded the EPA's PSD significance level of 40 tons per year. See 40 C.F.R. § 52.21(b)(23)(i) (defining significance level for sulfur dioxide).

Accordingly, the Court finds that Westvaco caused excess emissions in a greater than de minimus amount by virtue of its failure to obtain a PSD permit and install BACT.

c. The Excess Emissions Caused Harm

The Court finds that excess emissions of SO_2 into the atmosphere are attended by increased harm due to acid deposition, visibility impairment, and other health and welfare impacts. Sources, such as the Luke Mill, that emit SO_2 contribute to the formation of secondary particles, including fine particulate matter ("PM2.5").[22] Both SO_2 and PM2.5 pose

[20] In addition, there were excess mercury emissions as a result of the failure to install BACT. See Trial Tr. 141:3-143:16, Dec. 11, 2012 (discussing estimation of mercury emissions).

[21] The issue of the amount of excess emissions is addressed hereinafter.

[22] SO_2 gas converts to a sulfate particle when it combines with other constituents in the environment, such as ammonia. Trial Tr. 123:16-20, 134:23-135:7 (Dec. 12, 2012; Trial Tr. 108:10-15

adverse risks to the environment and to human health. Trial Tr. 163:4-16 (Dec. 17, 2012); Pl.'s Ex. 496; see also N. Carolina ex rel. Cooper v. Tennessee Valley Auth., 593 F. Supp. 2d 812, 821-22 (4th Cir. 2009) (describing the harm caused by SO_2 pollution and finding that "PM2.5 exposure has significant negative impacts on human health, even when the exposure occurs at levels at or below the NAAQS"), rev'd on other grounds, 615 F.3d 291 (4th Cir. 2010).

The majority scientific consensus, accepted by the Court, is that the harm from exposure to PM2.5 is linear, and there is no known threshold below which PM2.5 is not harmful to human health. Trial Tr. 32:13-33:4, 40:2-13, 81:15-25, 84:7-86:7 (Dec. 14, 2012); Trial Tr. 181:3-10 (Dec. 17, 2012). In addition to the impact on human health, PM2.5 contributes to acid deposition, which has negative effects on streams and soils, causing them to become more acidic. Trial Tr. 114:17-115:19 (Dec. 13, 2012). Plant and tree health then suffers and aquatic life suffers. Pl.'s Ex. 415. Emissions of SO_2 and mercury have negatively impacted park and wilderness areas, including Shenandoah National Park, Dolly Sods and Otter Creek wilderness areas, and the Central Appalachian Mountain Region.

(Dec. 13, 2012). Sulfate particles that are smaller than 2.5 microns in diameter are an air pollutant known as fine particulate matter ("PM2.5"). Trial Tr. 131:3-12 (Dec. 12, 2012).

The Court accepts the Government's evidence establishing that PM2.5 and SO_2 negatively impact visibility by causing a haze in the air, and that mercury emissions negatively impact the ecosystem.

Of course, a precise determination of the adverse environmental effect is impossible. Nevertheless, the Court finds the evidence has proven that, at a minimum, the excess emissions from the Luke Mill caused negative health effects, an increased risk of premature mortality to humans exposed to PM2.5, and harm to the environment, including harm to aesthetic or recreational interests, and harm to nonhuman interests, such as plants, animals, and ecosystems.

There is no adequate remedy at law available in the instant case for the damaging effects of the pollutants emitted by the Luke Mill. The pollutants cannot be recaptured, and an award of money damages would not adequately compensate for the harm to human health and the environment.

Accordingly, the Court finds that the Government has established that irreparable harm has occurred, continues to occur, and that there is no adequate remedy at law.

2. Balance of Hardships & Public Interest

When evaluating injunctive relief, traditional equitable analysis requires the balancing of harms among affected parties including an assessment of the public interest.

a. The Public Interest

In the instant case, the Government represents, and presents arguments on behalf of, the public interest.

> The public has a strong interest in maintaining the balance Congress sought to establish between economic gain and environmental protection. While it is true that these statutes contemplate a certain amount of environmental degradation, they also mandate a certain amount of economic loss. Economic gain is not [to] be pursued at all costs, and certainly not when it is contrary to the law. The Court must ensure that it does not itself upset the balance struck by Congress. While considering the other impacts an injunction will have on the public interest, the Court must be conscious of its proper role—to interpret the law as handed down by Congress, not to rewrite it.

Ohio Valley Envtl. Coal. v. U.S. Army Corps of Eng'rs, 528 F. Supp. 2d 625, 633 (S.D.W. Va. 2007).

There is no doubt that, as the Government asserts, reducing the risk of harm to human health and the environment is in the public interest. Congress specifically found that "reduction of total atmospheric loading of sulfur dioxide and nitrogen oxides will enhance protection of the public health and welfare and the

environment." 41 U.S.C. § 7651(a)(6). The public also benefits from ensuring that the policies of federal law are enforced and upheld. There appears to be no public interest in having the Court decline to issue any injunctive relief.

Westvaco contends that it made good faith efforts to comply with the law, which outweigh what it asserts were minimal negative effects to the environment.

The Court finds that the public interest would be served, not disserved, by the granting of injunctive relief.

b. Intervenor's (LPC's) Interests

When balancing the competing interests pertinent to a grant of injunctive relief, the Court must consider the interests of the current owner and operator of the Luke Mill, LPC. See, e.g., Hunt Bldg. Co., v. United States, 61 Fed. Cl. 243, 280 modified, 63 Fed. Cl. 141 (Fed. Cl. 2004); High Sierra Hikers Ass'n v. Moore, 561 F. Supp. 2d 1107, 1113 (N.D. Cal. 2008).

LPC had nothing whatsoever to do with Westvaco's violation. LPC did not operate, did not own and, insofar as appears, had no particular interest in the Luke Mill until some 20 years or more after Westvaco's violation. Moreover, while the instant litigation was addressed in the Purchase Agreement, LPC did not assume liability for any sanction that may be imposed on

Westvaco.[23] See Memorandum and Order Re: Motion to Join [Document 279].

Certainly, LPC has an interest in having the Court fashion any injunctive relief against Westvaco so as to avoid adverse effects upon its continuing operation of the Luke Mill. However, LPC has no cognizable interest in having the Court decline to issue any injunctive relief at all.

c. Westvaco's Interests

Westvaco is a publicly-traded company with its stock listed on the New York stock exchange. Westvaco has approximately $9 billion in assets, $3.3 billion in equity, $1 billion in working capital, has had $600 to $700 million in cash flow in recent years, and has paid tens of millions of dollars per year to its shareholders in dividends in recent years. Trial Tr. 30:12-19, 33:12-25, 35:12-24, 38:1-12, Dec. 18, 2012. Westvaco will not be unduly harmed by the cost of compliance with any injunctive relief that the Court might issue in the instant case.

Westvaco does, however, have a cognizable interest in having the Court eschew an injunction imposing unreasonable compliance obligations.

[23] In the Purchase Agreement, Westvaco retained responsibility for the design, construction, and installation of any controls determined to be required.

3. The Balance of Equities

The Court finds that the balance of the equities favors the grant of an injunction requiring remedial action by Westvaco.

C. What Injunctive Relief to Grant?

"There is no power the exercise of which is more delicate, which requires greater caution, deliberation, and sound discretion, or more dangerous in a doubtful case, than the issuing [of] an injunction . . . ." Bonaparte v. Camden & A.R. Co., 3 F. Cas. 821, 827 (C.C.D.N.J. 1830).

An equitable remedy is one that is necessary, fair, and workable, and it may not be punitive. See Weinberger, 456 U.S. at 310-12.

1. Remediation by BACT Control on Power Boiler 25

The Government seeks to have the Court require Westvaco to install BACT level (state of the art) emission controls on Power Boiler 25.

a. The BACT Level

Westvaco contends that the relevant BACT level would be the level that would have been set in 1981, the time that the permit

should have been obtained. The Government contends that the relevant BACT level would be based upon contemporary circumstances. The Court agrees with the Government that, if it were to proceed to require equipment to meet a BACT level standard, that standard would be based upon contemporary circumstances.

An actual BACT determination is the result of an administrative process. The Court cannot, realistically, issue an injunction that would require an actual BACT administrative determination. Such a process would commence with an application for a PSD permit. Westvaco, although a party in interest in regard to the BACT determination, does not own the Luke Mill and cannot apply for a PSD permit and obtain a BACT determination for the property. If LPC were, voluntarily or pursuant to Court Order, to file an application, there would be substantial, if not insurmountable, judicial management problems. For example, since Westvaco would be affected by the BACT level determined by the permitting authority, it would appear to have a right to participate in (if not to control) the interaction between LPC and the permitting authority leading to the BACT determination.

The Court could, perhaps, based on the evidence provided, make a reasonable estimate of the BACT standard that would be

determined by a currently conducted BACT administrative proceeding.

The parties appear to agree that current BACT would be based on a type of dry lime scrubber using the Circulating Fluidized Bed ("CFB") process but disagree on the proper measure for the scrubber's removal efficiency. See Trial Tr. 58:15-20, Dec. 11, 2012; Trial Tr. 8:25-9:3, Jan 14, 2013. The Government asserts that a top-down analysis would result in a limit based on 95% removal efficiency,[24] whereas Westvaco contends that the analysis would have the same result as the BART[25] analysis, i.e., 90% removal efficiency.

However, assuming that the Court were to find the pertinent BACT level, the judicial management problems would not be resolved.

Were Westvaco the current owner and operator of the Luke Mill, providing injunctive relief would not be unduly complex. The Court would be able to order Westvaco to install equipment

[24] In 2004, Jacobs Engineering completed a study for Westvaco to evaluate the feasibility and cost of installing SO_2 scrubbers on the Luke Mill power boilers. See Pl.'s Ex. 358. Jacobs concluded that BACT for the Luke Mill boilers would be a limit based on 95% control.

[25] BART refers to Best Available Retrofit Technology. A recent determination of state-of-the-art pollution technology controls by a permitting authority is the 2010 BART limit of .44 lbs./mmBTU. Pl.'s Ex. 351. This BART limit was based on 90% removal efficiency. Id. at USWR_00037319.

that would meet the standard and Westvaco would[26] obtain the equipment, design the installation, and meet the requirement. But Westvaco is not the owner and operator and cannot itself decide upon the equipment and installation to be placed on the premises.

b. The Equipment and Installation to Require

There would be substantial – seemingly insurmountable as a practical matter – problems presented in regard to the Court's determination of the precise equipment and installation to require.

Of course, there would be ample room for debate as to the relative merits of different equipment and installation options. Moreover, there is an inevitable conflict between Westvaco and LPC, the current owner and operator of the Luke Mill. Westvaco would wish to provide the equipment and installation at the lowest possible initial cost (that it would pay) regardless of the future operating expense that would be borne by LPC. And LPC would wish to have Westvaco required to provide equipment and installation that would have the lowest possible future operation expense regardless of the initial cost that would be borne by Westvaco. Furthermore, decisions as to the details of

[26] No doubt, after exhausting all possible appellate rights.

installation will require resolution by the Court of disputes relating to the extent of disruption of the current Luke Mill owner's ongoing operation and flexibility as to future changes.

In sum, the Court shall not exercise its discretion to issue an injunction that would require Westvaco to install controls on Power Boiler 25.

2. Alternative Remediation

While the Court shall not require Westvaco to install controls on Power Boiler 25 to remedy the excess emissions from that boiler, it may impose an alternative remediation obligation to mitigate the harm caused by its violation.

The Court considers three factors when it evaluates remediation or restoration proposals: "(1) whether the proposal 'would confer maximum environmental benefits,' (2) whether it is 'achievable as a practical matter,' and (3) whether it bears 'an equitable relationship to the degree and kind of wrong it is intended to remedy.'" United States v. Deaton, 332 F.3d 698, 714 (4th Cir. 2003) (quoting United States v. Cumberland Farms of Conn., Inc., 826 F.2d 1151, 1164 (1st Cir. 1987)). Notably, a restorative injunction "does not seek compensation unrelated to or in excess of the damages caused by [defendant's] acts."

United States v. Telluride Co., 146 F.3d 1241, 1246 (10th Cir. 1998).

a. Control on "Innocent" Power Boiler

The Government seeks to have the Court order Westvaco to install control technology on a totally "innocent"[27] boiler, Luke Mill's Power Boiler 24.

Of course, a future reduction of emissions from Power Boiler 24 would provide some future environmental benefits. However, an order requiring Westvaco to install emissions controls on Power Boiler 24 would present the same type of practical difficulties as discussed with regard to Power Boiler 25.

The Court shall not issue an injunction requiring Westvaco to install controls on Power Boiler 24.

b. Emissions Credits

The Court may be able to issue an injunction that provides a reasonable degree of remediation through the purchase and retirement of emissions credits. It appears likely that such an injunction could be drafted to:

[27] There were no allegations that Westvaco's Power Boiler 24 violated PSD regulations.

- Confer the maximum reasonably feasible environmental benefits,
- Be achievable as a practical matter,
- Bear an equitable relationship to the degree and kind of wrong it is intended to remedy, and
- Avoid providing punishment rather than remediation.

Deaton, 332 F.3d at 714; Telluride, 146 F.3d at 1246.

3. Further proceedings

The Court finds it necessary to conduct further proceedings, including – as may be necessary - the presentation of additional evidence, regarding remedial injunctive relief utilizing emission credits.

At present, it appears that the following matters, among others, would be pertinent:

- The nature, function, availability, and use of emissions credits.
- A reasonable estimate of the excess emissions[28] for which remediation is warranted.
    - o The types of emissions.
    - o The relationship between excess emissions and credits required for remediation. For example, regarding the type of emission, the quantity of excess emissions and quantity of remedial credits.

[28] The Court has received, in the instant remedy phase, evidence regarding the amount of excess emissions that would not need to be repeated, but may require supplementation.

IV. CONCLUSION

For the foregoing reasons:

1. The Court finds that the Government has established that irreparable harm has occurred, continues to occur, and that there is no adequate remedy at law.
2. The Court finds that the balance of the equities favors the grant of an injunction requiring remedial action by Westvaco.
3. The Court shall not exercise its discretion to issue an injunction that would require Westvaco to install controls on Power Boiler 25.
4. The Court shall not exercise its discretion to issue an injunction that would require Westvaco to install controls on Power Boiler 24.
5. The Court shall consider imposing an alternative remediation obligation to mitigate the harm caused.
6. The Court finds it necessary to conduct further proceedings, regarding remedial injunctive relief utilizing emission credits.
7. Plaintiff shall arrange a telephone conference to be held by March 31, 2015 to discuss further proceedings herein.

SO ORDERED, on Thursday, February 26, 2015.

/s/
Marvin J. Garbis
United States District Judge