No. 18-1173

IN THE UNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT

SIERRA CLUB; WEST VIRGINIA RIVERS COALITION; INDIAN CREEK WATERSHED ASSOCIATION; APPALACHIAN VOICES; and CHESAPEAKE CLIMATE ACTION NETWORK,
Petitioners,

v.

UNITED STATES ARMY CORPS OF ENGINEERS; MARK T. ESPER, in his official capacity as Secretary of the U.S. Army; TODD T. SEMONITE, in his official capacity as U.S. Army Chief of Engineers and Commanding General of the U.S. Army Corps of Engineers; PHILIP M. SECRIST, in his official capacity as District Commander of the U.S. Army Corps of Engineers, Huntington District; and MICHAEL E. HATTEN, in his official capacity as Chief, Regulatory Branch, U.S. Army Corps of Engineers, Huntington District;
Respondents.

On Petition for Review of an Action of the U.S. Army Corps of Engineers

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FEDERAL RESPONDENTS' OPPOSITION TO PETITIONERS' SECOND MOTION TO STAY AGENCY ACTION

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INTRODUCTION

Mountain Valley Pipeline, LLC ("MVP") proposes to construct a pipeline that will carry natural gas from West Virginia to Virginia. The Pipeline will cross a number of streams, rivers, and wetlands, and these water crossings must be authorized by a permit issued by the U.S. Army Corps of Engineers. Here, MVP proposes to proceed under Nationwide Permit 12 ("NWP 12"), and the Corps verified that MVP's activities would be authorized by that permit.

On May 15, 2018, Petitioners notified the Corps of their view that four of the river crossings did not meet one of the conditions of NWP 12 in West Virginia. The Corps responded on May 21 that it considered that issue worthy of reconsideration and that it would suspend its verifications of those crossings while it ensured that MVP would be able to comply with the Nationwide Permit, and it granted that stay on May 22. *See* Corps Ex. 1. The Corps' administrative stay represents a balanced approach to address Petitioners' newly-raised issue. The Corps will require MVP to comply with the Clean Water Act in constructing the disputed river crossings, even if that requires it to suspend, modify, or revoke the verifications. During that process, work should be allowed on the crossings that are not affected by the issue Petitioners have raised. The Court should defer to the Corps' management of these issues while its administrative reconsideration continues, but even if the Court balances the equitable factors itself, those factors point to the same conclusion that the Corps has already reached.

LEGAL AND FACTUAL BACKGROUND

A. The Mountain Valley Pipeline

The proposed Mountain Valley Pipeline is a 303.5-mile natural gas pipeline that will connect areas of natural gas production in the Appalachian Basin with markets in the Northeast, Mid-Atlantic, and Southern United States. *See* Environmental Impact Statement ("EIS") at ES-2 (Corps Ex. 2). Under the Natural Gas Act, 15 U.S.C. § 717 et seq., the Federal Energy Regulatory Commission ("FERC") is the federal agency responsible for authorizing such pipelines. *See AES Sparrows Point LNG v. Wilson*, 589 F.3d 721, 724 (4th Cir. 2009). FERC exhaustively studied the environmental effects of the proposed pipeline in an Environmental Impact Statement published in June 2017. *See* EIS Executive Summary (Corps Ex. 2). Six other federal agencies (including the Corps) and two West Virginia state agencies acted as cooperating agencies in their areas of expertise.

The EIS prepared by FERC and the other agencies supports many different federal permits and approvals that are necessary for the construction of the Pipeline. Those actions are directly reviewable in this Court under the Natural Gas Act, 15 U.S.C. § 717r(d)(1). The Corps action at issue here is one small part of the extensive federal and state oversight for the Pipeline.[1]

[1] This Court has already rejected several other attempts to obtain preliminary relief to stop Pipeline construction, including one previous attempt in this case.

The Pipeline route crosses rivers, streams, and wetlands. MVP originally proposed to use a "wet open-cut" method to cross several rivers, including the rivers at issue here. The "wet open-cut" method would involve trenching in flowing water, with an estimated crossing duration of two days. *See* Draft EIS at 4-176 (Corps Ex. 3). Petitioners, through their counsel here, objected that the "wet open-cut" method would release too much sediment. *See* Final EIS at AR 8785-87 (Corps Ex. 2) (Response to Comments). At the Corps' urging, MVP revised its plan to construct those crossings using "dry construction techniques" that "should reduce downstream turbidity and sedimentation." *Id.* at ES-6, 4-119 to 4-120. While the "typical crossing would be completed in less than 48 hours," the EIS noted that the crossings at issue here would require the installation of temporary cofferdams and that only half of each crossing could be constructed at a time. *Id.* at 2-44, 4-120, 4-139, 4-317, F6-2.[2]

B. Nationwide Permits under the Clean Water Act

Where the proposed pipeline construction will occur in "waters of the United States," it is subject to the requirements of the Clean Water Act, which prohibits the discharge of any dredged or fill material into those waters without a Corps permit. *See* 33 U.S.C. §§ 1311(a), 1344(a). Under Section 404 of the Act, 13 U.S.C. § 1344, the

[2] A cofferdam is a temporary structure installed in a waterbody to isolate a portion of the work area, allowing construction to proceed under dry conditions. *See* EIS at 2-44 (Corps Ex. 2). MVP proposes to use Portadams, which are a kind of cofferdam.

Corps may issue two types of permits. *See Crutchfield v. County of Hanover*, 325 F.3d 211, 214 (4th Cir. 2003). Individual permits authorize specific activities on a case-by-case basis. *See* 33 U.S.C. § 1344(b); 33 C.F.R. Parts 323, 325. General permits identify a type of activity that "will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effect on the environment." 33 U.S.C. § 1344(e)(1); 33 C.F.R. § 323.2(h)(1). Permittees may choose to structure their activities to fit within the terms and conditions of a general permit, avoiding the time and expense of applying for an individual permit.

Nationwide Permits are general permits that provide a "standing authorization" under Section 404 of the Act, provided that the project proponent continues to comply with the terms and conditions of the permit as it carries out those activities. *See Crutchfield*, 325 F.3d at 214; 33 C.F.R. §§ 320.1(c), 330.1(c). The Corps issues or reissues Nationwide Permits every five years, most recently in 2017. *See* 82 Fed. Reg. 1860 (Jan. 6, 2017). Nationwide Permit 12 ("NWP 12") is at issue in this case. That permit authorizes activities "required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States," subject to an acreage limit for each "single and complete project." *Id.* at 1985.

Some activities authorized by NWP 12 are subject to a process known as "pre-construction notification." *See id.* at 2003 (General Condition 32); *id.* at 1986 (NWP 12); *see also Crutchfield*, 325 F.3d at 214-15. The pre-construction notification

requirement provides an opportunity for the Corps "to ensure that the activity complies with the terms and conditions of the NWP" and that the impacts on "the aquatic environment and other aspects of the public interest are individually and cumulatively minimal." 33 C.F.R. § 330.1(e)(2).

Activities authorized under a Nationwide Permit may also be subject to two kinds of "regional conditions." First, the Corps may impose additional conditions on an NWP to restrict or prohibit its use in a particular region. *See id.* at §§ 330.1(d); 330.5(c). Second, the state in which the project is located may impose special conditions under Section 401 of the Act, 33 U.S.C. § 1341. *See also* 33 C.F.R. 330.4(c)(1). That provision allows the state to "certify" the Corps' Nationwide Permits for use within the state subject to any "special conditions" that the state deems appropriate to protect water quality. Those conditions become "regional conditions of the NWP . . . in that state." *Id.* § 330.4(c)(2).

West Virginia certified the Corps' 2017 reissuance of Nationwide Permits on April 13, 2017. One of the conditions of West Virginia's certification, Special Condition C, requires that individual stream crossings (with some exceptions) be completed within 72 hours. *See* Pet. Ex. 3 at 4-6. Special Condition C was also a condition, in some form, of all previous versions of NWP 12 that were in place during environmental review of the Pipeline.

C. The Corps' verifications and reconsideration of the MVP project

If pre-construction review indicates that a proposed project will comply with the terms and conditions of a Nationwide Permit, including any special conditions, the Corps may issue a "verification" that the project meets the applicable terms and conditions. 33 C.F.R. § 330.6(a). On December 22, 2017, the Corps issued the Verification Letter that Petitioners challenge here. The Corps found that the discharge of dredged or fill material into waters of the United States associated with Pipeline construction would meet the criteria for NWP 12, provided that MVP complied with the terms and conditions stated in the verifications, including West Virginia's Special Condition C. *See* Pet. Ex. 3 at 4.

After receiving the administrative record in this case, Petitioners notified the Corps of a possible issue with the Corps' verification. *See* Pet. Ex. 1. The construction method that MVP intends to use to comply with FERC's approval is likely to take more than 72 hours for some crossings, including four crossings to which Special Condition C applies. *See infra* pp. 9-10.[3] Petitioners requested that the Corps stay the entire Verification Letter and seek voluntary remand and vacatur from this Court, followed by "such further action as the record in this case requires." Pet. Ex. 1 at 5.

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[3] For convenience, this Response refers to these four river crossings as the "major crossings" and the other crossings as "smaller crossings." Those are not terms of art that have independent meaning under the Act.

The Corps has now agreed to reconsider its decision. *See* Corps Ex. 1. In response to Petitioners' letter, it invoked the procedures of 33 C.F.R. § 330.5(d)(1). *See also id.* § 330.6(a)(3)(iv). Those procedures give the District Engineer "discretionary authority to modify, suspend, or revoke a case specific activity's authorization under an NWP," including for "significant objections to the authorization not previously considered." *Id.* § 330.5(d)(1). That process includes informal consultation with MVP, during which MVP may demonstrate that it can comply with Special Condition C. *Id.* § 330.5(d)(2)(i). Although the Corps may choose to conduct informal consultation before it suspends its verification, *see id.*, the Corps here chose immediately to suspend its verifications for the four major crossings that Petitioners identified. *See* Corps Ex. 1. If MVP cannot demonstrate that Nationwide Permit verifications were appropriate, the Corps may revoke the Verification Letter either in part or in full. 33 C.F.R. § 330.5(d)(2)(iii).

Petitioners' opening brief in this case was filed on May 25, the Corps and MVP must respond by July 12, and the Court has set the case for its September 25-28, 2018 calendar.

STANDARD OF REVIEW

A stay of agency action pending judicial review "is not a matter of right," but is "an exercise of judicial discretion." *Nken v. Holder*, 556 U.S. 418, 433 (2009) (quoting *Virginia Ry. Co. v. United States*, 272 U.S. 658, 672-73 (1926)). A stay must be based on consideration of four factors: (1) whether the petitioner has made a "strong showing

that he is likely to succeed on the merits"; (2) whether the petitioner will be "irreparably harmed" in the absence of a stay; (3) whether a stay would substantially injure the other parties interested in the agency's proceeding; and (4) "where the public interest lies." *Id.* at 434 (quoting *Hilton v. Braunskill*, 481 U.S. 770, 776 (1987)).

ARGUMENT

Petitioners' Motion arrives at the Court at an inopportune time for judicial resolution. At Petitioners' request, the Corps has begun an administrative reconsideration of its Verification Letter, and it is constrained in arguing the merits of this issue until that reconsideration is complete. The Corps has moved quickly, agreeing to suspend the verifications for the four major river crossings less than a week after Petitioners first notified the Corps of the issue. That suspension has the same effect as an administrative stay of the verifications for those crossings. At the end of that process, the Corps will either reinstate, revise, or revoke the Verification Letter. *See* 33 C.F.R. § 330.5(d)(2)(ii). There is no need for the Court to provide relief that the agency itself may soon grant. Instead, the Court should deny the Motion without prejudice to its re-filing when the Corps has reached a final decision—assuming, of course, that there is still a live issue at that time. The prospect of harm to Petitioners is mitigated by the Corps' partial stay, and the public interest favors allowing construction of the many river crossings that (all parties agree) would conform to NWP 12.

A. Petitioners' delay in raising their argument is sufficient to deny the Motion.

Petitioners previously filed a motion for preliminary relief in this case, focused solely on a different issue, and this Court denied that motion. Petitioners could properly file a new motion only if it were based on "new facts," Pet. Mot. at 14, but the present Motion depends on facts that are not new and could have been presented in their first motion.

Petitioners knew (or should have known) that the major crossings would require more than 72 hours of work well before receiving the Corps' administrative record in this litigation. FERC's final EIS, published in June 2017, explained how MVP would cross the rivers at issue here. Although it did not estimate the crossing duration, the EIS noted that a wet open-cut crossing or a typical dry open-cut crossing might last approximately 48 hours, and that the use of a "dry open-cut" method with cofferdams would be substantially more in-river work. *See* EIS at 2-44, 4-139 (Corps Ex. 2). No reasonable person reading MVP's detailed description of the dry open-cut cofferdam method would conclude that all of the activities involved could be completed in 72 hours. *See* EIS at F6-2 (Corps Ex. 2). FERC, the Corps, MVP, West Virginia, and Petitioners were all involved in or commented on the development of the EIS, specifically including the choice of this crossing method.

Petitioners suggest that their own knowledge was irrelevant, and that they first learned that "*the Corps* was aware of the general timeframe" for these crossings in

February 2018. Pet. Mot. at 13 (emphasis added). That is doubtful, given that the Corps was a participating agency in the EIS process. But more importantly, it is irrelevant. Even if the Corps were unaware of a potential conflict with Special Condition C, Petitioners could have brought it to the Corps' attention at any time. Indeed, in January 2018, Petitioner Sierra Club again commented on the river crossings directly to the Corps, requesting reconsideration of the Corps' verification decision and specifically arguing that the crossings could not satisfy *other* special conditions of West Virginia's water quality certification. Sierra Club did not mention Special Condition C in that letter, nor did it raise any concern that the well-publicized cofferdam construction method would violate the long-standing conditions of NWP 12. *See* Corps Ex. 4 at 32-33.

Petitioners' delay in raising the issue of Special Condition C requires denial of their Motion for several reasons. First, Petitioners cannot win on the merits of this issue, because they failed to exhaust their administrative remedies. The exhaustion requirement "serves to allow an agency the opportunity to use its discretion and expertise to resolve a dispute without premature judicial intervention and to allow the courts to have benefit of an agency's talents through a fully developed administrative record." *Cavalier Telephone, LLC, v. Virginia Elec. & Power Co.*, 303 F.3d 316, 322 (4th Cir. 2002) (internal quotation marks omitted); *see also Kurfees v. INS*, 275 F.3d 332, 336 (4th Cir. 2001) (exhaustion "serves the twin purposes of protecting administrative

agency authority and promoting judicial efficiency"). By failing to present their concern about Special Condition C to the Corps at an appropriate time, Petitioners have forfeited their opportunity to obtain judicial relief on that issue.

Petitioners may argue that the exhaustion requirement does not apply here because the Corps does not have a formal process for public objections to a Nationwide Permit verification. Petitioners did, however, present detailed objections to the Corps even without a formal process, and those objections did not mention Special Condition C. *See* Corps Ex. 4 at 32-33. MVP's proposals have also been subject more generally to extensive administrative scrutiny by multiple agencies. Petitioners are required to "structure their participation" in that process "so that it alerts the agency to [their] position and contentions." *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 553 (1978). They could have done so here, but did not.

Second, and related to the exhaustion requirement, Federal Rule of Appellate Procedure 18 contemplates that the Court may consider a motion to stay agency action in the first instance only if seeking relief from the agency first would be "impracticable." Here, Petitioners' ample notice of the complexity of cofferdam construction made it practicable to seek relief from the Corps during the federal environmental review process or earlier in this litigation, when the Corps could more easily have addressed their concern administratively. Rule 18 also requires the Petitioners to state that the Corps has "failed to afford the relief requested." But their

late attention to this issue has deprived the Corps of a full, timely opportunity to consider an administrative stay. Although the Corps has so far granted an administrative stay of *part* of the verification, it may still choose—through its ongoing reconsideration under 33 C.F.R. § 330.5(d)—to grant Petitioners relief from the *entire* verification decision. And it may have done so already, or otherwise resolved this issue, if Petitioners had raised it.

Third, Petitioners' delay is also relevant to the equities of their injunction request. Delay is a factor that the Court may consider in deciding whether to grant injunctive relief. *Muffley ex rel. NLRB v. Spartan Mining Co.*, 570 F.3d 534, 545 (4th Cir. 2009); *Quince Orchard Valley Citizens Ass'n v. Hodel*, 872 F.2d 75, 79-80 (4th Cir. 1989). That factor weighs against injunctive relief here, particularly because Petitioners' delay will directly prejudice the Corps and MVP if the Court grants a stay. The Corps' good-faith effort to reconsider and resolve the issue of Special Condition C within a week of Petitioners' letter suggests what the Corps might have done had this issue been raised sooner. At this point, however, both MVP and the Corps have relied upon the Nationwide Permit process and have focused their efforts on ensuring compliance with NWP 12. Much of the potential harm of which Petitioners complain is therefore "a product of [Petitioners'] own delay in pursuing this action." *Quince Orchard*, 872 F.2d at 79. Equity should not reward that delay with an injunction.

B. It is premature to decide any merits questions while the Corps' administrative reconsideration is pending.

Petitioners' delay in raising their argument has also made it impossible for the Corps or the Court to resolve this issue before merits briefs must be filed. That significantly hinders the Corps' ability to argue the merits of this Motion. The Corps does not concede that MVP's proposed crossing of the four rivers at issue will violate the applicable conditions of NWP 12, but it is now considering that very question through the process prescribed by 33 C.F.R. § 330.5(d). MVP is making similar arguments to the Corps that it is likely to make to the Court, and the Corps has not yet reached a conclusion on the merits of those arguments. The Court should not conclude that Petitioners are likely to be successful in challenging a decision that may not even remain in place when the Court reaches the merits stage.

The Court need not decide whether the verifications of the four major crossings were valid under NWP 12 because Petitioners have a potential administrative remedy in the Corps' ongoing Section 330.5(d) process. Even if the Court concludes that the exhaustion doctrine does not squarely apply here, the prudential concerns underlying that doctrine counsel against preliminary relief from

the Court while the Corps continues to consider Petitioners' new argument.[4] It is possible that even if the Corps reinstates those verifications, it will provide additional reasons that the Court may review. Although Petitioners may argue that the Corps' entire original Verification Letter is invalid if part of it cannot be supported by the agency's original reasoning, the possibility of additional explanation that can cure possible errors is a reason for the Court to wait and review the agency's new decision. *See* 5 U.S.C. § 706 (applying the "rule of prejudicial error" to APA review); *Allied-Signal, Inc. v. NRC*, 988 F.2d 146, 202-03 (D.C. Cir. 1993) (declining to vacate an agency decision where the agency "may be able" to cure errors on remand and where vacatur would have "disruptive consequences").[5]

Furthermore, although the Corps has not suspended its verifications of the smaller crossings that MVP expects to complete within 72 hours, the Court also need not consider the merits of the verifications of those crossings. Petitioners do not

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[4] Exhaustion is related to the prudential elements of the ripeness doctrine, under which the Court may abstain from considering a controversy that is "dependent upon future uncertainties or intervening agency rulings." *Charter Fed. Savings Bank v. Office of Thrift Supervision*, 976 F.2d 203, 208 (4th Cir. 1992). Those considerations also weigh in favor of allowing the Corps' process to conclude before the Court rules.

[5] The Corps does not rely at this stage on *Snoqualmie Valley Preservation Alliance v. U.S. Army Corps of Engineers*, 683 F.3d 1155, 1163-64 (9th Cir. 2012). *See* Pet. Mot. at 10-13. *Snoqualmie Valley* addressed how much explanation in the Corps' record is necessary to defend a correct verification. Here, the Corps is still working to decide whether its verification decision was correct in light of Petitioners' objection, and the Corps may issue a further decision explaining its consideration of that question.

dispute that the smaller crossings are expected to comply with Special Condition C; their theory is that a defect for *any* crossings nullifies the entire Verification Letter. *See* Pet. Mot. at 3, 18-19. If MVP had submitted an "individual permit application" for some crossings, then the Corps would evaluate all crossings "as part of the individual permit process," *id.* § 330.6(d), but that is not the case here.[6] Instead, where the project proponent intends to proceed under a Nationwide Permit but some proposed activities do not qualify for that permit, "the project proponent has the option of relocating or redesigning the crossings . . . so that all of the utility line crossings could qualify for NWP authorization." 82 Fed. Reg. at 1888.

That is one possible outcome of the Corps' established process for reconsideration under 33 C.F.R. § 330.5(d)(1), which is intended for use (among other circumstances) where there are "significant objections to the authorization not previously considered." The Corps' regulations treat each crossing as a "single and complete project," *id.* § 330.2(i), and they do not contemplate that an entire verification must be vacated due to an issue with only the major crossings. To the contrary, the Corps also has discretion under that regulation to "modify" a verification rather than revoke it entirely. *Id.* § 330.5(d)(1). If the Corps concludes

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[6] This requirement is intended in part to ensure that the Corps sees the big picture—i.e., that it does not improperly examine the environmental effects of portions of a project in isolation. That is not a significant concern here, because the Corps relied on an EIS that examined the entire project, including all stream crossings.

through that process that the major crossings do not qualify for NWP 12 authorization, it may choose to require an individual permit for all crossings. *See* 82 Fed. Reg. at 1888. Alternatively, if MVP is able to redesign its major crossings or otherwise show that it can comply with NWP 12, then there will be no issue with the smaller crossings. But the formal process that the regulations establish to resolve such issues is not yet complete. The Court should not grant a stay based on the likelihood that Petitioners will successfully challenge the Corps' initial decision when the Corps is actively working to reconsider that decision.

C. The balance of the equities does not favor a judicial stay that goes beyond the suspension the Corps has already ordered.

In addition to demonstrating a likelihood of success on the merits, Petitioners bear the burden of establishing each of the three equitable factors necessary for a stay of agency action pending judicial review. Here, the equities support the administrative suspension that the Corps has already granted, but they do not weigh in favor of further preliminary relief from the Court.

Most of Petitioners' argument that they will be irreparably harmed without a stay focuses on the four major crossings that they claim cannot be authorized under Special Condition C. *See* Pet. Mot. at 14-18. But the Corps has already suspended its verifications of those crossings, *and no construction will occur on those crossings until the Corps takes further action*. No further order from the Court is necessary to avoid irreparable harm to those waters or their users. Petitioners contend that the Corps'

administrative action is inadequate because it does not explicitly extend "for the duration of this litigation," Pet. Mot. at 1-2 n.1, but only pending the Corps' reconsideration of its verification. The irreparable harm required for an injunction, however, must be "actual and imminent." *Scotts Co. v. United Industries Corp.*, 315 F.3d 264, 283 (4th Cir. 2002). Harm from the major crossings is not "imminent" when MVP is not presently authorized to construct those crossings.

The Corps has not stayed its verifications of the smaller crossings, and Petitioners also allege some harm from those crossings. *See* Pet. Mot. at 19-20. But the equities that apply to the smaller crossings are very different because of the attenuated connection between those crossings and Petitioners' merits claim. Petitioners do not contend that the small crossings conflict with Special Condition C, but only that a problem with the *other* crossings (which are already stayed) makes the pipeline "entirely ineligible." Mot. at 18. The Corps' administrative process is focused on ensuring that MVP can comply with the applicable conditions of NWP 12, as Petitioners purport to demand, and for that reason the Corps' suspension is limited to the major crossings that are at issue. Petitioners' attempt to obtain further relief suggests that their principal goal is not ensuring compliance with Special Condition C at the major crossings, but rather using that condition as leverage to stop work on the Pipeline altogether.

Petitioners' interest in a complete stay of construction is outweighed by the strong public interests favoring continued work on the small crossings. Delays in construction threaten to affect the interests not only of MVP, but also of natural gas producers and their employees in West Virginia and of natural gas consumers on the East Coast. In the Natural Gas Act, Congress declared that "the business of transporting and selling natural gas for ultimate distribution to the public is affected with a public interest." 15 U.S.C. § 717(a). Executive action reaffirms that it is in the public interest to "expedite projects that will increase the production, transmission, or conservation of energy." Exec. Order No. 13,212, 66 Fed. Reg. 28,357 (May 18, 2001). And this Court has recognized that where FERC has "determined that [a] project will promote these congressional goals and serve the public interest," that determination is relevant to injunctive relief. *East Tenn. Natural Gas Co. v. Sage*, 361 F.3d 808, 830 (4th Cir. 2004). The Natural Gas Act also provides for direct, expedited review in the courts of appeals, *see* 15 U.S.C. § 717r(a), (d)(5), reflecting Congress's desire that natural gas-related construction should not be unduly delayed by litigation.

The public interest in this particular case is also better served by the use of the slower, but more environmentally protective, cofferdam construction method than by a wet-open cut method that would allow major crossings to be completed in 72 hours. According to the EIS, the cofferdam method results in less sedimentation than natural

runoff events and only for a short distance (a few hundred feet) and time (1-4 days). *See* EIS at 4-120 (Corps Ex. 2). The study that Petitioners cite confirms this, *see* Pet. Mot. at 16, finding that sediment levels from the wet open-cut method are much greater than from the cofferdam method. *See* S.M. Reid et al., *Sediment entrainment during pipeline water crossing construction*, 8 J. Envtl. Eng. Sci. 3:81, 86-87 & Table 5 (2004) (Corps Ex. 5). Compared to a 72-hour, wet open-cut crossing, the approved method is less harmful in precisely the ways that concern Petitioners. *Id.* at 4-139.

West Virginia imposed Special Condition C as a general condition for use of NWP 12 to protect the State's water quality. But the record before the Corps at the time of the verifications suggests that West Virginia—which participated in the selection of the crossing methods—favored the dry open-cut construction method using cofferdams for this project. *See* Corps Ex. 6 (July 2017 letter approving dry open-cut crossing for the Greenbrier River). As part of the Corps' administrative reconsideration, moreover, West Virginia has advised the Corps that the dry open-cut method "provides more stringent water quality protections than the time requirement in Special Condition C" and that West Virginia has issued two state permits requiring the use of that method. *See* Corps Ex. 7.[7] The construction method that FERC

[7] Because the Corps is still considering whether West Virginia's position affects the applicable conditions of NWP 12, the Corps cites it here only as evidence of the public interest.

approved in this case is thus more restrictive of MVP's activities than West Virginia's 72-hour requirement and is in the public interest.

Petitioners argue that it is in the public interest to ensure that agencies obey statutes and regulations. Pet. Mot. at 22-23. The Corps agrees, but upholding that value does not require a judicial stay here. The Corps has already suspended some of the disputed crossings in accordance with its own regulatory procedures—not in an attempt to compromise with Petitioners, but because it is working to get this issue right. There are several possible administrative paths to ensure that MVP complies with the applicable conditions of NWP 12, including the amendment of MVP's construction plans (with other agencies' approval) or further legal action that would clarify that Special Condition C is inapplicable in this situation. *See* Corps Ex. 7.

The benefits of a partial, tailored suspension are particularly important in the context of Clean Water Act permitting and enforcement. The Corps frequently relies on self-reporting from permittees who identify problems with permit compliance and seek the Corps' assistance in finding solutions. In the Corps' judgment, if the report of a limited compliance problem leads to a stop of all verified activities, permittees will be much less likely to self-report and possible permit violations will be more likely to go unresolved.

The Corps' decision to suspend its verifications of the major crossings—those that are implicated in the legal issue that Petitioners have lately raised—reflects a

balancing of all these concerns. The Court should either defer to that judgment while the Corps' administrative process continues, or it should reach the same result on its own application of the standard for a stay pending review.

CONCLUSION

For the foregoing reasons, the Court should deny any further stay of the Corps' Verification Letter, allow the Corps to complete its administrative reconsideration of the verification, and allow construction to proceed on the crossings that can be completed within 72 hours.

Respectfully submitted,

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Dated: May 31, 2018
90-13-9-15339

CERTIFICATES

I certify that on May 31, 2018, a copy of the foregoing Opposition to Petitioners' Second Motion for a Stay Pending Appeal was served on all counsel of record in the above-captioned case, either by electronic service to those registered, or by U.S. Mail.

I certify that this Opposition, complies with the type-volume limits because, excluding the parts of the document exempted by Fed. R. App. R. 32(f), it contains 5,161 words, which is within the Court's limit of 5,200 words for a motion or response thereto. I certify that this Opposition complies with the typeface and type style requirements because it has been prepared in a proportionally spaced typeface, Garamond 14 point, using Microsoft Word.

/s/ J. David Gunter II
J. David Gunter II

LIST OF EXHIBITS

Ex. 1	U.S. Army Corps of Engineers, letter of May 22, 2018 to Mountain Valley Pipeline, LLC
Ex. 2	Federal Energy Regulatory Commission, Final Environmental Impact Statement for Mountain Valley Project (June 2017) (excerpt)
Ex. 3	Federal Energy Regulatory Commission, Draft Environmental Impact Statement for Mountain Valley Project (June 2017) (excerpt)
Ex. 4	Sierra Club, letter of January 4, 2018 to U.S. Army Corps of Engineers (excerpt)
Ex. 5	S.M. Reid et al., *Sediment entrainment during pipeline water crossing construction*, 8 J. Envtl. Eng. Sci. 3:81 (2004)
Ex. 6	West Virginia Department of Environmental Protection, letter of July 21, 2017 to Mountain Valley Pipeline, LLC
Ex. 7	West Virginia Department of Environmental Protection, letter of May 31, 2018 to U.S. Army Corps of Engineers

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Petitioners,

v.

UNITED STATES ARMY CORPS OF ENGINEERS; MARK T. ESPER, in his official capacity as Secretary of the U.S. Army; TODD T. SEMONITE, in his official capacity as U.S. Army Chief of Engineers and Commanding General of the U.S. Army Corps of Engineers; PHILIP M. SECRIST, in his official capacity as District Commander of the U.S. Army Corps of Engineers, Huntington District; and MICHAEL E. HATTEN, in his official capacity as Chief, Regulatory Branch, U.S. Army Corps of Engineers, Huntington District;
Respondents.

FEDERAL RESPONDENTS' OPPOSITION TO PETITIONERS' SECOND MOTION TO STAY AGENCY ACTION

Exhibit 1

U.S. Army Corps of Engineers, letter of May 22, 2018 to Mountain Valley Pipeline, LLC

DEPARTMENT OF THE ARMY
HUNTINGTON DISTRICT, CORPS OF ENGINEERS
502 EIGHTH STREET
HUNTINGTON, WEST VIRGINIA 25701-2070

REPLY TO
ATTENTION OF

May 22, 2018

Regulatory Division
North Branch
LRH 2015-592-GBR

NOTICE OF NATIONWIDE PERMIT 12 VERIFICATION SUSPENSION

Mr. Shawn Posey
Mountain Valley Pipeline, LLC
555 Southepointe Boulevard, Suite 200
Canonsburg, Pennsylvania 15317

Dear Mr. Posey:

I refer to your Nationwide Permit (NWP) 12 verifications dated December 22, 2017 authorizing you to discharge dredged and fill material into waters of the United States at 591 separate and distant locations associated with the Mountain Valley Pipeline Project. The authorized activities are located within the Huntington District's regulatory boundary in Monroe, Summers, Greenbrier, Nicholas, Webster, Braxton, Lewis, Harrison, and Wetzel Counties, West Virginia.

The United States (U.S.) Army Corps of Engineers' regulations allow for the District Engineer, in his or her discretion, to suspend authorizations under a NWP. We are doing so here and evaluating the extent of your compliance with the West Virginia Department of Environmental Protection's Special Condition C of its Water Quality Certification for NWP 12. *See* 33 C.F.R. 330.5(d).

The Department of the Army has determined to suspend indefinitely the NWP 12 verifications authorizing the discharge of dredged and/or fill material into the Gauley River, the Greenbrier River, the Elk River and the Meadow River until we can determine compliance with Special Condition C. *See* U.S. Army Corps of Engineers Regulatory Program, Public Notice: Reissuance and Issuance of Nationwide Permits with West Virginia Department of Environmental Protection 401 Water Quality Certification dated May 12, 2017 (page 20). Accordingly, all activities authorized under NWP 12 at those crossings must cease. Please be advised that following this suspension, a decision will be made to either reinstate, modify, or revoke the authorizations.

Within 10 days of receipt of this notice of suspension, you may, request a meeting with the district engineer to present information in this matter. If you have any questions or would like to schedule a meeting, please contact Ms. Teresa Spagna by phone at 304-399-5210 or by email at teresa.d.spagna@ usace.army.mil.

Sincerely,

William J. Miller
Lieutenant Colonel, Corps of Engineers
Commanding

No. 18-1173

IN THE UNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT

SIERRA CLUB; WEST VIRGINIA RIVERS COALITION; INDIAN CREEK WATERSHED ASSOCIATION; APPALACHIAN VOICES; and CHESAPEAKE CLIMATE ACTION NETWORK,
Petitioners,

v.

UNITED STATES ARMY CORPS OF ENGINEERS; MARK T. ESPER, in his official capacity as Secretary of the U.S. Army; TODD T. SEMONITE, in his official capacity as U.S. Army Chief of Engineers and Commanding General of the U.S. Army Corps of Engineers; PHILIP M. SECRIST, in his official capacity as District Commander of the U.S. Army Corps of Engineers, Huntington District; and MICHAEL E. HATTEN, in his official capacity as Chief, Regulatory Branch, U.S. Army Corps of Engineers, Huntington District;
Respondents.

FEDERAL RESPONDENTS' OPPOSITION TO PETITIONERS' SECOND MOTION TO STAY AGENCY ACTION

Exhibit 2

Federal Energy Regulatory Commission, Final Environmental Impact Statement for Mountain Valley Project (June 2017) (excerpt)

Federal Energy Regulatory Commission
Office of Energy Projects
888 First Street, NE, Washington, DC 20426

FERC/FEIS-0272F **June 2017**

Mountain Valley Project and Equitrans Expansion Project

Final Environmental Impact Statement

Mountain Valley Pipeline, LLC and Equitrans, LP
FERC Docket Nos.: CP16-10-000 and CP16-13-000

Cooperating Agencies:

U.S. Forest Service

U.S. Army Corps of Engineers

U.S. Bureau of Land Management

U.S. Environmental Protection Agency

Pipeline Hazardous Materials Safety Administration

U.S. Fish & Wildlife Service

West Virginia Field Office

West Virginia Department of Environmental Protection

West Virginia Division of Natural Resources

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EXECUTIVE SUMMARY

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared this final Environmental Impact Statement (EIS) to fulfill requirements of the National Environmental Policy Act (NEPA) and the Commission's implementing regulations under Title 18 of the Code of Federal Regulations (CFR) Part 380. On October 23, 2015, Mountain Valley Pipeline, LLC (Mountain Valley),[1] filed an application with the FERC under Section 7(c) of the Natural Gas Act and Part 157 of the Commission's regulations to construct and operate certain interstate natural gas pipeline facilities in West Virginia and Virginia. In the same month, Equitrans, L.P. (Equitrans)[2] filed its application with the FERC to construct and operate certain interstate natural gas pipeline facilities in Pennsylvania and West Virginia.

The FERC is the federal agency responsible for authorizing interstate natural gas transmission facilities under the National Gas Act and is the lead federal agency for preparation of this EIS in compliance with the requirements of NEPA. The United States (U.S.) Department of Agriculture's Forest Service (FS); the U.S. Environmental Protection Agency (EPA); the U.S. Army Corps of Engineers (COE); the U.S. Department of Interior's Bureau of Land Management (BLM); the U.S. Fish and Wildlife Service (FWS), West Virginia Field Office; the Pipeline and Hazardous Materials Safety Administration within the U.S. Department of Transportation; the West Virginia Department of Environmental Protection (WVDEP), and the West Virginia Division of Natural Resources (WVDNR) participated as cooperating agencies in preparation of the EIS. A cooperating agency has jurisdiction by law or has special expertise with respect to environmental resource issues associated with a project.

In February 2016, Mountain Valley notified the FERC that the Mountain Valley Project (MVP) would cross federally owned lands managed separately by both the FS (as part of the Jefferson National Forest) and the COE (as part of the Weston and Gauley Bridge Turnpike Trail). Under the Mineral Leasing Act (MLA, 30 U.S.C. 185 et seq.), the BLM is the federal agency responsible for issuing Right-of-Way Grants for natural gas pipelines across federal lands under the jurisdiction of the BLM or under the jurisdiction of two or more federal agencies. Therefore, the BLM would be responsible for the issuance of a Right-of-Way Grant to Mountain Valley for a pipeline easement over federal lands, dependent on concurrence from the FS and the COE. The MVP pipeline route would cross about 3.5 miles (82.7 acres or 1.2 percent of the total MVP acreage) of the Jefferson National Forest (managed by the FS) in Monroe County, West Virginia and Giles and Montgomery Counties, Virginia. The MVP pipeline route would cross about 60 feet of the Weston and Gauley Bridge Turnpike Trail, managed by the COE, in Braxton County, West Virginia. Additional mitigation may be required as a result of the Right-of-Way Grant.

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[1] Mountain Valley is a joint venture between affiliates of EQT Midstream Partners, LP; NextEra Energy US Gas Assets, LLC; WGL Midstream, Inc.; RGC Midstream, LLC; and Con Edison Gas Midstream, LLC.

[2] Equitrans is a limited partnership, with about 97.25 percent owned by Equitrans Investments, LLC and 2.75 percent owned by Equitrans Services, LLC, both subsidiaries of EQT Midstream Partners LP.

PROPOSED ACTION

Mountain Valley's proposal (the Mountain Valley Project [MVP]) would involve construction and operation of about 303.5 miles of new 42-inch-diameter natural gas pipeline and associated facilities in West Virginia and Virginia. Mountain Valley also proposes to construct and operate 3 new compressor stations, 4 new meter stations and interconnects, 3 taps, 36 mainline valves, 8 pig[3] launchers/receivers at 5 locations, and 31 cathodic protection beds.

Equitrans' proposal (the Equitrans Expansion Project [EEP]) would involve construction and operation of a total of about 7.4 miles of various diameter natural gas pipelines (H-158, H-305, H-316, H-318, H-319, and M-80), 1 new compressor station, 2 interconnects, 4 pig launcher and receiver sites, cathodic protection beds, and the decommissioning of an existing compressor station, in Pennsylvania and West Virginia. No meter stations or mainline valves are associated with the EEP.

In this document, Mountain Valley and Equitrans are collectively referred to as the "Applicants." As described by the Applicants, the purpose of both the MVP and the EEP is to transport natural gas produced in the Appalachian Basin to markets in the Northeast, Mid-Atlantic, and Southeastern United States. The MVP is designed to transport about 2.0 million dekatherms per day (Dth/d, equivalent to about 2.0 billion cubic feet per day [Bcf/d]) of contracted volumes of natural gas. The EEP would transport up to 400,000 Dth/d (about 0.4 Bcf/d) of contracted firm capacity of natural gas.

On October 27, 2014, Mountain Valley filed a request with the FERC to initiate the Commission's pre-filing environmental review process for the MVP. On October 31, 2014, the FERC granted Mountain Valley's request and established temporary pre-filing docket number PF15-3-000 to place information related to the MVP into the public record. The intent of our[4] pre-filing process is to encourage the early involvement of interested stakeholders, facilitate interagency cooperation, and identify and resolve issues before an application is filed.

On April 1, 2015, Equitrans requested to use our pre-filing environmental review process for the EEP, and the FERC accepted that request on April 9, 2015. The Commission established the pre-filing temporary docket number of PF15-22-000 for the EEP.

PUBLIC INVOLVEMENT

During pre-filing, the Applicants sponsored 18 open house meetings held at various locations throughout the project areas to explain their projects to the public. Representatives of the FERC staff also attended those open house meetings to answer questions from the public about our environmental review process. We estimate that about 1,100 people attended all the open houses combined.

On April 17, 2015, the Commission issued a *Notice of Intent* (NOI) *to Prepare an Environmental Impact Statement for the Planned Mountain Valley Pipeline Project, Request for*

[3] A pig is an internal tool that can be used to clean and dry a pipeline and/or to inspect it for damage or corrosion.

[4] "We," "us," and "our" refer to the environmental staff of the FERC's Office of Energy Projects.

Comments on Environmental Issues, and Notice of Public Scoping Meetings. The NOI was published in the *Federal Register* on April 28, 2015, and mailed to more than 2,800 interested parties on our environmental list. The NOI briefly described the MVP, summarized the FERC's environmental review process, provided a preliminary list of issues identified by us, invited comments on the environmental issues that should be addressed in the draft EIS, listed the dates, times, and locations of six public scoping meetings to be held in the area of the MVP, and established a closing date for receipt of comments of June 16, 2015.

We issued our NOI for the EEP on August 11, 2015, that was published in the *Federal Register* on August 17, 2015. The scoping period for the EEP ended on September 14, 2015.

The scoping meetings were held in Pine Grove, Weston, Summersville, and Lindside, West Virginia; and Ellison and Chatham, Virginia between May 4 and 13, 2015. About 650 people in total attended the meetings; with 169 people providing verbal comments. During the scoping period, we received 964 comments on the MVP and 5 comments on the EEP. Transcripts of the scoping meetings were placed into the public record for this proceeding.

We issued a Notice of Availability for the draft EIS on September 16, 2016, that listed the dates, times, and locations of seven public sessions to take verbal comments on the draft EIS, and established a closing date for receipt of written comments on the draft EIS of December 22, 2016. The sessions were held in Chatham, Rocky Mount, and Roanoke, Virginia; Peterstown, Summersville, and Weston, West Virginia; and Coal Center, Pennsylvania between November 1 and 9, 2016. About 627 people attended the sessions in total; with 261 people providing verbal comments. Transcripts of the sessions to take comments on the draft EIS were placed into the public record for the proceedings. Between September 16 and December 22, 2016, we received 1,237 written letters or electronic filings commenting on the draft EIS or about the projects, not including repeats and petitions.

During the pre-filing period, Mountain Valley and Equitrans assessed numerous route alternatives; Mountain Valley adopted 11 route alternative segments and 571 minor route variations into its proposed project design for various reasons including landowner requests, avoidance of sensitive environmental resources, or engineering considerations. On October 14, 2016, Mountain Valley adopted two route variations that were recommended in the FERC's September 2016 draft EIS. That same filing documented 130 additional minor route variations that modified the draft EIS proposed pipeline route to account for landowner requests, avoidance of specific sensitive environmental resources (such as archaeological sites or wetlands), avoidance of areas of steep terrain or side slopes, and engineering adjustments.

Copies of this final EIS were mailed to our environmental list, including elected officials, government agencies, Native Americans and Indian tribes, regional environmental groups and non-governmental organizations, affected landowners, local newspapers and libraries, and other interested individuals, including attendees of FERC-sponsored public meetings and sessions, and individuals who submitted comments on the projects. The EIS has been filed with the EPA, and a formal Notice of Availability will be issued in the *Federal Register*.

PROJECT IMPACTS AND MITIGATION

Construction and operation of the projects could result in impacts on environmental resources, including on geology, soils, groundwater, surface water, wetlands, vegetation, wildlife, fisheries, special-status species, land use, visual resources, socioeconomics, cultural resources, air quality, noise, and safety. In section 3 of this EIS, we include an evaluation of alternatives to the projects, including the no-action alternative, system alternatives, and route alternatives. In section 4.13, we assess the cumulative impacts of the projects added to other known actions within the same geographic area and in the same timeframe.

We evaluate the impacts of the projects, taking into consideration the Applicants' proposed avoidance, minimization, and mitigation measures. Our analysis of impacts on environmental resources is summarized below and is discussed in detail in section 4 of this EIS. Where necessary, we recommend additional mitigation measures to reduce impacts on specific resources. Section 5.2 of this EIS contains a compilation of our recommended mitigation measures.

Geology and Soils

The MVP pipeline route would be within 0.25-mile of 67 mines and 227 active oil and gas wells. The EEP would be in proximity to 18 inactive mines and 39 active oil and gas wells. Mountain Valley developed a *Mining Area Construction Plan*. Equitrans developed a *Mine Subsidence Plan*. The Applicants would flag and install safety fence around oil and gas wells near the construction right-of-way.

Peak ground accelerations (2 percent chance of exceedance in 50 years) along the MVP would range between 0.4 g and 0.14 g (low to high probability of a seismic event). The EEP is in an area identified to have a low probability of a significant seismic event, with a peak ground acceleration of 4 percent g. Mountain Valley would use Class 2 pipe in areas where seismic hazards exist.

About 32 percent of the MVP pipeline route and 45 percent of the EEP pipelines would cross topography with slopes greater than 15 percent grade. About 67 percent of the MVP pipeline route, and all of the EEP pipelines, would cross areas susceptible to landslides. The Applicants would implement specific construction methods for crossing steep topography. Mountain Valley developed a *Revised Landslide Mitigation Plan* in March 2017. However, we recommend that the plan be revised further to include several additional industry best management practices to further reduce the potential for landslides and extend the LiDAR monitoring program that would be used within the Jefferson National Forest for all potential landslide areas project wide.

The MVP pipeline route would cross about 67 miles of karst terrain. The EEP pipelines would not cross karst terrain. Mountain Valley developed a *Karst Mitigation Plan*. Due to a significant number of public comments regarding pipeline integrity and safety in areas of potential karst collapse and subsidence and since monitoring is a key element to providing safe operation of the pipeline over its lifetime, we recommend that Mountain Valley adopt a LiDAR monitoring program to detect subsidence along the MVP pipeline route during operation.

The projects would traverse a variety of soil types and conditions. Permanent impacts on soils would occur only at the aboveground facilities, where the sites would be covered with gravel and converted to industrial use. Most impacts on soils would be temporary or short-term during pipeline construction. After pipeline installation, the right-of-way would be restored and revegetated, in accordance with the FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) for MVP, and Equitrans' project-specific Plan for the EEP.

Construction of the MVP would disturb about 5,053 acres of soils that are classified as having the potential for severe water erosion. Construction of the EEP would affect about 193 acres of soils rated as being prone to erosion by water. Mountain Valley would reduce erosion by installing the sediment controls outlined in its project-specific *Erosion and Sediment Control Plan* and following the measures outlined in the FERC Plan. Equitrans would reduce erosion by following the measures outlined in its *Erosion and Sediment Control Plan* and its project-specific Plan. Mountain Valley would revegetate the right-of-way after pipeline installation using seed mixes recommended by the Wildlife Habitat Council, while Equitrans would follow the Pennsylvania Department of Environmental Protection's (PADEP) *Erosion and Sediment Pollution Control Program Manual*.

Construction of the MVP would disturb about 2,829 acres of prime farmland or farmland of statewide importance. Construction of the EEP would affect a total of 136 acres of prime farmland and farmland of statewide importance combined. The Applicants would reduce impacts on agricultural lands by repairing or replacing irrigation systems and/or drain tiles, segregating topsoil, removing rocks, and decompacting soils.

The MVP pipeline route would traverse about 216 miles of shallow bedrock. About 1 mile along the routes of the EEP pipelines has been identified as having shallow depth to bedrock. If bedrock is encountered during trenching, the Applicants would first attempt to rip the bedrock using standard trenching techniques. If the bedrock is unrippable, the Applicants would consider using rock-trenching machines, rock saws, hydraulic rams, jack hammers and the like. If blasting becomes necessary, it would be done in accordance with Mountain Valley's project-specific *General Blasting Plan*. Should blasting be required for EEP, Equitrans would provide a blasting plan to the FERC for approval prior to any blasting activities.

Groundwater, Surface Waterbody Crossings, and Wetlands

Neither of the projects would cross any designated sole source aquifers, and no state-designated aquifers have been identified in the project areas. The MVP would cross two groundwater wellhead protection areas and 20 surface water protection areas (14 Zones of Peripheral Concern and 6 Zones of Critical Concern). EEP would not cross any source water protection areas for groundwater resources. As Mountain Valley has not yet filed contingency plans for nearby public surface water supplies, we recommend that Mountain Valley file plans which outline minimization and mitigation measures for public surface water supplies with intakes within 3 miles downstream of construction workspaces and Zones of Critical Concern within 0.5 miles of construction workspaces.

Because the Applicants, in part due to lack of access, have not completed field surveys to identify water wells and springs within 150 feet of construction workspaces (500 feet in karst terrain[5]), we recommend that Mountain Valley and Equitrans provide the location of all water wells, springs, and other drinking water sources identified during pre-construction surveys after access is obtained. The Applicants have agreed to perform pre-construction monitoring of water quality and yield for drinking water resources, and would evaluate any complaints or damage associated with construction of the projects and identify suitable settlements with landowners, including providing alternative sources of potable water during repair or replacement of the damaged water supply. However, we recommend that the Applicants agree to conduct post-construction water quality/yield sampling for drinking water sources within 150 feet of construction (500 feet in karst). In addition, the Applicants have developed *Spill Prevention, Containment, and Counter Measure Plans* (SPCCP) to protect water resources from accidental spills of hazardous materials, such as fuel and oil, during construction and operation.

The MVP would result in 1,108 waterbody crossings and the EEP would result in 38 waterbody crossings. Of these crossings, 407 would be perennial waterbodies that could support fisheries. Equitrans would use horizontal directional drills (HDD) to cross under nine waterbodies; the others would be crossed using dry crossing methods (such as flumes or dam-and-pump). In the event of a release of drilling mud during an HDD, Equitrans developed a *HDD Contingency Plan*. Mountain Valley would cross all waterbodies using dry crossing construction methods. These measures should reduce downstream turbidity and sedimentation. Impacts on streams should be temporary or short-term, as typical crossings would be completed in less than 48 hours, and sediment controls would be in place. In addition, due to engineering feasibility and favorable geotechnical cores, we recommend that Mountain Valley adopt an alternative route alignment and HDD crossing methodology for the Pigg River at milepost (MP) 289.2.

Construction of the MVP and the EEP would impact a total of 32.1 acres of wetlands, including 4.6 acres of forested wetlands, 24.9 acres of emergent wetlands, and 2.5 acres of scrub-shrub wetlands. The Applicants would minimize impacts on wetlands by reducing the construction right-of-way width to 75 feet through wetlands, and following the measures outlined in their project-specific *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures). The Applicants also submitted applications to the COE to obtain permits to cross Waters of the United States and wetlands under Section 404 of the Clean Water Act. Impacts on wetlands from pipeline construction could involve a conversion of vegetation type but would not involve a conversion from wetland to upland; thus, there would be no net wetland losses. However, to compensate for conversions of wetland types, especially the permanent conversion of about 4.6 acres of forested wetlands to shrub or emergent wetlands within the pipeline operational easement and along permanent access roads, the Applicants propose to purchase credits, if necessary, from approved wetland mitigation banks in the West Virginia, Virginia, and Pennsylvania.

[5] Longer distances may be necessary if dye traces, cave maps, or other information provided in the enhanced karst management plan required by WVDEP's Special Condition 16 of the Conditional 401 Water Quality Certificate depict distant underground connectivity.

Vegetation, Wildlife, Fisheries, and Federally Listed and State-sensitive Species

The MVP pipeline would cross about 235 miles of forest, 2.7 miles of shrublands, and 7.5 miles of grasslands. The EEP pipelines would cross about 4 miles of forest and less than 0.1 mile of grasslands. Impacts on shrublands and grasslands would be short-term, as the Applicants would revegetate the right-of-way after pipeline installation, and shrubs and grasses would be reestablished in a few years. While forest would be allowed to regenerate in temporary workspaces, this would be a long-term impact because it would take many years for trees to mature. The 50-foot-wide operational easement for the pipelines in uplands would be kept clear of trees, which would represent a permanent impact. Construction of the MVP and the EEP would affect about 4,527 acres of upland forest. The construction and operation of aboveground facilities would also have permanent impacts on vegetation, as those sites would be converted to industrial use and maintained as gravel yards without vegetation. Operation of the aboveground facilities for the MVP and EEP combined would impact 25 acres of upland forest. The MVP would impact about 2,428 acres of contiguous interior forest designated as Large Core (greater than 500 acres) forest areas in West Virginia. In Virginia, the MVP would impact about 547 acres of contiguous interior forest during construction classified as High to Outstanding quality. The result of the establishment of a new corridor through interior forest would be the conversion of about 17,194 acres of interior forest in West Virginia and 4,579 acres of interior forest in Virginia into edge habitat based on the extension of forest edge for an estimated 300 feet on either side of the MVP right-of-way. In considering the total acres of forest affected, the quality and use of forest for wildlife habitat, and the time required for full restoration in temporary workspaces, we conclude that the MVP would have significant impacts on forest.

A variety of wildlife species occupy the habitats crossed by Mountain Valley's and Equitrans' pipelines. Construction of the MVP and the EEP may result in mortality for less mobile animals, such as small rodents, reptiles, amphibians, and invertebrates, which are unable to escape equipment. More mobile animals would likely be displaced to adjacent similar habitats during construction and restoration. Additionally, constructing the projects could disrupt bird courting, breeding, or nesting behaviors. In shrublands and grasslands, impacts would be short-term. Once the right-of-way is revegetated, it would be reoccupied by animals.

Impacts on forest-dwelling species would be greater because forest would take a long time to regenerate in temporary workspaces and trees would be permanently removed from the operational pipeline easement. The removal of forest would contribute to edge effects and habitat fragmentation within core forest tracts. In West Virginia, the MVP would pass through 24 core forest areas, and result in permanent impacts on about 892 acres within those forest core tracts. In Virginia, the MVP would pass through 17 high to outstanding ecological core areas, with permanent impacts on about 209 acres of forest within those core tracts. Construction of the EEP H-318 pipeline in Pennsylvania would affect one tract of interior forest of about 50 acres. The MVP and the EEP would collocate their pipeline facilities adjacent to existing rights-of-way for about 30 percent and 32 percent of the routes, respectively, which would reduce forest fragmentation and new edges.

Migratory birds, including Birds of Conservation Concern, are associated with the habitats that would be affected by the MVP and the EEP. The proposed MVP would impact two

Important Bird Areas. Both Mountain Valley and Equitrans developed *Migratory Bird Habitat Conservation Plans* to minimize impacts on bird species. In addition, Equitrans has agreed to conduct tree clearing outside of the migratory bird nesting season (i.e., from August 2 to April 14). Mountain Valley would potentially conduct tree clearing in select areas during the migratory bird nesting season (during April, May, and August).

Mountain Valley filed an updated version of its *Migratory Bird Conservation Plan* on May 11, 2017 to address concerns of the EPA, FWS, Virginia Department of Environmental Quality, WVDNR, and other consulting agencies regarding the impacts on large acreages of upland forest. The plan includes updated avoidance, minimization, and restoration measures for impacts resulting from the MVP, including additional tree and shrub plantings to restore right-of-way sections within riparian areas, forested wetlands, and loggerhead shrike nesting habitat. The updated plan includes a revised tree felling and vegetation clearing schedule and therefore also includes expanded protocols for migratory bird nest surveys prior to tree felling and vegetation clearing. However, we understand that the May 11, 2017 version of the *Migratory Bird Conservation Plan* is not the final plan, as Mountain Valley continues to coordinate with the consulting agencies to finalize the plan. Therefore, we recommend Mountain Valley file a final Migratory Bird Conservation Plan prepared in coordination with the FWS, WVDNR, and Virginia Department of Game and Inland Fisheries to ensure that impacts on migratory birds, resulting from the significant impacts on upland forest are adequately avoided, minimized, mitigated, and/or restored.

The MVP would entail 136 crossings (including fill, temporary fill, and culverts) of waterbodies classified as fisheries of special concern. None of the waterbodies that would be crossed by the EEP are classified as fisheries of special concern. Mountain Valley indicated that it would cross all waterbodies classified as fisheries of special concern within state-designated construction windows. In addition, Mountain Valley would follow the measures outlined in its project-specific Procedures; using dry techniques to cross all waterbodies.

Based on our review of existing records, and Mountain Valley's and Equitrans' informal consultations with the FWS, we identified 23 federally listed threatened or endangered species (or federal candidate species or federal species of concern) that would be potentially present in the vicinity of the projects[6]. We have concluded that the MVP would have *no effect* on 2 of the species, would be *not likely to adversely affect* 8 species, would have *no adverse impacts anticipated* for 2 species, would be *not likely to contribute to a trend toward federal listing* for 3 species, and would be *likely to adversely affect* 7 species (Indiana bat, northern long-eared bat, Roanoke logperch, running buffalo clover, shale barren rock cress, small whorled pogonia, and Virginia spiraea). Our *likely to adversely affect* determination for the latter four of these species is based on our assumption that these species are present in portions of the MVP corridor that Mountain Valley was not granted land access to survey. We conclude that the EEP would be *not likely to adversely affect* the two endangered bats assumed to be present in the vicinity of the EEP. The conclusion was based in part upon Equitrans implementing effects avoidance and minimization measures outlined in the FWS-approved EEP Myotid Bat Conservation Plan. We are currently preparing a Biological Assessment (BA), which will be submitted separately to the

[6] One species, the bog turtle, is not subject to Section 7 consultation.

FWS and will include our detailed assessment regarding the effects of the projects on federally listed species. Section 4.7 of the EIS summarizes our BA, and presents our findings of effects for each federally listed species that may be affected by the projects. We recommend that construction not begin until after the FERC completes the process of complying with the Endangered Species Act (ESA).

The projects could also affect 20 species that are state-listed as threatened, endangered, or were noted by the applicable state agencies as being of special concern not counting those species already counted as federally listed. Based on our review, we have concluded that the MVP and EEP *would not significantly impact* all 20 of these species.

Land Use and Visual Resources

The MVP pipeline route would mostly cross forest (76.6 percent), followed by agricultural land (14.6 percent), and open land (8.7 percent). Land affected by EEP construction is mostly agricultural (46.3 percent), followed by forest (37.6 percent), and open land (12.5 percent).

Mountain Valley identified 118 residences within 50 feet of its proposed construction right-of-way. Site-specific residential mitigation plans are included as appendix H of this EIS. In the draft EIS we asked affected landowners to review and comment on those plans. In addition, we recommend that Mountain Valley file landowner concurrence with the plans for all residences that would be within 10 feet of the construction work area.

Equitrans identified four residences within the boundary of the proposed Redhook Compressor Station. Equitrans has negotiated agreements with all of the property owners.

Mountain Valley identified five organic farms that would be affected. To reduce impacts on organic farms, Mountain Valley developed an *Organic Farm Protection Plan*. No orchards, tree farms, specialty crops, or organic farms were identified along the EEP.

Federally owned or managed recreational and special use areas that would be crossed by the MVP pipeline route include the Weston and Gauley Bridge Turnpike Trail, the Blue Ridge Parkway, and the Jefferson National Forest. Within the Jefferson National Forest, the pipeline would cross the Appalachian National Scenic Trail (ANST) and the Brush Mountain Inventoried Roadless Area. Mountain Valley proposes to cross under the ANST using a bore. After the issuance of the draft EIS several comments were received on the Visual Impact Assessment and, after additional coordination with the FS, Mountain Valley submitted additional Visual Impact Assessments using several new Key Observation Points. Mountain Valley is also proposing to bore under the Weston and Gauley Bridge Turnpike Trail and the Blue Ridge Parkway.

About 3.5 miles of the MVP pipeline route would cross the Jefferson National Forest. On the Jefferson National Forest, construction of the MVP would directly impact a total of about 83 acres. Impacts on National Forest resources would be minimized by Mountain Valley following the measures outlined in the Plan of Development (POD), including the various resource-specific mitigation plans attached to the POD as appendices, that must be approved by the FS and BLM, and in a Right-of-Way Grant that must be approved by the BLM. The FS operates under a multi-year Land and Resource Management Plan (LRMP) for the Jefferson

National Forest. The route of the MVP pipeline through the Jefferson National Forest would cross five separate management prescriptions outlined in the LRMP: ANST Corridor (Rx4A); Mix of Successional Habitats in Forested Landscapes (Rx8A1); Old Growth Forest Communities-Disturbance Associated (Rx6C); Urban/Suburban Interface (Rx4J); and Riparian Corridors (Rx11). Construction of the MVP would result in a long-term impact on about 14.1 acres within Rx4J and 58.7 acres within Rx8A1. Construction would also result in the loss of 13.2 acres of the Dry-Mesic Oak Forest and 1.7 acres of the Dry and Dry-Mesic Oak-Pine Forest old growth community types. Operation of the MVP would result in a permanent loss of timber of about 31.1 acres, including 5.7 acres of Rx4J and 25.4 acres of Rx8A1. In this EIS, the FS analyzed amending its LRMP to allow for the MVP within the Jefferson National Forest, which includes five project-specific amendment parts that exempt LRMP standards to allow for the construction and operation of the MVP. Mountain Valley and the FS have worked to develop project design criteria, mitigation measures, and monitoring actions to meet the intent of the exempted LRMP standards.

Mountain Valley performed a visual resources analysis of its entire pipeline route (see appendix S). It identified nine Key Observation Points where visual impacts may be high because the pipeline corridor may stand out from the surrounding landscape and would be visible to viewers. After the issuance of the draft EIS several comments were received on the Visual Impact Assessment. In response, Mountain Valley expanded its analysis to include several additional Key Observation Points and it submitted separate Visual Impact Assessments for the crossings of the Weston and Gauley Bridge Turnpike Trail (which is administered by the COE), the Blue Ridge Parkway (which is administered by the National Park Service [NPS]), and the Jefferson National Forest (which is administered by the National Forest System [NFS]). In appendix S of this EIS we reproduce visual simulations for the highly sensitive Key Observation Points.

The Jefferson National Forest Visual Impact Assessment identified 47 Key Observation Points on or adjacent to NFS lands that include specific viewing locations associated with the ANST, on Craig Creek Road, on Pocahontas Road, on U.S. 219, and the town of Pearisburg, Virginia. Mitigation measures for revegetation and restoration identified in section 4.8.2.6 would be required to meet the Scenic Integrity Objectives on NFS lands within 5 years of project construction.

Compressor stations and meter stations would have high potential for visual impacts, as these are permanent aboveground structures. Operation of new aboveground facilities would result in conversion of 43 acres of forest, agricultural, and open land into industrial land. Most of the facilities are located in rural areas, some distance from residences. Visual impacts for the aboveground structures would generally be reduced by topography and vegetation surrounding the sites, which screen the facilities from most viewers.

Socioeconomics and Transportation

The projects would have temporary impacts on local populations and housing. Peak non-local employees working on the MVP would average between 536 and 671 people per construction spread (construction spreads and discrete segments of the pipeline that are constructed concurrently or separately from other portions of the route). For MVP, the construction spreads would range in length from 22.2 miles to 39.2 miles. The total peak

workforce for the EEP, including pipelines and aboveground facilities, would be about 400 people. The Applicants would not build any temporary "man-camps" or project housing complexes. Instead, non-local construction workers would need to find housing in vacant rental units, including houses, apartments, mobile home parks, hotels/motels, and campgrounds and recreational vehicle (RV) parks. The influx of non-local construction workers could affect local housing availability, as they compete with visitors for limited accommodations in rural areas with few hotels. In those counties where housing is limited, workers would likely find accommodations at adjacent larger communities that are within commuting distance, bring their own lodgings in the form of RVs, or share units. For the MVP, construction workers would be spread out along 11 separate pipeline spreads and 7 aboveground facilities across 17 counties. While it would take about 2.5 years to build the MVP, the average worker would only be on the job for about 10 months for the pipeline and 8 months for aboveground facilities.

There is no evidence that the projects would cause significant adverse health or environmental harm to any community with a disproportionate number of minorities, low income, or other vulnerable populations. Our analysis of environmental justice found that in the counties that contain MVP facilities in West Virginia, minorities represent between 0.7 to 7.0 percent of the population, compared to the statewide average of 6.4 percent. In the affected counties of Virginia, minorities comprise between 4 and 25.2 percent of the population, compared to the Virginia-wide average of 31 percent. In the Pennsylvania counties that contain EEP facilities, minorities comprise between 6.0 and 19.2 percent of the population, compared to the Pennsylvania-wide average of 18.4 percent. Eight of the 17 counties in the MVP area have poverty rates that are higher than the respective statewide levels. For the EEP, two of the four counties crossed have poverty rates that are higher than the respective state averages. The projects would mitigate for impacts on low income communities through temporary employment opportunities, spending on commodities, and generation of tax revenues that would stimulate the local economy.

We received comments regarding potential adverse effects of the projects on property values, mortgages, and insurance policies. The value of a tract of land, with or without a dwelling, would be related to many variables, including the size of the tract, improvements, land use, views, location, nearby amenities, and the values of adjacent properties. The presence of a pipeline, and the restrictions associated with an easement, may influence a potential buyer's decision whether or not to purchase that property. Multiple studies indicate that the presence of a natural gas pipeline would not significantly reduce property values. One recent study conducted for the Interstate Natural Gas Association of America found that there was little difference in adjusted sale prices for houses adjacent to a pipeline easement and those further away in the same subdivision. Also, there is unsubstantiated evidence that buyers of land with pipeline easements were unable to obtain mortgages. We are unaware of an example where an insurance company considered the presence of a pipeline when underwriting homeowner policies.

Mountain Valley proposes to use 393 roads to access the construction right-of-way, including 355 existing roads, 37 new access roads, and 1 access road that is both existing and new. The status of one road is unknown due to lack of survey access permissions. Equitrans proposes to use 29 access roads during construction for access to the right-of-way during construction of the EEP, including 17 existing roads and 12 new roads. Construction equipment

is required to stay on the right-of-way and approved access roads. The Applicants would minimize impacts on local road users by following the measures outlined in their project-specific *Traffic and Transportation Management Plans*. After construction, the Applicants would repair all roads to their original condition.

Cultural Resources

Section 101 of the National Historic Preservation Act (NHPA) requires that the FERC consult with Indian tribes that may attach religious or cultural significance to historic properties in the area of potential effect (APE). Historic properties include pre-contact or historic sites, districts, buildings, structures, objects, or properties of traditional religious or cultural importance that are listed or eligible for listing on the National Register of Historic Places (NRHP). We consulted with Indian tribes that may have an interest in the projects (37 tribes for the MVP and 18 tribes for the EEP). One tribe responded with no objections to the MVP; no tribes responded to the EEP contact program.

Section 106 of the NHPA requires that the FERC take into account the effects of its undertakings on historic properties, and afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. The steps in the process to comply with Section 106, outlined in the implementing regulations at Title 36 CFR Part 800, include consultations, identification of historic properties, assessment of effects, and resolution of adverse effects. Mountain Valley and Equitrans conducted archaeological and historic architectural surveys of the APE to identify historic properties. Mountain Valley defined its direct APE as a 300-foot-wide corridor.

The proposed pipeline route would cross through seven recorded Historic Districts (Big Stony Creek Historic District, Greater Newport Rural Historic District, North Fork Valley Rural Historic District, Bent Mountain Rural Historic District, Blue Ridge Parkway Historic District, Coles-Terry Rural Historic District, and the Lynchburg and Danville Railroad Historic District). Project effects on those Historic Districts have not yet been officially determined at this time. FERC is continuing to consult with federal land managing agencies, SHPOs, interested Indian tribes, and other consulting parties to complete determinations of project effects, which may require the development of a Memorandum of Agreement pursuant to 36 CFR 800.4(b)(2).

Mountain Valley identified 11 previously recorded archaeological sites and three previously recorded architectural sites in the direct APE in West Virginia. The pipeline route would cross the NRHP-listed Weston and Gauley Bridge Turnpike Trail in Braxton County, but use of a bore under the trail would mitigate adverse effects. In Virginia, there are 42 previously recorded archaeological sites within the direct APE, as well as the NRHP-eligible ANST. Mountain Valley would mitigate adverse effects on the NRHP-eligible ANST by boring under the trail.

As of July 2016, surveys had covered about 292 miles of the MVP pipeline route (96 percent). Within the direct APE, Mountain Valley identified 282 new archaeological sites and 116 new historic architectural sites. Of these, 220 of the archaeological sites and 107 of the historic architectural sites are not eligible for the NRHP, thus requiring no further work. A total of 46 archaeological sites are unevaluated, and avoidance was recommended. Eleven newly recorded archaeological sites and nine historic architectural sites have been evaluated as eligible

for nomination to the NRHP. Additional investigations are still necessary at some of the sites to determine NRHP eligibility or project effects.

Equitrans identified two previously recorded historic properties in the direct APE for the H-318 pipeline: the Monongahela River Navigation System and the Pittsburgh & Lake Erie Railroad. Equitrans intends to avoid impacts on these two historic properties by using an HDD to cross under the Monongahela River. Seven new archaeological sites were identified along EEP pipelines. All of the newly identified archaeological sites along the EEP pipelines were evaluated as not eligible for the NRHP.

To ensure that our responsibilities under the NHPA are met, we recommend that the Applicants not begin any construction until after any additional required surveys and evaluative research are completed, any necessary treatment plans have been reviewed by the appropriate parties, and an agreement document has been executed to resolve adverse effects.

Air Quality and Noise

Air quality impacts associated with construction of the proposed projects would include emissions from construction equipment and fugitive dust. Such air quality impacts would generally be temporary and localized, and are not expected to cause or contribute to a violation of applicable air quality standards. Mountain Valley would implement the measures from its *Fugitive Dust Control Plan* while Equitrans would implement the measures in its *Dust Suppression Plan* to reduce construction impacts on air quality. Once construction activities in an area are completed, fugitive dust and construction equipment emissions would subside, and the impact on air quality due to construction would go away completely. Further, MVP would occur in areas classified as attainment or unclassifiable, while EEP's construction emissions would not exceed the General Conformity thresholds in areas of degraded air quality. Therefore, we conclude that the projects' construction-related impacts would not result in a significant impact on local or regional air quality.

Mountain Valley submitted applications for construction and operation of the Bradshaw, Harris, and Stallworth Compressor Stations to the WVDEP and were issued Permits to Construct. The new Bradshaw Compressor Station would exceed the Title V major source threshold for nitrogen oxide (NO_x) and carbon monoxide (CO). Therefore, Mountain Valley is required to file a Title V permit application with the WVDEP within 12 months of startup of operations of the Bradshaw Compressor Station. EEP submitted an application for construction and operation of the Redhook Compressor Station to the PADEP. The Harris, Stallworth, and Redhook Compressor Stations would not exceed the major source emissions thresholds to be subject to Title V operating permit. All compressor stations would be minor sources with respect to Prevention of Significant Deterioration and New Source Review under the Clean Air Act.

Minimization of operational air pollutant emissions, including greenhouse gases, would be achieved by operating the most efficient turbines, installing $SoLoNO_x$ system for larger turbines, installing best available technology (BAT), adhering to good operating and maintenance practices on turbines and combustion engines, and adhering to applicable federal and state regulations designed to reduce emissions. The screening analyses conducted for Mountain Valley's and Equitrans' compressor stations show criteria air pollutant concentrations are below the applicable National Ambient Air Quality Standards. We conclude that emissions

resulting from operation of the compressor stations would not result in significant impacts on local or regional air quality.

Noise Sensitive Areas (NSA) near the construction areas may experience an increase in perceptible noise, but the effect would be temporary and local. Noise mitigation measures that would be implemented during construction include the use of sound-muffling devices on engines and installation of barriers between construction activity and NSAs, as well as, limiting the great majority of construction to daytime hours. Additional noise mitigation measures could be implemented to further reduce construction noise disturbances at NSAs. In addition we have included recommendations for an HDD noise mitigation plan (for Equitrans), an HDD noise analysis (for MVP), and noise surveys for compressor stations. Based on modeled noise levels, mitigation measures proposed, and the temporary nature of construction, we conclude that construction of the projects would not result in significant noise impacts on residents and the surrounding communities.

Noise impacts on NSAs due to operations of the pipeline facilities, compressor stations and meter stations would be negligible to barely perceptible. Noise from planned or unplanned blowdown events could exceed the noise criteria but would be infrequent and of relatively short duration. Based on the analyses conducted, mitigation measures proposed, and our recommendations, we conclude that operation of MVP and EEP would not result in significant noise impacts on residents and the surrounding communities.

Reliability and Safety

The projects would be designed, constructed, operated, and maintained to meet the U.S. Department of Transportation's Minimum Federal Safety Standards in 49 CFR 192 and other applicable federal and state regulations. These regulations include specifications for material selection and qualification; minimum design requirements; and protection of the pipeline from internal, external, and atmospheric corrosion.

Mountain Valley and Equitrans would implement their own management plan for pipeline facilities. The pipeline system would be inspected to observe right-of-way conditions and identify soil erosion that may expose the pipe, dead vegetation that may indicate a leak in the pipeline, conditions of the vegetative cover and erosion control measures, unauthorized encroachment on the right-of-way such as buildings and other structures, and other conditions that could present a safety hazard or require preventive maintenance or repairs. Mountain Valley and Equitrans would use data acquisition systems that would allow for continuous monitoring and control of the projects.

Mountain Valley and Equitrans would prepare project-specific emergency response plans that would provide procedures to be followed in the event of an emergency that would meet the requirements of 49 CFR 192.615. The plans would include the procedures for communicating with emergency services departments, prompt responses for each type of emergency, logistics, emergency shut down and pressure reduction, emergency service department notification, and service restoration. We conclude that the Applicants' implementation of the above measures would protect public safety and the integrity of the proposed facilities.

Installation of the MVP pipeline within the Jefferson National Forest would not prevent FS personnel from suppressing wildland fires or conducting prescribed burns, near or over the pipeline. However, Mountain Valley would require landowners to coordinate with Mountain Valley regarding the operation of heavy equipment within the right-of-way to ensure the integrity of the pipeline is maintained.

Cumulative Impacts

We analyzed cumulative impacts of the MVP and EEP, in addition to other projects that may occur within the same area of geographic scope and timeframe. The other projects we examined include oil and gas wells, gathering lines, and related facilities; mining and other energy projects; other FERC-jurisdictional natural gas transportation projects (such as the Atlantic Coast Pipeline [ACP] Project and the Columbia WB XPress Project); residential or commercial developments; and road improvement projects.

We considered other projects within the geographic scope for cumulative impacts on water resources, wetlands, vegetation, land use, and wildlife using the hydrologic unit code (HUC) 10 sub-watersheds crossed by the MVP and EEP. Construction impacts on air quality were considered based on a 0.25-mile buffer and operational air quality impacts were considered at the air quality control region level where compressor stations would be located as well as any other air quality control regions within 31.1 miles (50 km) of Mountain Valley's or Equitrans' proposed compressor stations. For cultural resources, the county was the area of geographic scope.

The MVP pipeline would cross 31 HUC10 watersheds and the EEP pipelines would cross 3 HUC10 watersheds. The 33 HUC10 watersheds (the projects share one HUC 10 watershed) combined total 4,557,727 acres. The MVP and the EEP would account for about 6,487 acres of impacts (0.1 percent) of these watersheds, while other projects located within the same watersheds account for 82,607 acres (1.8 percent) of impact. Combined, the 20 counties crossed by the MVP and EEP cover about 6,972,384 acres. For all resources analyzed, and in consideration of the Applicants' proposed measures and our recommendations for additional measures intended to result in the further avoidance, minimization, and/or mitigation of effects, we conclude that the effects of adding the impacts of the MVP and EEP with the impacts of other projects would not be significant.

Alternatives Considered

The no-action alternative was considered for the projects. While the no-action alternative would eliminate the environmental impacts identified in the EIS, the stated objectives of the Applicants' proposals would not be met. Further, the natural gas shippers could seek alternative transportation infrastructure that would impact similar resources as the projects.

Our analysis of system alternatives included an evaluation of whether existing or proposed natural gas pipeline systems could meet the projects' objectives. We could not identify any existing interstate natural gas transmission systems that fully extend from the Applicants' proposed starting points (in southwestern Pennsylvania and northern West Virginia) to the termini of their pipelines (in the case of MVP this would be at Transcontinental Gas Pipe Line Company LLC's Station 165 in southeast Virginia). Because existing systems have their

capacities already subscribed, there would not be enough space available on those systems for the additional volumes proposed by Equitrans (0.4 Bcf/d) and Mountain Valley (2 Bcf/d).

We evaluated four major route alternatives for the MVP; collocation of the MVP along the ACP project route, a major route alternative largely collocated with an electric transmission line (Alternative 1), and two hybrid routes combining major elements of the proposed route and Alternative 1. None of the major route alternatives offers a significant environmental advantage over the proposed pipeline route. We also evaluated merging the ACP and the MVP into one project (one pipeline alternative; using a variety of engineering options) along the ACP route. We determined that the one-pipe alternative would not be technically feasible or practical.

Mountain Valley adopted into its proposed pipeline route two route variations recommended in the FERC's September 16, 2016 draft EIS. Subsequent to issuance of the draft EIS, Mountain Valley documented that it adopted numerous other route variations and minor route variations that modified the route that was proposed in the October 2015 application to account for landowner requests, avoidance or minimization of impacts on specific sensitive environmental resources (such as karst terrain, the Blackwater River, the Blue Ridge Parkway, caves, and archaeological sites), avoidance of areas of steep terrain or side slopes, and engineering adjustments. Equitrans also adopted a minor route variation into its proposed H-318 pipeline following our recommendation in the draft EIS for additional study.

MAJOR CONCLUSIONS

We determined that construction and operation of the projects would result in limited adverse environmental impacts, with the exception of impacts on forest. This determination is based on our review of the information provided by the Applicants and further developed from environmental information requests; field reconnaissance; scoping; literature research; alternatives analyses; and contacts with federal, state, and local agencies, and other stakeholders.

We conclude that approval of the projects would result in some adverse environmental impacts, but the majority of these impacts would be reduced to less-than-significant levels. Although many factors were considered in this determination, the principal reasons are:

- Mountain Valley would implement the measures outlined in our Plan, its project-specific *Erosion and Sediment Control Plan*, and its project-specific Procedures.
- In addition, Mountain Valley would implement the measures outlined in its various resource-specific mitigation plans filed with its application to the FERC, or included in various supplemental filings, including its *Karst Mitigation Plan, Revised Karst Hazards Assessment,* and *Karst-specific Erosion and Sediment Control Plan* to reduce impacts when crossing karst terrain; its *Revised Landslide Mitigation Plan* for reducing impacts when crossing steep topography; its *Mining Area Construction Plan* to reduce impacts when crossing coal mine areas; its *Unanticipated Mine Pool Mitigation Plan* to reduce impacts from mine pools; its *Acid Forming Materials Identification and Mitigation Plan* to reduce impacts from acid forming rocks; its *General Blasting Plan* to reduce impacts when crossing areas of shallow bedrock; its *Organic Farm Protection Plan* to reduce impacts when crossing organic farms; its *Water Resources Identification and Testing Plan*, *Vertical Scour and Lateral Channel Erosion Analysis*, *Spill Prevention Controls and Countermeasures Plan*, *Stormwater*

Pollution and Prevention Plan, and *Unanticipated Discovery of Contamination Plan for Construction Activities in West Virginia and Virginia* to reduce impacts on water resources; its *Compensatory Wetland Mitigation Plan* to mitigate for the conversion of forested wetlands to shrub or herbaceous wetlands; its *Revised Migratory Bird Habitat Conservation Plan* and *Exotic and Invasive Species Control Plan* to reduce impacts on birds, other animals, and plants; its *Fire Prevention and Suppression Plan* to reduce the chance of wildfires; its *Traffic and Transportation Management Plan* to reduce impacts on local road users; its *Fugitive Dust Control Plan* to reduce air quality impacts during construction; and its *Winter Construction Plan*.

- Equitrans would follow its project-specific Plan and Procedures, its Erosion and Sediment Control Plans, and the PADEP *Erosion and Sediment Pollution Control Program Manual*.
- In addition, Equitrans would implement the measures outlined in its various resource-specific mitigation plans filed with its application to the FERC, or included in various supplemental filings, including its *Mine Subsidence Plan* to protect its pipelines while crossing abandoned coal mine areas; its *Slip Mitigation Report* for reducing impacts when crossing steep topography; its project-specific *Spill Prevention Controls and Countermeasures Plan, Preparedness, Prevention, and Contingency and Emergency Action Plan*, and *Unanticipated Discovery of Contamination Plan* to reduce potential impacts on water resources; its *HDD Contingency Plan* to handle a failure or inadvertent return of drilling fluid while crossing under the Monongahela River and South Fork Tenmile Creek; its *Migratory Bird Conservation Plan* to minimize impacts on bird species of concern; its *Traffic and Transportation Management Plan* to reduce impacts on other local road users; its *Dust Suppression Plan* to reduce air quality impacts during construction; and its *Winterization Plan*.
- The Applicants would cross sensitive waterbodies and coldwater fisheries using dry crossing methods during state-mandated construction windows.
- The Applicants would be required to obtain permits from the COE and applicable state resource agencies prior to crossing waterbodies and wetlands.
- For the portion of the MVP within the Jefferson National Forest:
    - The right-of-way would be maintained in accordance with FERC's Procedures, such that for the entire length of the right-of-way a 10-foot-wide area of the corridor would be maintained in herbaceous cover and the remainder of the corridor would be replanted according to specifications in the POD and resource plans[7] (although Mountain Valley has not committed to these maintenance features for the permanent right-of-way, the FS has indicated that it will require such features as part of its separate FS permitting process);
    - Mountain Valley would avoid impacts on the ANST footpath by crossing under the ANST using a 600-foot-long conventional bore; and

[7] As stated in the Procedures, trees that would be located within 15 feet of the pipeline that have roots that could compromise the integrity of the pipeline coating may be cut and removed from the permanent right-of-way.

    - Mountain Valley would follow the measures outlined in the POD, including the various resource-specific mitigation plans attached to the POD as appendices and in the approved Right-of-Way Grant.
- We will complete formal consultations with the FWS under Section 7 of the Endangered Species Act prior to allowing any construction to begin that could adversely affect federally listed threatened or endangered species.
- We will complete the process of complying with the NHPA prior to allowing any construction to begin that could adversely affect historic properties.
- We will provide oversight for an environmental inspection and mitigation monitoring program to ensure compliance with all mitigation measures that become conditions of the FERC authorizations.

In addition, we developed site-specific mitigation measures that we recommend be included in any authorization issued by the Commission, to further reduce the environmental impacts that would otherwise result from construction and operations of the Mountain Valley and Equitrans' projects. We determined that these measures are necessary to reduce the adverse impacts associated with the projects, and in part, are basing our conclusions on implementation of these measures. These recommended mitigation measures are presented in section 5.2 of the final EIS.

and written recommendations on seeding mixes, rates, and dates obtained from the Wildlife Habitat Council (for the MVP) or the PADEP's *Erosion and Sediment Pollution Control Program Manual* (for the EEP) and in accordance with the Applicants' construction and restoration plans.

The right-of-way would be seeded within 6 working days following final grading, weather and soil conditions permitting, although seeding would not be required in actively cultivated croplands unless requested by the landowner. Alternative seed mixes specifically requested by the landowner or required by agencies may be used. Any soil disturbance that takes place outside the permanent seeding season or any bare soil left unstabilized by vegetation would be mulched in accordance with the FERC Plan and Equitrans' Plan (see section 4.4).

2.4.2.9 Special Pipeline Construction Procedures

Special construction techniques are required when a pipeline is installed across waterbodies, wetlands, roads and railroads, foreign utilities, steep slopes, residences, agricultural lands, and other sensitive environmental resources, such as the ANST. These procedures are further discussed as they apply to specific resources in section 4.0.

2.4.2.10 Waterbody Crossings

Waterbody crossings would be completed in accordance with the Mountain Valley and Equitrans Procedures, with exceptions from the FERC Procedures as identified in table 2.4-1, and measures required in other federal or state issued permits. The MVP pipeline route would require 1,109 waterbody crossings. The EEP pipelines would require 38 waterbody crossings. The waterbodies that would be crossed and the Applicants' proposed crossing methods for each are listed in appendix F. Waterbody crossings are discussed in more detail in section 4.3.2 of this EIS.

ATWS necessary for waterbody crossings would be placed a minimum of 50 feet from the waterbody edge. The 50-foot setback would be maintained unless site-specific approval for a reduced setback is granted by the FERC and other jurisdictional agencies (see section 4.3.2).

To prevent sedimentation caused by equipment traffic crossing through waterbodies, the Applicants would install temporary equipment bridges. Bridges may include clean rock fill over culverts, equipment pads, wooden mats, free-spanning bridges, and other types of spans. Equipment bridges would be maintained throughout construction. Each bridge would be designed to accommodate normal to high streamflow (storm events) and would be maintained to prevent soil from entering the waterbody and to prevent restriction of flow during the period of time the bridge is in use.

Sediment barriers, such as silt fence and straw/hay bales, would be installed immediately after initial disturbance of the waterbody or adjacent upland. Sediment barriers would be properly maintained throughout construction, until replaced by permanent erosion controls or restoration of adjacent upland areas is complete and revegetation has stabilized the disturbed areas. Trench plugs, consisting of compacted earth of similar low permeability material would be installed at the entry and exit points of wetlands and waterbodies to prevent water from the

stream or wetland from moving along the trench. After backfilling, streambanks would be re-established to approximate pre-construction contours and stabilized.

The pipelines would be installed below scour depth (see section 4.3.2) for each waterbody crossed. In most cases, the Applicants would place at least 4 feet of cover over the pipeline at waterbody crossings; except in consolidated rock, where there would be a minimum of 2 feet of cover. See section 4.3.2 for additional information regarding scour depths and proposed mitigation measures such as installation of armor layers and revetment mats. Trench spoil would be placed on the banks above the high water mark for use during backfilling. In some cases, the pipeline would be coated with concrete for negative buoyancy. In accordance with the Applicants' Procedures, construction of minor (10 feet wide or less) waterbody crossings would be completed within 24 hours; while 48 hours would be used for intermediate crossings (between 10 and 100 feet wide).

All waterbody crossings for the MVP would be dry open-cut crossings (flume, dam-and-pump, or cofferdam). In section 4.3, we are recommending Mountain Valley cross the Pigg River via an HDD. For the EEP, either HDD, flume, or dam-and-pump techniques would be used. These measures are briefly described below.

Flume Construction Method

The flume method is a type of dry open-cut crossing that involves diverting the flow of water across the construction work area through one or more flume pipes placed in the waterbody. The first step in the flume crossing method involves placing a sufficient number of adequately sized flume pipes in the waterbody to accommodate the highest anticipated flow during construction. After placing the pipe in the waterbody, sand bags or equivalent dam diversion structures are placed in the waterbody upstream and downstream of the trench area. These devices serve to dam the stream and divert the water flow through the flume pipes, thereby isolating the water flow from the construction area between the dams. Flume pipes are typically left in place during pipeline installation until trenching under the flumes, pipe installation, and final cleanup of the streambed is complete. Once the pipeline is installed, and the streambed and banks restored, the flume pipes are removed, allowing water flow to return to pre-construction conditions.

Dam-and-Pump Construction Method

The dam-and-pump method is similar to the flume crossing method except that pumps and hoses are used instead of flumes to move water across the construction work area. Temporary dams are installed across the waterbody on both the upstream and downstream sides of the construction right-of-way, usually using sandbags or plastic sheeting. Pumps are then set up at the upstream dam with the discharge line (or hoses) routed through the construction area to discharge water immediately downstream of the downstream dam. At the request of the Virginia Department of Game and Inland Fisheries (VADGIF), fish and other aquatic wildlife would be removed from the de-watered area between the dams in Virginia waterbodies. An energy dissipation device is typically used to prevent scouring of the streambed at the discharge location. The pipeline is then installed and the trench backfilled, allowing water flow to be re-

established to pre-construction conditions. After backfilling, the dams are removed and the banks restored and stabilized.

Cofferdam Construction Method

In its original October 2015 application to the FERC, Mountain Valley indicated it would use wet open-cut measures to cross three major waterbodies (Elk, Gauley, and Greenbrier Rivers). Following issuance of the draft EIS, Mountain Valley changed the crossing method for these three rivers to dry open-cut methods (including the use of cofferdams).

A cofferdam is a temporary structure that would be installed within waterbodies to isolate a portion of the work area during construction, thereby allowing pipeline installation and construction to proceed under dry conditions. Cofferdams are typically used for waterbody crossings with larger high flow volumes that may be unsuitable for flume or dam-and-pump methods. A cofferdam consists of installing the pipeline across the waterbody in stages, using the cofferdam to divert the water around the workspace (i.e., a portion of the stream's width) in each stage. This process allows work to proceed under dry conditions during each stage after the work area is dewatered, and it could take two or more stages to complete the crossing. Cofferdam construction methods may include but not be limited to inflatable dams, sand bags, steel A-frame supports, waterproof membranes, silt booms, and turbidity curtains.

Cofferdam crossings would be designed in accordance with all applicable federal and state permits to ensure that the cofferdam could withstand elevated waterbody flows during the course of the work. Dewatering operations of the work areas isolated by the cofferdam would require silt-laden water to be pumped and discharged to an appropriate dewatering device (e.g., filter bags) in a vegetated upland area before it would be allowed to flow back towards the waterbody.

Mountain Valley would use temporary cofferdams from Portadam, Inc. (see appendix C). First, steel A-frame supports would be placed around the perimeter of the area to be isolated. These supports would be anchored to the streambed using instream bolts installed via a diver operated pneumatic hand-held hammer. Next, a waterproof membrane would be installed over the steel frame. Once the membrane is in place, water within the work area would be pumped through sediment filter bags to an upland dewatering structure. In order to reduce sedimentation, Mountain Valley would use a turbidity curtain along the waterbody bank adjacent to the dewatering structure. Mountain Valley would relocate, as practicable, aquatic species within the work area prior to dewatering. Additional information regarding the cofferdams is presented in section 4.3.

HDD Construction Method

An HDD involves drilling a hole under the waterbody (or other sensitive feature) and installing a pre-fabricated pipe segment through the hole. Mountain Valley is not proposing to use the HDD method, however, in section 4.3 we are recommending Mountain Valley cross the Pigg River via the HDD method. Equitrans proposes to use the HDD method at two locations: 1) the Monongahela River (along pipeline H-318); and 2) the South Fork Ten Mile Creek (along the H-316 pipeline).

TABLE 4.3.2-1 (continued)

Watersheds Crossed by the Mountain Valley Project and Equitrans Expansion Project

State	Sub-basin (8-digit HUC) a/	Start MP	End MP
Virginia	Upper James (02080201)	218.5	220.7
Virginia	Upper Roanoke (03010101)	220.7	293.4
Virginia	Banister (03010105)	293.4	303.5
Equitrans Expansion Project			
Pennsylvania	Lower Monongahela (05020005)	H-305 0.0	H-305 0.1
		H-318 0.0	H-318 3.8
		H-316 0.0	H-316 3.0
		H-158/M80 0.0	H-158/M80 0.2
West Virginia	Little Muskingum-Middle Island (05030201)	H-319 0.0	H-319 <0.1

Source: USGS, 2015

a/ Hydrologic Unit Code (HUC) is a classification system developed by the USGS to classify drainage basins from the regional level to individual watersheds.

Surface Waters

The FERC defines waterbodies as any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes. Perennial waterbodies are expected to contain water for most of the year. Intermittent streams include those that flow only seasonally or following rainfall events. Ephemeral waterbodies include those that only carry stormwater in direct response to precipitation, with water flowing only during and shortly after large precipitation events. The COE's definition of waters of the United States is based on the definitions contained in 33 CFR 328.3.

In accordance with our Procedures, waterbody crossings are defined as either minor, intermediate, or major crossings. Minor crossings are associated with waterbodies less than or equal to 10-feet-wide at the water's edge; and intermediate crossings are associated with waterbodies greater than 10-feet-wide but less than or equal to 100-feet-wide. Major crossings are associated with waterbodies that are greater than 100-feet-wide. Table 4.3.2-2 summarizes the waterbodies crossed by the MVP and the EEP. A complete list of waterbody crossings pending COE's field review can be found in appendix F.

TABLE 4.3.2-2

Number of Waterbody Crossings for the Mountain Valley Project and the Equitrans Expansion Project a/

	FERC Size Classification				Flow Type			
Project/State	**Minor**	**Intermediate**	**Major**	**Total**	**Perennial**	**Intermittent**	**Ephemeral**	**Total**
Mountain Valley Project								
West Virginia	595	112	4	711	219	270	222	711
Virginia	325	72	1	397	170	122	105	397
Subtotal	*920*	*184*	*5*	*1,108*	*389*	*392*	*327*	*1,108*
Equitrans Expansion Project								
West Virginia	2	2	0	4	3	1	0	4
Pennsylvania	25	8	1	34	15	8	11	34
Subtotal	*27*	*10*	*1*	*38*	*18*	*9*	*11*	*38*
Total	**947**	**194**	**6**	**1,146**	**407**	**401**	**338**	**1,146**

a/ Some waterbodies would be crossed at more than one location. This table accounts for each crossing of all affected waterbodies.

Mountain Valley Project

The MVP would require 389 crossings of perennial waterbodies, 5 of which are defined by FERC as major waterbodies (more than 100-feet-wide). Mountain Valley would cross all waterbodies using dry open-cut (flumed, dam-and-pump, or cofferdam) crossing methods. Waterbody crossing methods are discussed in section 2.4.2.10.

Prior to submittal of its application (during pre-filing), Mountain Valley proposed to cross some waterbodies using wet open-cut methods, including major waterbodies and waterbodies supporting sensitive species. Because open-cut crossings of waterbodies may have a greater impact on aquatic species, as well as interrupt potential recreational or boating activities, FERC requested that Mountain Valley investigate the feasibility of using a trenchless crossing method for proposed major waterbody crossings. In response to our request, Mountain Valley used geotechnical evaluations to assess the feasibility of using the HDD crossing method beneath six waterbodies:

- Left Fork of the Holly River at MP 81.7;
- Elk River at MP 87.4;
- Gauley River at MP 118.6;
- Greenbrier River at MP 170.6;
- Blackwater River at MPs 220.0 and 269.8 and
- Pigg River at MP 286.3.[36]

[36] See accession number 20160422-5012. Please note the MPs provided correspond to the October 2015 application route analyzed in our September 2016 draft EIS.

The evaluations determined that, when factoring in the amount of available workspace on both sides of the proposed crossing locations,[37] pipe grade and wall thickness, a 2,500-foot bending radius, entry and exit angles of 12 degrees and 6 degrees, respectively, and an alignment depth of 25 feet below the crossings, an HDD would have required a minimum length of 1,287 feet. For each of the evaluated waterbody crossings, Mountain Valley concluded that the HDD crossing method was not feasible. In all cases, the distance between the points-of-intersection (PIs) on either side of the crossing was not long enough to accommodate an HDD when elevation changes were taken into account.

The geotechnical evaluations also considered potential pipeline route adjustments to increase the feasibility of using an HDD at each location. Mountain Valley identified two locations (i.e., Blackwater River and Pigg River) at which an alternative alignments would provide lengths long enough to accommodate an HDD crossing method.

In a filing on October 14, 2016, Mountain Valley adopted a modification into its proposed route to avoid crossing at the Blackwater River. In section 3.5 of this final EIS we discuss the current proposed route in comparison to the October 2015 route alternative that would have crossed the Blackwater River upstream of the water intake for the town of Rocky Mount, Virginia. The new currently proposed crossing of the Blackwater River is about milepost 269.8, which is about 3.3 miles downstream of the Rocky Mount water intake.

The proposed crossing of the Pigg River along the October 2015 application route analyzed in our draft EIS was 710 feet from PI[38] to PI, an insufficient distance to accommodate an HDD. In its *Waterbody Crossing Review* (April 2016), Mountain Valley identified an alternative route, about 4,000 feet from PI to PI. The alternative route departed from the October 2015 route at about MP 289.0 and continued east for 3,973 feet before rejoining the route at about MP 289.8. While core drillings conducted by Mountain Valley indicated that a 3,417-foot-long HDD would be geologically feasible to cross under the Pigg River, there would be inherent risks associated with an HDD such as the potential for inadvertent release of drilling mud and potential failure of the HDD, therefore, Mountain Valley stated a dry crossing would be preferable.[39]

The October 2016 proposed route would cross five major rivers[40]:

- Little Kanawha River at MP 74.8;
- Elk River at MP 87.3;
- Gauley River at MP 118.9;
- Greenbrier River at MP 171.6; and
- Pigg River at MP 289.2.

The October 2015 application indicated that Mountain Valley intended to cross the Elk, Gauley, and Greenbrier Rivers using wet open-cut methods. Following issuance of the draft EIS,

[37] Workspace includes areas needed for operation of a drill rig and all associated equipment, pipe fabrication, and pullback areas. In areas with limited pullback space, the analysis included pullbacks with up to three sections.

[38] PI means point of inflection. PIs are places that the pipeline changes direction.

[39] See filing on October 14, 2016 – Attachment DR3-Water Resources-10 (accession number 20161014 5022).

[40] Previously, we indicated that the FERC labels rivers more than 100-feet-wide as major crossings.

Mountain Valley changed the proposed crossing methods for these waterbodies to dry open-cuts, using cofferdams.

A study conducted by the USGS (Moyer and Hyer, 2009) investigating the effects of dry open-cut waterbody crossings on downstream sediment loading found that short-term increases in turbidity downstream of construction did occur, but the magnitude of the increase was small and considered to be minimal compared to increased turbidity associated with natural runoff events. Other literature (e.g., Reid et. al., 2004) assessing the magnitude and timing of suspended sediment produced from open-cut dry crossing methods indicates the duration of increased sedimentation would be mostly short-term (i.e., less than 1-4 days) and remain near the crossing location (i.e., an approximate downstream distance of a few hundred feet).

The MVP would also involve installation of 166 culverts within waterbodies along permanent access roads, at ancillary facilities, and temporary bridge crossings. Culverts would be removed from the ancillary facilities and temporary bridge crossings; therefore any impacts associated with culverts in these areas would be short-term and temporary. Culverts used along permanent access roads would remain in place after the project is completed and would result in 1.0 acre of permanent fill impacts on affected waterbodies. The size and installation methods for the culverts would vary based upon waterbody classification and would generally vary between 12 and 36 inches in diameter. In addition, Mountain Valley is currently evaluating using permanent fill (i.e., culverts and/or clean rock/gravel) at 64 wetlands along permanent access roads. In June 2016, we requested site-specific justification for the use of permanent fill within waterbodies and wetlands for permanent access roads. According to Mountain Valley, the permanent fill along access roads would be necessary to provide workers safe access to the pipeline and associated facilities during construction, operation, and maintenance. No permanent fill would be placed in streams within the proposed yards or other ancillary facilities. Mountain Valley would account for all impacts associated with permanent fill in waterbodies and wetlands in its permit applications to the COE and VADEQ.

The Little Kanawha River would also be crossed with using a dry open-cut method (see section 2.4).

Equitrans Expansion Project

The EEP would cross 15 perennial waterbodies. Of these, one would be a major river more than 100-feet-wide (the Monongahela River). Equitrans would cross all waterbodies using either the dry open-cut or HDD crossing methods. Nine waterbody crossings would be completed by HDD: the Monongahela River, South Fork Tenmile Creek, and seven crossings of unnamed tributaries of South Fork Tenmile Creek that would be crossed at the same time as the South Fork Tenmile Creek HDD crossing (see appendix F).

As of May 11, 2017, Equitrans has not completed environmental surveys for the newly adopted New Cline Variation. Equitrans has agreed to file environmental surveys for this variation with the FERC as part of its implementation plan. However, since the results of these surveys have not yet been provided, **we recommend that**:

TABLE 4.3.2-9

Proposed Waterbody Crossings in the Jefferson National Forest for the Mountain Valley Project a/

Waterbody Name	Project MP	Flow Type	FERC Classification
Kimballton Branch b/	196.7	Perennial	Intermediate
UNT/Kimballton Branch b/	197.2	Perennial	Minor
UNT/New River b/	197.8	Intermittent	Minor
Curve Branch b/	197.8	Intermittent	Minor
UNT/Curve Branch b/	197.8	Intermittent	Minor
Clendennin Creek b/	197.8	Perennial	Minor
Clendennin Creek b/	197.8	Perennial	Minor
UNT/Clendennin Creek b/	197.8	Ephemeral	Minor
UNT/Clendennin Creek b/	197.8	Ephemeral	Minor
UNT/Clendennin Creek b/	197.8	Ephemeral	Minor
UNT/Clendennin Creek b/	197.8	Perennial	Minor
UNT/Clendennin Creek b/	197.8	Perennial	Minor
UNT/Craig Creek	218.8	Intermittent	Minor
UNT/Craig Creek	219.1	Ephemeral	Minor
UNT/Craig Creek	219.2	Intermittent	Minor
UNT/Craig Creek	219.7	Ephemeral	Minor
UNT/Craig Creek	219.9	Perennial	Minor

a/ All waterbodies listed in the table crossed by pipeline would be crossed using a dry open-cut method.
b/ Waterbodies crossed by access roads on National Forest.

4.3.2.2 Environmental Consequences

General Impacts and Mitigation

Impacts on waterbodies could occur as a result of construction activities in stream channels and on adjacent banks. Clearing and grading of stream banks, in-stream trenching, the installation and removal of temporary crossing structures (e.g., culverts, cofferdams), trench dewatering, and backfilling could each cause temporary, local modifications of aquatic habitat involving sedimentation, increased turbidity, and decreased dissolved oxygen concentrations; however, in almost all cases, these impacts would be limited to the period of in-stream construction. With the exception of waterbody crossings for which the Applicants requested a variance, the period of in-stream construction at each waterbody would be determined by the protocols set forth in our Procedures.

In-stream construction would cause a temporary increase in sediments mobilized downstream. The extent of the impact would depend on sediment loads, stream velocity, turbidity, bank composition, and sediment particle size. These factors would determine the density and downstream extent of the turbidity plume. In-stream construction could cause the dislodging and transport of channel bed sediments and the alteration of stream contours. Changes in the stream

bottom contours could alter stream dynamics and increase downstream erosion or deposition. Turbidity resulting from the resuspension of sediments due to in-stream construction and erosion of cleared right-of-way areas could reduce light penetration and photosynthetic oxygen production. In-stream disturbance could also introduce chemical and nutrient pollutants from sediments. Resuspension of deposited organic material and inorganic sediments could cause an increase in biological and chemical use of oxygen, potentially resulting in a decrease of dissolved oxygen concentrations in the affected area. Lower dissolved oxygen concentrations could cause temporary displacement of motile organisms, such as fish, and may kill non-motile organisms within the affected area.

The clearing and grading of stream banks could expose soil to erosional forces and would reduce riparian vegetation along the cleared section of the waterbody. The use of heavy equipment for construction could cause compaction of near-surface soils, an effect that could result in increased runoff into surface waters in the immediate vicinity of the proposed construction right-of-way. Increased surface runoff could transport sediment into surface waters, resulting in increased turbidity levels and increased sedimentation rates in the receiving waterbody. Disturbances to stream channels and stream banks could also increase the likelihood of scour after construction.

In order to limit impacts on riparian zones, the Applicants would follow measures outlined in its Procedures. These measures allow a riparian strip at least 25 feet wide to permanently revegetate with native plant species across the entire construction right-of-way. A corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state; and trees that are located within 15 feet of the pipeline may be cut and removed from the permanent right-of-way. In addition, the riparian areas that are between HDD entry and exit point are not cleared during construction or mowed during operations.

Dewatering of the pipeline trench may require pumping of groundwater in areas where there is a high water table. Dewatering may cause minor temporary fluctuations in surface water turbidity. The Applicants would minimize or avoid impacts by implementation of the construction practices outlined in their *Erosion and Sediment Control Plans*, our Plan (for the MVP), Equitrans' Plan, their Procedures, and their *Stormwater Pollution Prevention Plans* for West Virginia and/or Virginia.[42] During construction, discharge of water removed from excavations would be directed to the vegetated land surfaces (where available) to control erosion and runoff. If adequate vegetation is absent, water would be filtered through haybale-lined dewatering structures. Because water removed from excavations would be reintroduced in the immediate proximity of excavations, potential dewatering impacts would be localized and temporary and would not impact surface waters.

As described in the previous section, the Applicants would hydrostatically test the pipeline to verify structural integrity prior to placing the project into service. To minimize or avoid impacts, each Applicant would implement its *Erosion and Sediment Control Plan* and comply with conditions of NPDES permits. Surface water used for testing would be drawn though a screened intake. The hydrostatic test water would be discharged through an energy dissipation device, typically in the same watershed as the source from which it was obtained. To minimize scour,

[42] See table 2.4-2 for the location of Mountain Valley and Equitrans' plans.

erosion, and sediment transport, hydrostatic test water would be discharged over vegetated land surfaces through energy dissipation devices, filter bags, or haybale-lined dewatering structures. Additionally, the discharge rate would be regulated using valves and energy dissipation devices.

The potential does exist for inadvertent spills from the refueling of vehicles and the storage of fuel, oil, or other hazardous materials near-surface waters. If a spill were to occur, immediate downstream users of the water could experience degradation in water quality, and acute and chronic toxic effects on aquatic organisms could occur. To avoid or minimize the potential impacts of inadvertent spills Mountain Valley would implement its *SPCCP*, and Equitrans would implement its *SPCCP* and/or *Preparedness, Prevention, and Contingency and Emergency Action Plan* (depending on the project location). The aforementioned plans include both preventative and mitigation measures such as personnel training, equipment inspection, refueling procedures, and spill cleanup and containment.

Seasonal and flash flooding hazards are a potential concern where the proposed pipeline would cross or be near major streams and small watersheds. Although flooding itself does not generally present a risk to pipeline facilities, bank erosion and/or scour could expose the pipeline or cause sections of pipe to become unsupported. All pipeline facilities are required to be designed and constructed in accordance with 49 CFR 192. These regulations include specifications for installing the pipeline at a sufficient depth to avoid possible scour at waterbody crossings. Mountain Valley conducted a scour analysis to determine, in part, the depth of trench that would be required at all perennial waterbody crossings with FERC classification of intermediate or major to avoid scour (see discussion below).

To minimize or prevent impacts resulting from flash flooding during construction, the Applicants would remove any equipment or loose material from the affected area prior to any anticipated significant rain event. Additionally, the Applicants would implement erosion and sedimentation control measures, such as installing trench breakers and water bars to inhibit water flow along the trench and right-of-way. Upon completion of construction, the Applicants would restore the ground surface as closely as practicable to original contours and re-establish vegetation to facilitate restoration of pre-construction overland flow. Mountain Valley would follow guidance from the WVDEP regarding natural streambank restoration and would consult with the WVDEP to identify design options for specified crossings.

A total of 67 stream crossings would require mitigation for permanent impacts due to access roads and the operational right-of-way. Mountain Valley proposes to compensate for permanent impacts on wetlands and waterbodies of West Virginia by purchasing credits from a COE-approved mitigation bank. If credits are not available, Mountain Valley would buy credits from the WVDEP In-Lieu Fee Program. WVDEP approved these mitigation measures for impacts within West Virginia when it granted a conditional CWA Section 401 WQC for the MVP on March 23, 2017.[43] Proposed mitigation for permanent waterbody impacts in Virginia will be included in Mountain Valley's Nationwide Permit 12 application to the COE Norfolk District.

The Applicants would acquire all required permits to construct and operate the proposed projects. Applications to all applicable local, state, and federal agencies for permits related to

[43] See accession number 20170324-5037.

water resources have been submitted, and consultation is ongoing (see table 1.5-1). Mountain Valley and Equitrans submitted applications to the COE for a CWA Section 404 Permit for impacts on waters of the United States. Mountain Valley also applied with the COE for a RHA Section 10 Permit for activities affecting navigable rivers. The COE has not yet responded to these applications.

Project-Specific Impacts and Mitigation

Mountain Valley Project

Wet Open-Cut Crossings of Major Waterbodies - Mountain Valley performed a quantitative modeling assessment for each of the three previously proposed wet open-cut crossings to quantify the amount of turbidity and sediment that would be expected downstream of the crossings. Results of the assessment estimate that monthly sediment loads would increase by 49 to 81 percent, 15 to 26 percent, and 19 to 52 percent for the Elk River, Gauley River, and Greenbrier River, respectively. Sedimentation and turbidity could also affect sensitive species, such as clubshell mussels which are found in the Elk River, as discussed in section 4.6.1.1. Mountain Valley has determined that a dry-ditch technique is a more viable option and would reduce the potential for downstream sedimentation and turbidity. Following issuance of the draft EIS, Mountain Valley changed the proposed crossing methods for these waterbodies to dry open-cuts, using cofferdam structures (or equivalent structured system). Major waterbody crossing plans are provided in appendix F. We have reviewed these and find them acceptable.

Materials for the cofferdam systems would be delivered by truck to each site, and the systems would be assembled onsite in temporary work space located on the waterbodies' banks. Each crossing would be conducted in two phases similar to cofferdam crossing methods (see section 2.4.2.10). Phase one would be comprised of installing approximately one half of the crossing, completing required stream restoration in that area and then switching to the other side of the project for phase two to install the system in the remaining half of the waterbody and complete the crossing accordingly. If it is necessary to move boulders to complete the crossing, Mountain Valley would record the location of the boulder before moving it so that it can be returned to its original location following construction. Mountain Valley would remove the cofferdam systems immediately after the completion of each phase. Silt booms/turbidity curtains shall be installed downstream of the proposed Portadam location.

Horizontal Directional Drill – As discussed in section 4.3.2.1, Mountain Valley identified an alternative route for the proposed crossing of the Pigg River (from about MP 289.0 to 289.8) for which geotechnical cores indicated using an HDD would be feasible. As stated in sections 4.7 and 4.8, the Pigg River is a State Scenic River and contains the federally endangered Roanoke logperch. Therefore, since an HDD under the Pigg River is technically feasible, and would have less impacts on the river and its aquatic environment than a dry open-cut crossing, **we recommend that**:

- **Prior to construction, Mountain Valley should adopt into its proposed pipeline route the alternative alignment for the crossing of the Pigg River and adopt an HDD as the crossing method. As part of its Implementation Plan, Mountain Valley should file with the Secretary a revised alignment sheet, a summary**

area of the crossing to minimize impacts. Mountain Valley has not documented that it provided its North Bend Rail Trail and Highway 50 Crossing Plan to appropriate state agencies for review. Therefore, **we recommend that:**

- **Prior to construction, Mountain Valley should file with the Secretary documentation that the U.S. Highway 50 and North Bend Rail Trail Crossing Plan was provided to the WVDOT and WVDNR for review and comment.**

National Coal Heritage Area - The MVP pipeline route would cross through the NCHA for a total of 17.1 miles between MPs 154.2 to 154.6 in Fayette County, West Virginia and MPs 157.2 to 174.2 in Summers County, West Virginia. The MVP would affect a total of about 392 acres in two counties within the NCHA; while in total the NCHA encompasses about 5,300 square miles (3,392,000 acres) in 13 counties in southern West Virginia. The NCHA is a partnership between the NPS, the state of West Virginia, and local counties, with the National Coal Heritage Area Authority designated as the state agency responsible for management of the NCHA. The mission of the NCHA is to preserve, protect, and interpret lands, structures, and communities associated with the history of coal mining in West Virginia. The proposed pipeline route would cross the New River and Greenbrier Coal Fields, and 12 active or abandoned coal mines were identified within 0.25 mile of the pipeline in Summers County, West Virginia (see table 4.1.1-5). However, during the cultural resources survey, which covered 14.1 miles out of the 17.1 miles (91 percent) within the NCHA, no historic resources related to the coal mining industry, including mines or camps, were identified within the APE. The MVP pipeline would be buried underground, and after installation, the right-of-way would be restored and revegetated. Our conclusion is that the MVP would not significantly alter the character or landscape of the region, or affect how structures and communities related to historic coal mining are interpreted within the NCHA.

Gauley River –The MVP pipeline route would cross the Gauley River in Nicholas County, West Virginia at about MP 118.9. People participating in recreational activities on the river or along the river banks may be affected during construction. Mountain Valley would use a cofferdam technique for a dry open-cut crossing of the Gauley River and will limit construction to half of the waterbody at a time. This method will allow Mountain Valley to maintain water access through the pipeline crossing area for recreational users.

Greenbrier River – The MVP pipeline route would cross the Greenbrier River at MP 171.3, in Summers County, West Virginia. People participating in recreational activities on the river or along the river banks may be affected during construction. Mountain Valley would use a cofferdam technique for a dry open-cut crossing of the Greenbrier River and will limit construction to half of the waterbody at a time. This method will allow Mountain Valley to maintain water access through the pipeline crossing area for recreational users.

Virginia Outdoors Foundation – At about MP 234.2, the MVP pipeline route would cross the easement labeled as MON-VOF-1871, in Montgomery County, Virginia. At about MP 239.3, Mountain Valley proposes to utilize an existing road for access (MVP-RO-279.01) that is within a VOF easement (parcel MON-VOF-2563/ROA-VOF-2563) on privately-owned land in Roanoke County, Virginia.

APPENDIX F-6

Major Waterbody Crossing Plans

January 18, 2017

Mountain Valley Pipeline: Proposed River Crossing Methods

The following information is a summary of Mountain Valley Pipeline's (MVP) proposed crossing methods for the Elk, Gauley, Greenbrier, and Meadow Rivers in West Virginia. The goal of this document is to provide further insight on MVP's crossing methodology, while also providing resource protection to the rivers within this project area.

MVP had originally explored the option of crossing these rivers using a wet, open-cut technique which would allow the water to flow over the active construction site while the trench was being excavated. Under this scenario, downstream best management practices (BMPs), such as turbidity curtains, would be utilized to protect and reduce sediment migration. However, after further analysis, MVP has determined that a dry-ditch technique is a more viable option and will reduce the potential for downstream sedimentation and turbidity by creating a dry working site. Typically, the dry-ditch technique uses a sandbag or jersey barrier cofferedam to create a dry workable area. The dry-ditch technique establishes a controlled, dry working site, while also maintaining sediment free water-flow downstream of the work area by using a pump around technique, fluming, or direct diversion method. However, because of the topography, crossing size, and hydrology of these four rivers, the standard sandbag/jersey barrier cofferdam approach would not provide a safe, reliable work area and could potentially increase downstream impacts.

As an alternative to the cofferdam approach, MVP intends to use a Portadam structure (or equivalent structured system) that creates a dry-ditch work site for these stream crossings. The Portadam is an engineered, segmental or linked system that creates a dry workable area while minimizing instream and downstream impacts. When compared to open-cut/wet ditch or sandbag coffer dam techniques, the dry ditch/Portadam technique offers better environmental protection for the following reasons:

- The structure creates a more reliable, controlled, dry workable area;
- Downstream sedimentation is reduced by constructing inside a dry workable area, which keeps the trench spoils contained and provides better control over trenching depth;
- Potential impacts to aquatic life are reduced by conducting earth disturbance within a controlled structure, maintaining upstream and downstream connectivity, and removing instream construction activities;
- The structure maintains water flow during construction; and
- The Portadam also allows for continued recreational uses during the construction process.

In addition to the E&S BMPs that will be onsite during construction, a site specific spill response plan will be developed and an Aid to Navigation (ATON) will be prepared to provide public information on construction, instream activities, and any potential user restrictions during construction. The installation process will include installing approximately one half of the crossing, completing required stream restoration in that area and then switching to the other side of the project to install the system and complete the project accordingly.

The following provides a summary of the proposed dry-ditch crossing methodology that MVP proposes for the Elk, Greenbrier, Gauley and Meadow Rivers:

- All material, including spill kits, E&S BMPs (such as turbidity curtains, timber mats, compost filter socks, belted silt fences, etc.), pipes, water pumps, secondary containment units, and fittings shall be placed on site before starting the installation;
- All fueling equipment will be parked or located at least 100' from the waterbody; signs will be installed stating that fueling must occur at least 100' from the waterbody;
- All topsoil shall be removed on both sides of the crossing and all work areas as necessary. Topsoil shall be stockpiled inside the approved Limits of Disturbance (LOD) and protected by E&S BMPs identified in the approved Erosion and Sediment Control Plan (ESCP);
- Equipment mats shall be installed as necessary where all equipment will be used;
- E&S controls shall be installed in all work areas of the crossing according to approved ESCP;
- All necessary containment shall be installed for ancillary equipment that is necessary for the river crossing. This includes full containment of cranes and pumps (including backup pumps). The containment is necessary to properly operate and fuel equipment that is positioned next to the river for the duration of the crossing. This practice will be duplicated on both sides of the crossing;
- Silt booms/turbidity curtains shall be installed downstream of the proposed Portadam location. The silt boom/turbidity curtain will be attached to the Portadam corner and the working side shoreline. All pumped out water will be discharged on the inside of this curtain structure through a filtration device (sediment bag) of required micron. Filtering through a sediment bag and then the turbidity curtain will help reduce the potential for downstream sedimentation by creating a dual filtration procedure;
- As necessary, the cofferdam location will be cleared of all large rocks, boulders, or other debris that would interfere with the Portadam footprint. These objects will be moved to the inside of the structure where they can be managed after pump down. The stockpiled material will be placed inside the Portadam in areas conducive to ensure that necessary work is unobstructed;
- The Portadam structure will be installed, starting on the upstream side and then working towards the center of the river;
- The structure shall be extended to a point in the river to create a safe area of overlap when the opposite side is installed;
- The A-frame supports are anchored by a U-bolt fastener. The fastener is installed by hand or pneumatic hammer;
- The center section shall be installed parallel to stream flow;
- The downstream section that connects to the stream bank will then be installed;
- The flow will be maintained in the river section outside of the Portadam during this process;
- A waterproof membrane shall be installed over the Portadam and anchored with sandbags to ensure a watertight seal;
- The working side of the Portadam will be dewatered by a floating dewatering structure. It will be dewatered into the silt boom/turbidity curtain area on the surface through the sediment filter bag to prevent impacts from occurring;

- A perimeter trench on the inside of the Portadam will then be installed to maintain dry conditions. A pump in a containment unit will be used for the entire construction sequence;
- Equipment mats shall be installed over and adjacent to the ditch line for operating equipment;
- The next step is to string pipe (i.e. place pipe segments) in preparation of welding and installation;
- The pipe will then be welded and welding inspections performed to prepare for installation;
- Ditch/rock shall be excavated and material inside the Portadam will be stockpiled in areas to ensure that the work area is unobstructed;
- The pipe shall be installed. The pipe trench, and perimeter trench will then be backfilled inside of the Portadam;
- The Portadam structure is then removed and large rocks and boulders are returned to their approximate original location;
- The above installation sequence will then be conducted on the opposite side of the stream to complete the project (the process will be similar, except the final tie-in will be in a shored, excavated trench at the midpoint of the river); and
- When the project is completed, all mats will be removed, topsoil replaced and the area will be restored to pre-construction condition.

CO105-1

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

In the Matter of

MOUNTAIN VALLEY PIPELINE, LLC Docket Nos. CP16-10-000
EQUITRANS, LP CP16-13-000

COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT
FOR THE PROPOSED MOUNTAIN VALLEY PIPELINE
AND EQUITRANS EXPANSION PROJECT

Appalachian Mountain Advocates submits the following on behalf of Allegheny Blue Ridge Alliance, Allegheny Defense Project, Appalachian Voices, Augusta County Alliance, Center for Biological Diversity, Chesapeake Climate Action Network, Eight Rivers Council, Friends of the Lower Greenbrier, Highlanders for Responsible Development, Indian Creek Watershed Association, Natural Resources Defense Council, Ohio Valley Environmental Coalition, Preserve Bent Mountain, Preserve Montgomery County Virginia, Protect Our water, heritage, Rights (POWHR), Shenandoah Valley Network, Sierra Club, Summers County Residents Against the Pipeline, Virginia Chapter of the Sierra Club, West Virginia Highlands Conservancy, and Wild Virginia (collectively, "Commenters") regarding the Federal Energy Regulatory Commission's ("FERC") draft environmental impact statement ("DEIS") for Mountain Valley Pipeline, LLC's ("Mountain Valley") proposed Mountain Valley Pipeline ("MVP") and Equitrans, L.P.'s ("Equitrans" or "EQT") proposed Equitrans Expansion Project ("EEP").[1]

[1] Many of the issues raised in these comments were first identified in the NEPA scoping comments submitting by Appalachian Mountain Advocates, the Center for Biological Diversity, and the Southern Environmental Law Center in the pre-filing process FERC Docket No. PF15-3 on June 16, 2016, attached as Exhibit A.

CO105-1 See the response to FA11-2 regarding the adequacy of the draft EIS. The document was adequate to comply with the CEQ regulations for implementing the NEPA. However, we will issue a final EIS that addresses comments on the draft.

CO105-20

A. The DEIS Lacks Information Necessary to Determine Impacts to Aquatic Life in the Three Major Rivers That Would Be Crossed Using Wet Open-Cut Methods

The MVP would cross three major rivers using the "wet open-cut" method: the Elk River at milepost 87.4, the Gauley River at milepost 118.6, and the Greenbrier River at milepost 170.6.[134] All of those rivers are ecologically, economically, and recreationally important to West Virginia. According to Mountain Valley's modeling analysis included in the DEIS, the crossings would significantly increase the sediment loads in those rivers. Specifically, "[s]ediment loads downstream of the crossings were estimated to increase by 49 to 81 percent, 15 to 26 percent, and 19 to 52 percent for the Elk River, Gauley River, and Greenbrier Rivers[135], respectively, over monthly baseline loads based on a crossing duration of 2 days."[136]

FERC acknowledges, however, that those sedimentation-loading calculations by themselves are not sufficient to assess impacts to aquatic life. In order to determine the impacts to aquatic organisms, it is necessary to calculate the duration, extent, and magnitude of in-stream turbidity levels that would result from additional sediment loads. As FERC explains, "while sediment loads and downstream turbidity and sedimentation are related, they are different

[134] FERC notes that Mountain Valley is currently evaluating using the wet open-cut method at the crossing of the Pigg River at milepost 286.3. Obviously, FERC (and the public) cannot know what the impacts to the Pigg River will be until the method of crossing is determined. This is yet another example of FERC rushing to release the DEIS before obtaining adequate information to take the required "hard look" at the impacts of the projects.

[135] In addition to the sedimentation impacts discussed in these comments, the crossing of the Greenbrier River poses additional risks to water quality and aquatic life in part due to the bedrock exposes in the river bed that will likely require blasting during pipeline construction. Those risks are outlined in the comments submitted on behalf of the Indian Creek Watershed Association by Thomas Bouldin and Pamela C. Dodds, Ph.D., Licensed Professional Geologist. Commenters hereby adopt and incorporate those comments by reference.

[136] DEIS at 4-176. The DEIS notes that Mountain Valley would "attempt" to minimize those impacts using "turbidity curtains" and timing restrictions but includes no analysis of the effectiveness of the minimization measures that would be used.

CO105-20 Mountain Valley now proposes to cross the Elk, Gauley, and Greenbrier Rivers using dry crossing methods, and final EIS has been updated accordingly.

CO105-20 cont'd

measurements with distinct values."[137] The density, downstream extent, and persistence of a turbidity plume at a given crossing depends on stream velocity, turbidity, bank composition, sediment particle size, and duration of the disturbance.[138] According to the DEIS, "Mountain Valley's analysis does not quantify the duration, extent, or magnitude of estimated turbidity levels. Therefore, based on these estimates, *conclusions cannot be drawn regarding the effects of sedimentation and turbidity on fisheries and aquatic resources due to the wet open-cut crossings.*"[139]

Despite admitting that it cannot determine impacts from sedimentation and turbidity on aquatic life at the three major river crossings, FERC remarkably goes on to conclude that those impacts would not be significant. Its conclusion appears to be based in part on its requirement that Mountain Valley submit a turbidity analysis that "address[es] the duration, extent, and magnitude of turbidity levels," "assess[es] the potential impacts on resident biota," "include[s] a discussion on the physical and chemical characteristics of the sediments, the estimated area affected by the transport and redistribution of the sediments, and the effect of the suspension and resettlement on water quality," and includes "an assessment of the effectiveness of the proposed turbidity curtains" that are proposed as mitigation measures.[140] FERC, however, does not require that analysis to be submitted during the NEPA process or, indeed, even prior to the issuance of a

[137] DEIS at 4-110.

[138] *Id.* at 4-108, 4-176.

[139] *Id.* at 4-176 (emphasis added).

[140] *Id.* at 4-110.

CO105-20 cont'd

certificate. Rather, FERC permits Mountain valley to submit its analysis at any time prior to the beginning of construction.[141]

As explained in detail above, NEPA does not permit agencies to defer analysis that is critical to determining the environmental impacts of a proposed project until after the issuance of a DEIS or, even less so, after the conclusion of the NEPA process. Rather, FERC must "take to the public the full facts in its draft EIS."[142] Here, FERC expressly acknowledges that it cannot determine impacts to aquatic life at the three major rivers that would be crossed using the wet open-cut method based on the information before it. Nonetheless, FERC concludes that those impacts would not be significant because they would be studied at some future date along with the effectiveness of the proposed mitigation measures. FERC's conclusion defies logic and plainly renders the DEIS deficient, thus violating NEPA.

CO105-21

B. The DEIS's Reliance on BMPs to Minimize Construction Sedimentation Impacts is Unsupported

The proposed projects would impact aquatic life due to increased sedimentation not just from the stream crossings themselves, but also from the runoff from the significant land disturbance that would occur in the watersheds upstream from the crossings during construction. As mentioned above, construction of the MVP would disturb over 4,100 acres of soils that are classified as having the potential for severe water erosion.[143] Moreover, much of the proposed pipeline route follows very steep slopes, with the MVP crossing 18.5 miles of slopes between 15 and 30 percent grade and 72.6 miles of slopes greater than 30 percent.[144] Through the course of

[141] *Id.*

[142] *Burkey v. Ellis*, 483 F. Supp. 897, 915 (N.D. Ala. 1979).

[143] DEIS at 4-59.

[144] *Id.* at 2-49.

CO105-21 See response to comment CO105-18 regarding the use of BMPs to control sedimentation impacts. Landslides and steep slopes are addressed in section 4.1 of the EIS. See the response to comment IND 70-1 regarding erosion. See the response to comment LA1-4 regarding existing pipelines in mountainous terrain.

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Petitioners,

v.

UNITED STATES ARMY CORPS OF ENGINEERS; MARK T. ESPER, in his official capacity as Secretary of the U.S. Army; TODD T. SEMONITE, in his official capacity as U.S. Army Chief of Engineers and Commanding General of the U.S. Army Corps of Engineers; PHILIP M. SECRIST, in his official capacity as District Commander of the U.S. Army Corps of Engineers, Huntington District; and MICHAEL E. HATTEN, in his official capacity as Chief, Regulatory Branch, U.S. Army Corps of Engineers, Huntington District;
Respondents.

FEDERAL RESPONDENTS' OPPOSITION TO PETITIONERS' SECOND MOTION TO STAY AGENCY ACTION

Exhibit 3

Federal Energy Regulatory Commission, Draft Environmental Impact Statement for Mountain Valley Project (June 2017) (excerpt)

Federal Energy Regulatory Commission
Office of Energy Projects
888 First Street, NE, Washington, DC 20426

FERC/DEIS-D0272 **September 2016**

Mountain Valley Project and Equitrans Expansion Project

Draft Environmental Impact Statement

Mountain Valley Pipeline, LLC and Equitrans, LP
FERC Docket Nos.: CP16-10-000 and CP16-13-000

Cooperating Agencies:

U.S. Forest Service

U.S. Army Corps of Engineers

U.S. Bureau of Land Management

U.S. Environmental Protection Agency

Pipeline Hazardous Materials Safety Administration

West Virginia Department of Environmental Protection

West Virginia Division of Natural Resources

4.6.2 Environmental Consequences

Constructing and operating the MVP and the EEP could temporarily and permanently impact fisheries and aquatic resources. As discussed in greater detail below, sedimentation and turbidity, alteration or removal of in-stream and stream bank cover, stream bank erosion, introduction of water pollutants, water depletions, and entrainment of small fishes during water withdrawals could increase the rates of stress, injury, and mortality experienced by fisheries and other aquatic life. In general, fish would migrate away from these activities. This displacement could lead to increased competition for habitat and food and could affect fish survival and health. The degree of impact on fisheries from construction activities would depend on the waterbody crossing method, the timing of construction, and the characteristics of aquatic species present.

4.6.2.1 Sedimentation and Turbidity

Increased sedimentation and turbidity resulting from in-stream and adjacent construction activities would displace and impact fisheries and aquatic resources. Sedimentation could smother fish eggs and other benthic biota and alter stream bottom characteristics, such as converting sand, gravel, or rock substrate to silt or mud. These habitat alterations could reduce juvenile fish survival, spawning habitat, and benthic community diversity and health. Increased turbidity could also temporarily reduce dissolved oxygen levels in the water column and reduce respiratory functions in stream biota. Turbid conditions could also reduce the ability for biota to find food sources or avoid prey. The extent of impacts from sedimentation and turbidity would depend on sediment loads, stream flows, stream bank and stream bed composition, sediment particle size, and the duration of the disturbances.

To address concerns regarding the Elk, Gauley, and Greenbrier Rivers, Mountain Valley commissioned a quantitative modeling assessment to estimate the amount of turbidity and sediment that would occur as a result of the proposed wet open-cut crossings. Sediment loads downstream of the crossings were estimated to increase by 49 to 81 percent, 15 to 26 percent, and 19 to 52 percent for the Elk River, Gauley River, and Greenbrier Rivers, respectively, over monthly baseline loads based on a crossing duration of 2 days. Mountain Valley would attempt to minimize downstream sedimentation and turbidity, and subsequent impacts on aquatic biota in these waterbodies, by conducting the wet open-cut crossings during low-flow periods within the applicable time-of-year work windows for protection of fisheries of special concern, installing turbidity curtains that have buoyant booms and weighted bottoms to promote settling of sediment, and following Mountain Valley's Procedures and *Erosion and Sediment Control Plan* relative to construction on the streambanks. However, as we note in section 4.3.2.2, although sediment loads are related to downstream turbidity and sedimentation, they are different measurements with distinct values. Mountain Valley's analysis does not quantify the duration, extent, or magnitude of estimated turbidity levels. Therefore, based on these estimates, conclusions cannot be drawn regarding the effects of sedimentation and turbidity on fisheries and aquatic resources due to the wet open-cut crossings. We have included a recommendation in section 4.3.2.2 for additional quantitative modeling of turbidity and sedimentation associated with the proposed open-cut crossings for major waterbodies.

While several factors can influence the effectiveness of dry open-cut construction across waterbodies, if the crossings are properly installed and maintained during construction and

restoration, the levels of sediment and turbidity produced are typically minor. Based on a literature assessment of magnitude and timing of suspended sediment produced from open-cut dry crossing methods (Reid et. al., 2004), the duration of increased sedimentation would be mostly short-term (i.e., less than 1-4 days) and remain near the crossing location (i.e., an approximate downstream distance of a few hundred feet). The likely range of effects on aquatic resources in the project area can be approximated by applying this predicted suspended sediment to the Newcombe and Jensen model (1996). Results from this model suggest a very low probability of fish mortality from construction, with local crossing area impacts consisting of mostly sublethal effects (e.g., short-term physiological stress and reduction of feeding), and limited habitat degradation.

Benthic invertebrates and freshwater mussels could also be affected by elevated turbidity and suspended sediments. Although freshwater mussels in the construction zone would be relocated by qualified biologists and in accordance with both West Virginia and Virginia mussel protocols, downstream sessile species could be affected. Aquatic invertebrates, including insect larvae, would generally be unable to avoid work areas. However, these areas would rapidly recolonize as a result of upstream drift and new egg deposition from adults within days to months (Brooks and Boulton, 1991; Matthaei and Townsend, 2000).

The HDD method, proposed by Equitrans only, could result in a release of drilling fluid into a waterbody. An inadvertent release of drilling fluid would result in sedimentation and turbidity, affecting aquatic biota as described previously. Equitrans developed a *HDD Contingency Plan* to handle failures and frac-outs.

4.6.2.2 Loss of Stream Bank Cover

Stream bank vegetation, large woody debris, rocks, and undercut banks are known cumulatively as riparian habitat. Riparian habitat provides valuable structure and opportunities for fish and stream biota. Open-cut crossings would temporarily remove this habitat and potentially cause locally elevated water temperatures and reduced levels of dissolved oxygen, making the locations less suitable for aquatic biota. Consequently, fish and other stream biota would likely be displaced to similar habitat upstream or downstream of the pipeline crossing.

Clearing of trees and other riparian vegetation would be minimized to include only what is necessary to construct and operate the projects safely. Mountain Valley and Equitrans would minimize impacts on riparian vegetation by narrowing the width of its standard construction right-of-way at waterbody crossings to 75 feet, and by locating as many ATWS as possible at least 50 feet from waterbody banks. Once construction is complete, streambeds and banks would be stabilized and restored to pre-construction conditions to the fullest extent possible. Streambed structure such as rock and gravel would be returned to the stream, and the stream banks would be revegetated with native tree and shrub species; only the permanent right-of-way centered on the pipeline would be maintained with herbaceous vegetation. Restricting the herbaceous vegetation area to a small portion of the total right-of-way clearing would allow much of the ecological function of the riparian conditions (e.g., bank stabilization, filtration, shade, future large wood, and organic input) to more quickly return. Stream bank shrub and tree species would be expected to recover over several months to a few years. Streambed biota, such as invertebrates that serve as food sources for fishes, would be expected to recolonize the affected areas within

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Respondents.

FEDERAL RESPONDENTS' OPPOSITION TO PETITIONERS' SECOND MOTION TO STAY AGENCY ACTION

Exhibit 4

Sierra Club, letter of January 4, 2018 to U.S. Army Corps of Engineers (excerpt)

SIERRA CLUB

January 4, 2018

Via email and U.S. Mail

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Re: Comments on Mountain Valley Pipeline, LLC's Request to U.S. Army Corps of Engineers for Verification under Nationwide Permit 12

To Whom It May Concern:

The Sierra Club submits this letter to urge the U.S. Army Corps of Engineers ("Corps") to initiate an individual Clean Water Act ("CWA") section 404 permit process for Mountain Valley Pipeline, LLC's ("Mountain Valley") proposed Mountain Valley Pipeline ("MVP" or "the Project") pursuant to 33 U.S.C. § 1344(a). To the extent that particular Corps districts have already authorized the Project pursuant to Nationwide Permit 12 ("NWP 12"), we respectfully urge reconsideration of that decision.

The purpose of NWP 12 is to streamline the permitting process for utility line crossings of streams and wetlands that will have no more than "minimal" impacts.[1] Verification of the MVP under NWP 12 is inappropriate because, *inter alia*, adverse environmental effects would be more than minimal. The proposed project is a massive 303.5-mile-long gas pipeline that would

[1] Issuance and Reissuance of Nationwide Permits, Final Rule, 82 Fed. Reg. 1860, 1884 (Jan. 6, 2017).

or wetland crossing, on average, every 0.168 miles. Appendices F and G to the Final EIS show how many of these proposed crossings are in close proximity; they cannot accurately be characterized as "separate and distant."[160] The pipeline's crossings are clearly not a "substantial distance from each other,"[161] such that impacts might dissipate and cumulative effects would be no more than minimal. Rather, the crossings are in close proximity to each other and would cause more than minimal cumulative impacts. The large number of crossings (in total, per mile, and per watershed) illustrates that the MVP is not a proper candidate for verification under NWP 12, which is to be used for minor activities involving distant crossings.[162]

The Mountain Valley Pipeline is ineligible for authorization under the terms of NWP 12

When an entire linear project is comprised of multiple "single and complete projects," not all of which qualify for authorization under a nationwide permit, then generally "all portions of the project must be evaluated as part of the individual permit process."[163] A narrow exception applies only where "the portions of the project qualifying for [nationwide permit] authorization would have independent utility and [would be] able to function or meet their purpose independent of the project."[164] According to Mountain Valley, the proposed pipeline would "add[] infrastructure to transport lower-priced natural gas from the Appalachian Basin to … the Mid-Atlantic and Southeastern United States."[165] Unless the pipeline is constructed in its entirety, its constituent parts will neither "have independent utility" nor be "able to function or meet their purpose," as defined by the project applicant.[166] As such, the MVP could proceed under the nationwide permitting scheme only if all constituent parts are authorized under a nationwide permit. As discussed below, however, significant segments of the pipeline do not qualify for authorization under NWP 12, and the entire linear project therefore requires review under the individual permitting process.

A substantial segment of the project fails to meet applicable water quality certification requirements

All stream and wetland crossings in West Virginia must meet "any case specific conditions added" by West Virginia "in its section 401 Water Quality Certification."[167] The West Virginia Department of Environmental Protection's 401 Certification for NWP 12 limits the permit's use to pipelines that are less than 36 inches in diameter.[168] The Final EIS, however,

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[160] *See* Decision Document at 11 ("[T]he separate and distant crossings of waters of the United States are usually at separate waterbodies scattered along the length of the utility line, and are often in different watersheds.").
[161] 82 Fed. Reg. at 1975.
[162] Decision Document at 11.
[163] 33 C.F.R. § 330.6(d).
[164] *Id.*
[165] Final EIS at 1-8.
[166] *Cf.* 33 C.F.R. § 330.6(d).
[167] 82 Fed. Reg. at 2002.
[168] West Virginia Department of Environmental Protection, *Nationwide Permit Reissuance and Issuance for the State of West Virginia, Public Notice No. LRH-2016-00006-WV* at 10 (Apr. 13,

states that "[t]he main component of the MVP would be a 304-mile-long, 42-inch-diameter pipeline."[169] Mountain Valley thus cannot rely on NWP 12 for construction of its pipeline through West Virginia.[170] Pursuant to 33 C.F.R. § 330.6(d), because Mountain Valley has failed to demonstrate that the West Virginia portion of the MVP can be authorized under NWP 12, the remainder of the project's "single and complete projects," including in Virginia, are similarly ineligible for NWP authorization.

The MVP is not "similar in nature" to other activities authorized under NWP 12

Nationwide permits must be limited in scope to a single "category of activities . . . similar in nature."[171] Before issuing a nationwide permit, the Corps' own regulations require that it "set forth in writing an evaluation" that includes, *inter alia*, "a *precise description* of the activities to be permitted under the General permit, explaining why they are sufficiently similar in nature and environmental impact to warrant regulation under a single General permit."[172]

On its face, NWP 12 applies to all "activities required for the construction, maintenance, repair, and removal of . . . any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and internet, radio, and television communication."[173] The Decision Document accompanying NWP 12 states:

> The activities authorized by this NWP are sufficiently similar in nature and environmental impact to warrant authorization by a general permit. The terms of the NWP authorize a specific category of activity (i.e., discharges of dredged or fill material for the construction, maintenance, repair, or removal of utility lines and associated facilities) in a specific category of waters (i.e., waters of the United States). The terms of the NWP do not authorize the construction of utility line substations in tidal waters or in non-tidal wetlands adjacent to tidal waters. The restrictions imposed by the terms and conditions of this NWP will result in the authorization of activities that have similar impacts on the aquatic environment, namely the replacement of aquatic habitats, such as certain categories of non-tidal wetlands, with utility line facilities. Most of the impacts relating to the construction, maintenance, repair, or removal of utility lines will be temporary.[174]

2017), *available at* http://www.steptoe-johnson.com/sites/default/files/SJDOCS-%237675080-v1-WV_DEP.PDF. *See also id*. at 1 ("These conditions *must be* implemented into any activity authorized by an ACOE NWP.") (emphasis added).

[169] Final EIS at 4-261.

[170] In addition, WVDEP's 401 Certification for NWP 12 states that "[n]o structure authorized by this permit shall impede or prevent fish movement upstream or downstream." The "dam and pump" method would not allow for fish passage. *See* Ex. P at 9.

[171] 33 U.S.C. § 1344(e)(1).

[172] 40 C.F.R. § 230.7(b) (emphasis added).

[173] 82 Fed. Reg. at 1985.

[174] Decision Document at 69.

Although the language defining the scope of the permit is broad, the scope of any permit remains subordinate to the limitations expressed in section 404: that activities under a general permit are "similar in nature, will cause only minimal adverse environmental effects when performed separately, . . . will have only minimal cumulative adverse effects on the environment," and are not "more appropriately authorized by individual permits."[175]

Large-scale interstate pipelines like the Mountain Valley Pipeline are not "similar in nature" to the other utility line projects contemplated in the Corps' decision-making process, nor were such projects evaluated by any "precise description" in the Decision Document. They will result in more than minimal individual and cumulative impacts. As discussed above, the prediction that NWP 12 will result annually in 1,700 acres of impacts nationwide[176] demonstrates that the Corps' decision-making process did not consider the individual or cumulative impacts of gas pipeline projects of this scale—let alone a multitude of such projects in the same mountainous region. The Corps cannot reasonably determine that massive pipeline projects such as the proposed Mountain Valley Pipeline would have only minimal adverse impacts, or that it is sufficiently "similar in nature" to the minor projects envisioned when NWP 12 was issued.

Conclusion

For the reasons described herein, the Mountain Valley Pipeline does not qualify for authorization under Nationwide Permit 12. The Corps must deny the applications and instruct Mountain Valley to seek authorization under an individual permit.

Thank you,

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[175] 33 U.S.C. § 1344(e).
[176] Decision Document at 70.

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Exhibit 5

S.M. Reid et al., *Sediment entrainment during pipeline water crossing construction*, 8 J. Envtl. Eng. Sci. 81, 86-87 (2004)

Sediment entrainment during pipeline water crossing construction: predictive models and crossing method comparison

S.M. Reid, F. Ade, and S. Metikosh

Abstract: Sediment entrained during pipeline water crossing construction has the potential to adversely affect downstream aquatic biota and their habitats. Past construction monitoring studies were used to derive equations for the prediction of peak and mean sediment entrainment rates associated with different phases of open-cut (wet) construction. Correlation coefficients and suspended sediment concentrations measured downstream of simulated open-cut crossings indicate that entrainment equations more closely predict mean concentrations as compared to peak concentrations. The same data set was used to demonstrate that isolated (dam and pump or flumed) crossing methods were effective at reducing the amount of sediment released during pipeline installation underneath small to medium sized watercourses. The effectiveness of isolated crossing methods was in some cases limited by pump failure or insufficient capacity, dam failure, poor dam seals, and poor containment of pumped ditch water.

Key words: pipeline construction, sediment, best management practices, impact assessment.

Résumé : Les sédiments entraînés durant la construction des ouvrages de franchissement de cours d'eau pour un pipeline peuvent potentiellement affecter négativement les biotes aquatiques en aval et leurs habitats. Les études antérieures de suivi de la construction ont été utilisées pour dériver des équations en vue de prédire les taux d'entraînement de pointe et moyens des sédiments associés aux différentes phases de la construction de la tranchée à ciel ouvert (humide). Les coefficients de corrélation et les concentrations des sédiments en suspension mesurés en aval des ouvrages simulés de franchissement de cours d'eau par tranchée à ciel ouvert indiquent que les équations d'entraînement prédisent plus précisément les concentrations moyennes que les concentrations de pointe. Le même ensemble de données a été utilisé pour démontrer que les méthodes de franchissement isolées (barrage et pompage ou buse) réduisaient effectivement la quantité de sédiments libérés durant l'installation du pipeline sous des cours d'eau de petite et de moyenne dimensions. L'efficacité des méthodes de franchissement isolées a été, dans certains cas, limitée par une panne ou une capacité insuffisante de la pompe, la rupture du barrage, une mauvaise étanchéité du barrage et un mauvais confinement de l'eau pompée des tranchées.

Mots clés : construction des pipelines, sédiments, meilleures pratiques de gestion, étude d'impacts.

[Traduit par la Rédaction]

Introduction

Natural gas and oil transmission pipelines, being linear facilities, traverse streams, rivers, and other water bodies. Watercourse crossing construction can increase downstream total suspended sediment (TSS) concentrations through (Reid and Anderson 1999): trench excavation (trenching), backfilling; the storage of excavated material directly in the watercourse; the installation of isolation and diversion structures; erosion and run-off from adjacent upland worksites; and the discharge of water from hydrostatic pipe testing or trench dewatering. Sediment released during open-cut (wet) crossing construction has been found to affect fish through the temporary (1 to 2 years) modification of their habitats (e.g., reduced benthic invertebrate abundance, increased embeddedness of substrates, or infilling of pools) (Reid and Anderson 1999).

Generally, it is assumed that sediment release can be avoided or minimized through the selection of appropriate crossing methods, limiting the duration of instream work, and through the use of best management practices (BMPs). Regulatory agencies have responded to sediment related concerns by simplifying permitting approval for crossing methods such as horizontal directional drilling (HDD) or other trenchless technologies. Although HDD installations do not generate major sediment discharges and avoid disturbance of riparian vegetation, the potential for environmental damage due to unexpected releases of drilling mud still exists (Reid and Anderson 1998). Secondly, construction related factors such as pipe diameter, thickness and curvature, valley geometry, and subsurface geology can prevent

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Written discussion of this article is welcomed and will be received by the Editor until 31 July 2004.

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 doi: 10.1139/S03-064

Table 1. Overview of construction details and environmental considerations for open-cut and isolated pipeline water crossings (adapted from CPWCC 1999 and Reid et al. 2002*a*).

Crossing method	Construction details	Environmental considerations
Open-cut	Trench excavated and backfilled without diversion of flow; equipment typically operates from each bank with spoil stored at upland locations; large watercourses may require instream equipment and spoil storage; typical equipment: hoe, dragline, and suction dredge	Potential adverse effects on downstream aquatic biota and habitats due to sediment entrainment and deposition; sediment entrainment increased by instream spoil storage and equipment activity; as compared to isolated methods, open-cut crossings minimize the period of instream activity; maintains fish passage and streamflow; banks and riparian vegetation require restoration
Flumed	Dams isolate the instream work area and flow is diverted through a pipe (flume); turbid ditch water pumped to upland sumps; best suited for watercourses with flows <1 m^3 s^{-1}, non-permeable substrates, and well-defined banks; typical equipment and materials: hoe, sandbag, or aqua-barrier dams, flume; for larger watercourses (<6 m^3 s^{-1}), a superflume (2 m $\times$ 3 m $\times$ 32 m flume) with aqua-barriers suitable	Sediment entrainment low and restricted to the installation and removal of dams and flume; effectiveness dependent on proper materials and application; longer period of instream activity than open-cut crossings; salvage of fish within dewatered area may be required; no fish passage during period of instream activity; banks and riparian vegetation require restoration
Dam and pump	Dams isolate the instream work area and bypass pumps maintain downstream streamflow; turbid ditch water pumped to upland sumps; best suited for watercourses with flows <1 m^3 s^{-1}, non-permeable substrates and well-defined banks; better suited for meandering channels and uneven streambeds than flumed crossing; typical equipment and materials: hoe, sandbag, or aqua-barriers, steel plates, bypass pumps and hoses	Sediment entrainment low and restricted to the installation and removal of dams; effectiveness dependent on proper materials and application; longer period of instream activity than open-cut crossings; salvage of fish within dewatered area may be required; no fish passage during period of instream activity; banks and riparian vegetation require restoration

the application of this technique. Therefore, the need for alternate construction methods exists for the installation of pipelines underneath sensitive watercourses, especially when the risk of unexpected mud releases or construction failure is high. Isolated (dry) crossing methods such as the dam and pump and flume methods have been developed to limit the amount of sediment released during construction. Dams isolate the instream work area and water is diverted around the work area through a flume and (or) pumps. Trench excavation and backfilling occurs under relatively dry conditions thereby limiting downstream sediment loading. However, a lack of TSS monitoring data has prevented defensible statements to be made regarding the level of environmental protection provided (Mutrie and Scott 1984; Reid and Anderson 1999). Documentation of the effectiveness of isolated crossing methods is important as these methods have greater construction complexities, risks, and costs than open-cut crossings. A summary of construction details and environmental considerations for open-cut and isolated crossing methods is presented in Table 1. Further information on crossing methods and associated construction drawings are found in CPWCC (1999).

For environmentally sensitive watercourses where trenchless (boring or HDD) or isolated crossing methods are not feasible, defensible impact assessment is dependent on predictions of the magnitude of sediment entrainment and the extent of downstream habitat affected by elevated suspended sediment concentrations and sediment deposition (Anderson et al. 1996). Direct effects (i.e., behavioral and physiological) of exposure to elevated TSS on downstream fish can be assessed using sediment-effects dose-response equations (Newcombe and Jenson 1996) and predicted downstream TSS levels and durations of instream activity. Coupled with sediment transport models, sediment entrainment predictions can be used to estimate the extent and nature of sediment deposition related effects on downstream fish habitat.

Using a data set developed from previous studies monitoring pipeline water crossing construction we (*i*) derived equations to predict sediment entrainment rates during open-cut crossing construction and (*ii*) tested whether isolated crossing methods were effective at reducing the amount of sediment released during water crossing construction.

Methods and materials

Data collection

The following TSS sampling procedure was applied during construction monitoring studies. Monitoring transects were established upstream and downstream of instream construction to measure background concentrations and sediment entrainment rates. The location of the downstream transect was as close to construction (range: 10–150 m downstream) as safely possible. Across the downstream monitoring transect, the number of point sampling locations increased with channel width (1 to 5 samples). Grab water samples were collected at mid-water column depth. For each sampling event, point samples were used to calculate a mean TSS concentration. The frequency of sam-

pling varied depending on the instream construction activities being conducted and the expected duration of crossing construction. The interval between samples ranged from every 15 min to hourly. After completion of construction, sampling continued until downstream turbidity levels returned to background (typically less than 3 h).

The TSS concentrations used in model generation and crossing method comparisons were based on either laboratory analyzed grab water samples (0.5 L) or field turbidity measurements (measured in NTU) converted to TSS using crossing specific TSS–NTU relationships derived from laboratory analyzed water samples (Gippel 1995). Correlation coefficients, r^2, ranging from 0.75 to 0.98 indicate that field NTU measurements can be used to obtain good estimates of TSS concentration. As the time intervals between water samples were not always equal, time weighted mean TSS concentrations were calculated for the entire crossing period and for the periods of trenching, pipe-lowering, and backfilling (Anderson et al. 1996).

In addition to TSS sampling, the following information was recorded: trench dimensions (length, width, and depth), stream width, mean water depth and velocity; trenching equipment and bucket size; construction logs (timing of activities, excavation rates, material used to construct isolation dams); and size gradation of surface bed material, spoil material, and backfill material. Size gradation was based on particle size analysis completed at a geotechnical laboratory. Streamflow (discharge), water velocity, and depth measurements followed the methods outlined in Terzi (1981).

Sediment entrainment models

An empirical approach was used to develop equations for the prediction of mean and peak downstream TSS concentrations. An empirical modeling approach was selected as the physical processes governing sediment entrainment and transport are nonlinear and complex (Graf 1984; Simons and Senturk 1976; Thorne et al. 1987; Julien 1995). Formulation of a sediment entrainment model based on partial differential equations for modeling turbulent flows and sediment entrainment was considered too complex for practical application. This is related to uncertainties associated with modeling streamflow turbulence and sediment entrainment. Secondly, our goal was to derive equations that could be applied using readily available or obtainable measurements of watercourse conditions. Phases of construction modeled included the entire crossing period (all activities), trenching, pipe-lowering, and backfilling. Multiple regression analysis of TSS data was conducted based on a simplified nondimensional equation. Equations were derived from monitoring data measured during open-cut water crossings constructed in Alberta and the mid-western United States (Minnesota, Iowa, and Ohio). A range of pipe sizes (508–1219 mm outside diameter) were installed underneath watercourses of a range of flow characteristics and bed material (Table 2).

Sediment entrainment was expressed as a function of a number of independent variables

$$[1] \qquad G_s = f_1(g, \Delta\rho, \rho, \rho_s, U, h, x, d_{50}, w, h_t, P_f, K)$$

where G_s is the sediment entrainment rate per width of watercourse (kg s^{-1} m^{-1}); g is the acceleration due to gravity (m s^{-2}); $\Delta\rho$ is the difference between water density ρ and sediment density ρ_s (kg m^{-3}); U is the mean flow velocity at the crossing location during the construction period (m s^{-1}); h is the mean flow depth at the crossing location (m); x is the downstream distance from the trench measured along the watercourse (m); d_{50} is the median sediment size of the excavated material by weight (m); w is the size of the excavation bucket (m^3); h_t is the depth of trench (m); P_f is the percentage of fines (silt and clay) in the excavated material (%); and K is a parameter to quantify the construction method and practices used.

Equation [2] was used to convert the unit of sediment entrainment from kg m^{-1} s^{-1} to mg L^{-1}

$$[2] \qquad C_s = 10^3 G_s B Q^{-1} = 10^3 G_s q^{-1}$$

where C_s is the TSS concentration above the background TSS concentration C_w; B is the watercourse width (m); Q is the stream flow rate (m^3 s^{-1}); and q is the width adjusted stream flow rate (Q/B) (m^2 s^{-1}).

Based on an understanding of the dominant physical processes for sediment entrainment, a dimensional analysis was conducted to re-arrange eq. [1]. The resulting equation was simplified by discarding nondimensional variables considered of low importance. The parameter K was discarded as backhoe was the primary machinery used and trenching and backfilling rates were similar between crossings (2 to 3 buckets per minute). Bucket sizes (w) were similar between crossings (1.5–1.6 m^3). Equations were not developed for isolated crossings as sediment releases during construction often result from poor construction practices (e.g., overflow of sumps and dam failures) rather than flow related entrainment.

To validate the models, we attempted to obtain independent monitoring data from other pipeline construction monitoring studies. However, available historical monitoring data did not include the required set of physical watercourse characteristics, sample downstream TSS concentrations with sufficient frequency and (or) record construction related details. Therefore, we simulated open-cut pipeline watercourse crossing at Serviceberry Creek, Alberta (19 and 20 July 2001) and Conestogo River, Ontario (2 October 2001). Only one crossing was simulated at each watercourse. The two watercourses represent contrasting water velocities and bed material compositions. The duration and characteristics (e.g., bucket size and trenching rate) of instream construction were based on past construction logs kept during open-cut monitoring studies. Total suspended sediment samples were collected at 35 and 40 m downstream of the Serviceberry Creek and Conestoga River crossings, respectively. Given the small sample size, model validation was based on absolute and percent differences between predicted and measured TSS concentrations.

Water crossing method comparison

A data set of TSS monitoring data collected during the construction of 46 pipeline water crossings (23 dam and pump

Table 2. Summary of physical and TSS data from open-cut pipeline watercourse crossing monitoring studies.

Watercourse	P_f	d_{50}	Background TSS (mg L^{-1})	Peak TSS (mg L^{-1})	Mean TSS (mg L^{-1})	Distance downstream (m)	Channel width (m)	Water depth (m)	Mean water velocity (m s^{-1})	Stream flow (m^3 s^{-1})
Big Darby Creek, Ohio	40	0.2	6.9	5 560	533	50	37	0.27	0.2	2
Bow River, Alberta	9	40	5	4 069	89	30	58	1.26	1	72.9
Coxes Creek, Pennsylvannia	6	75	24	2 368	964	35	13	0.22	0.24	0.7
Heart Creek, Alberta	15	60	2	25 500	12 932	10	3.4	0.17	0.08	0.05
Judicial Ditch #1-A, Minnesota	15	4	21	2 294	836	25	7.7	0.49	0.32	1.2
Little Cedar Creek, Iowa	50	1.5	22	1 814	459	45	19.5	0.31	0.32	1.9
North Saskatchewan River, Alberta	30	1.5	15	927	71	100	220	1.7	0.51	190
North Saskatchewan River, Alberta	5	63	15	628	85	150	80	1.5	0.7	85
North Saskatchewan River, Alberta	27	0.5	8	318	46	100	210	1.3	0.24	65.3
Otter Creek, Minnesota	50	0.3	41	2 938	1 295	25	12.3	0.25	0.12	0.37
Pigeon Creek, Alberta	15	50	1	16 755	2 526	80	5.1	0.18	0.33	0.30
Red Deer River, Alberta	15	10	5	3 890	146	90	110	0.25	0.84	23
Red Deer River, Alberta	5	48	2.4	1 850	—	69	84.8	0.51	0.68	29.4
Serviceberry Creek, Alberta	32	0.4	123	2 100	—	5	7.8	0.49	0.39	1.5
South Branch Rush, Minnesota	66	0.5	15	2 044	657	25	5.8	0.52	0.29	0.87
South Saskatchewan, Alberta	20	1	2.2	666	100	50	160	0.87	0.36	50.1
Tributary to Caribou River, Manitoba	10	0.4	6	385	—	49	37.6	0.51	0.25	4.8
Tributary to Caribou River, Manitoba	33	0.2	3	979	—	13	10	0.6	0.36	2.2
Wildshay River, Alberta	5	50	22	2 716	69	50	58.7	0.56	0.63	20.7
Wapiti River, Alberta	13	37	2	3 042	265	100	43	0.95	0.2	8.2

Note: P_f, percentage fines of excavated material; d_{50}, median sediment particle size of excavated material.

Table 3. Sediment entrainment models for predicting mean (C_{av}) and peak (C_p) TSS concentrations immediately downstream of pipeline water crossing construction. Number of crossings (n), correlation coefficients (r^2), and percent differences between measured and predicted TSS concentrations are presented for comparison. Differences between measured and predicted concentrations are based on the original data set used to derive entrainment models (Table 2).

Construction activity	Parameter	Equation	n	r^2	Mean percent difference (range)
All activities	Mean TSS	$C_{av} = 1.5 \times 10^6\ U^{1.09}\ d_{50}{}^{0.95} P_f^{2.35} q^{-1}$	16	0.65	106 (11 – 505)
	Peak TSS	$C_p = 5.7 \times 10^5\ U^{1.86} d_{50}{}^{0.57} P_f^{1.2} q^{-1}$	19	0.36	85 (13 – 312)
Trenching	Mean TSS	$C_{av} = 4.53 \times 10^6\ U\ d_{50}\ P_f^{2.77} q^{-1}$	16	0.7	107 (4 – 312)
	Peak TSS	$C_p = 1.05 \times 10^6\ U^{1.67}\ d_{50}{}^{0.67} P_f^{1.65} q^{-1}$	19	0.51	78 (3 – 286)
Pipe lowering	Mean TSS	$C_{av} = 3.84 \times 10^5\ U^{1.15}\ d_{50}{}^{0.93} P_f^{2.3} q^{-1}$	15	0.45	181 (30 – 528)
Backfilling	Mean TSS	$C_{av} = 6.95 \times 10^5\ U^{1.54}\ d_{50}{}^{0.73} P_f^{2.44} q^{-1}$	16	0.34	107 (4 – 312)
	Peak TSS	$C_p = 4.95 \times 10^6\ U^{2.08}\ d_{50}{}^{0.46} P_f^{1.6} q^{-1}$	16	0.05	132 (2 – 441)

Table 4. Comparison of predicted and measured TSS concentrations downstream of simulated crossings of Serviceberry Creek, Alberta[a] and Conestogo River, Ontario[b].

		TSS concentration				
				Error		
Watercourse	Construction activity	Measured (mg L^{-1})	Predicted (mg L^{-1})	Absolute difference (mg L^{-1})	Percent difference	Sediment entrainment equation
Serviceberry Creek	Trenching	410	487	77	19	Mean TSS
	Backfill	480	326	154	32	Mean TSS
	All activities	297	313	16	5	Mean TSS
	Trenching	810	994	184	23	Peak TSS
	Backfill	1677	6681	5004	298	Peak TSS
	All activities	1677	930	747	45	Peak TSS
Conestogo River	Trenching	177	104	73	41	Mean TSS
	Backfill	395	71	324	82	Mean TSS
	All activities	115	118	3	3	Mean TSS
	Trenching	242	1078	836	346	Peak TSS
	Backfill	395	2209	1717	349	Peak TSS
	All activities	492	3205	2713	551	Peak TSS

[a] Serviceberry Creek, B = 7 m; h = 0.53 m; U = 0.19 m s^{-1}; P_f = 32%; d_{50} = 0.35 mm.
[b] Conestoga River, B = 14 m; h = 0.56 m; U = 0.89 m s^{-1}; P_f = 4.2 %; d_{50} = 37.5 mm.

crossings; 12 flumed crossings and 11 open-cut crossings) was compiled to evaluate the effectiveness of isolated crossing methods to limit sediment generation. Flow rates measured in these watercourses during construction ranged between 0.01 and 4.2 $m^3\ s^{-1}$. Most crossings were less than 10 m wide. Crossings were constructed in both Canada (Alberta, British Columbia, Northwest Territories, Nova Scotia, and Ontario) and the United States (Iowa, Minnesota, Ohio, and Pennsylvania). For dam and pump crossings, either sandbag or steel plate dams were used to isolate the crossing area. Flumed crossings were constructed using either concrete jersey barrier and sandbag dams or aqua barriers (or aqua dams).

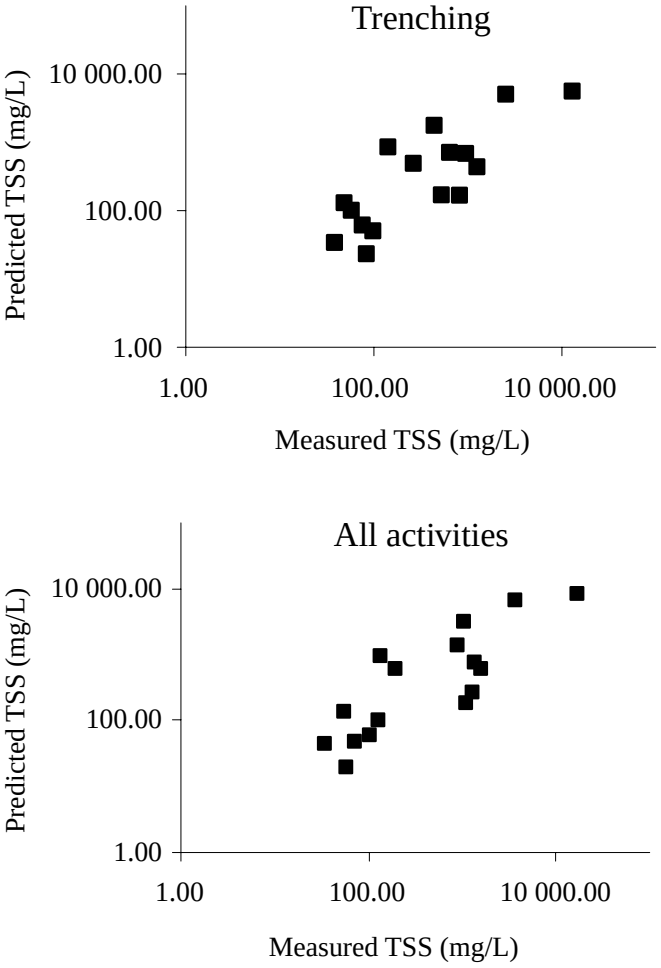
Multivariate analysis of variance (MANOVA) was applied to test the hypothesis that open-cut, dam and pump and flumed crossings could be differentiated based on a common set of physical, water quality, and construction related measurements. A multivariate approach was applied so that the influence of flow, background TSS concentration, location of downstream sampling, and duration of construction on levels of sediment entrainment could be addressed. It is recognized that bed material composition influences sediment entrainment (especially for open-cut crossings). However, bed material was not characterized for many of the crossings and therefore was not included in the analysis. Separate MANOVAs were conducted for the entire crossing construction period as well as different phases of construction (trenching and backfilling). For each variable, ANOVA and Tukey HSD tests were used to identify differences among crossing methods. Data were log-transformed to satisfy univariate and multivariate statistical test assumptions (Zar 1984; Manly 1986).

Results and discussion

Sediment entrainment models

Using a set of physical watercourse and TSS measurements, equations were derived to predict mean TSS concentration for

Fig. 1. Comparison of measured and predicted mean TSS for trenching and all activities. Predicted concentrations are based on the data set and equations presented in Tables 2 and 3, respectively.



the entire construction period (all activities), and for specific periods of crossing construction (trenching, pipe-lowering, and backfilling). Equations for predicting peak TSS concentrations were developed for phases of construction except pipe-lowering (Table 3). Equations predicting mean TSS concentrations for all activities and during trenching best explained the variation in TSS monitoring data set (Fig. 1, Table 3). These equations are considered to represent a substantial improvement over previous models (Trow 1996; Long et al. 1998). Equations were derived from a wider range of bed material sizes and without calibration factors. Therefore, sediment entrainment predictions are considered more defensible.

As the sediment entrainment models are empirical, they are best applied within the following range of site and construction conditions:

(1) stream flow rate ($m^3\ s^{-1}$): $0.30 < Q < 190$;

(2) percentage of fines (silt and clay) (P_f): $5\% < P_f < 66\%$;

(3) backhoe bucket size: 1.5–1.6 m^3; and

(4) excavation and backfilling rate: 2 to 3 buckets per minute of activity.

For both the Serviceberry Creek and Conestoga River simulated pipeline crossings, mean TSS equations more closely predicted measured downstream TSS concentrations than peak TSS equations (3%–81% versus 23%–551% difference, or 3–154 mg L^{-1} versus 184–5004 mg L^{-1}) (Table 4). For all activities combined, the predicted mean TSS concentrations were less than 16 mg L^{-1} (3%–5%) above measured concentrations. Generally, the comparative ability of different equations to predict measured TSS concentrations are reflected in the r^2 values reported in Table 3. Large deviations of the sediment model predictions from measured values may result from measurement error and (or) the high variability in watercourse characteristics such as stream slope, size and size distribution of bed sediment, and flow. The relatively poor predictive ability of peak TSS equations may also reflect the water sample collection protocol. The regular sampling time intervals applied during monitoring studies (i.e., sampling every hour) may have resulted in actual peak TSS concentrations not being sampled.

Construction method comparison

The three crossing methods (open-cut, dam and pump, and flumed) entrained different amounts of sediment during construction (MANOVA: $p < 0.0001$, Table 5). Ninety percent of the dam and pump and 50% of the flumed crossings limited increases in mean TSS concentrations to less than 25 mg L^{-1} above background levels. Only 2 of the 12 flumed crossings resulted in increases more than 80 mg L^{-1} above background levels. Sediment release during isolated pipeline crossings was generally restricted to short-term peaks associated with the installation and removal of isolation and bypass structures. However, isolated pipeline crossings were 3 to 5 times longer in duration than open-cut crossings. Open-cut crossings of small to medium sized watercourses were typically completed in 1 to 2 d.

Mean TSS concentrations during all phases of open-cut crossings were significantly higher than flumed and dam and pump crossings (Table 5). While both the flumed and dam and pump crossing methods were equally effective at limiting sediment release during trenching, mean TSS concentrations measured during backfilling of flumed crossings were significantly higher (303 versus 7.5 mg L^{-1}: Tukey HSD $p < 0.05$). Although the peak TSS concentrations associated with open-cut crossings were on average 3 and 20 times greater than flumed and dam and pump crossings, respectively, the difference between open-cut and flumed crossings was not significant.

Some of the variation in TSS concentrations between crossing methods may reflect the influence of differences in flow. Discharge and each of the TSS variables were weakly correlated (r^2: 0.1 to 0.57). Correlations can be explained by the application of the dam and pump crossing method to smaller watercourses (mean stream flow rate: 0.1 $m^3\ s^{-1}$) than either flumed or open-cut methods, which both entrained more sediment during instream construction.

Table 5. Mean (SE) values for monitoring data used in MANOVA and (or) ANOVA analysis of different crossing methods. For individual variables, letters indicate crossing methods that are statistically different (i.e., *A*, *B*, and *C* indicate statistically different values). Tukey HSD test significance level: $p < 0.05$.

	Crossing method			
Variable	Open-cut (n = 11)	Flumed (n = 12)	Dam and pump (n = 23)	ANOVA results
Mean TSS (mg L^{-1})	2663.1 (1157.5)^A	99.1 (42.8)^B	22.7 (5.0)^C	$P < 0.001$
Mean trench TSS (mg L^{-1})	3501 (1357.8)^B	32.7 (23.5)^A	13.5 (2.8)^A	$P < 0.001$
Mean backfill TSS (mg L^{-1})	2651 (1083.2)^A	302.6 (122.6)^B	7.5 (1.0)^C	$P < 0.001$
Peak TSS (mg L^{-1})	6654.8 (833.1)^A	2008.0 (3228.0)^A	334.0 (23.0)^B	$P = 0.001$
Distance downstream (m)	50.3 (6.6)	52.8 (10.2)	52.5 (6.3)	n.s.
Hours instream (h)	13.7 (2.0)^C	64 (14.1)^A	37.8 (8.4)^B	$P < 0.001$
Background TSS (mg L^{-1})	16.1 (5.02)	3.9 (0.6)	6.9 (1.9)	n.s.
Discharge (m^3 s^{-1})	0.55 (0.15)^A	1.1 (0.4)^A	0.1 (0.04)^B	$P < 0.001$

The effectiveness of isolated crossing methods is dependent on proper design and application. Reported construction related difficulties include (1) pump failure or insufficient capacity, (2) dam or flume failure, (3) poor dam seal, (4) poor containment of pumped ditch water, and (5) inadequate maintenance of sediment control measures (Macks et al. 1997; CPWCC 1999; this study). During dam and pump crossings, construction related difficulties that resulted in large increases to downstream TSS concentrations were rare (1 of 23 crossings). Alternatively, such difficulties resulted in large increases in downstream TSS concentrations (60–1848 mg L^{-1}) during 5 of the 12 flumed crossings. Poor containment of pumped ditch water and poor dam seals were the causes. Flumed crossings are often applied to larger watercourses than dam and pump crossings. Larger water crossings require longer periods of instream activity and the control of larger volumes of both streamflow and trench water. Both characteristics increase the risk of sediment being released into the watercourse (Reid et al. 2002*b*, 2002*c*).

The type of material used to isolate the instream work area during flumed crossings influenced the level of sediment entrainment. Concrete jersey barriers with sandbags and plastic sheeting were effective at minimizing sediment release during flumed crossings of small watercourses (discharge $<0.3\ m^3\ s^{-1}$) (Reid et al. 2002*b*). However, for larger watercourses with unconsolidated bed material (e.g., gravel and cobble), higher flows can readily erode bed material underneath concrete jersey barriers and allow water to pass through the instream work area. For example, during the flumed crossing of Big Darby Creek, Ohio, dam failure resulted in mean downstream TSS concentrations of 1500 mg L^{-1} during backfilling (Reid et al. 2002*c*). In Alberta, aqua barriers have been effective at isolating the instream work area during superflume crossings of medium-sized watercourses ($<6\ m^3\ s^{-1}$) with unconsolidated bed material and sensitive coldwater fisheries (Reid and Anderson 2002).

Conclusions

Selection of the appropriate crossing method requires an evaluation of construction, environmental and regulatory considerations and constraints. Suspended sediment data presented in this paper demonstrate that isolated crossing methods can be effective at minimizing sediment release during pipeline installation across small to medium sized watercourses. This finding complements recent documentation of the effectiveness of isolated crossing methods to avoid adverse sediment caused effects on sensitive fish populations and habitats during summer and winter pipeline construction (Reid and Anderson 2002; Reid et al. 2002*b*).

We were also successful at developing equations to predict sediment entrainment rates immediately downstream of open-cut pipeline water crossing construction. An evaluation of correlation coefficients associated with derived entrainment equations, and the differences between predicted and measured TSS concentrations downstream of two simulated open-cut crossings suggest that mean TSS equations predict more accurately than peak TSS equations. For pipeline water crossing impact assessment, mean TSS equations are recommended over the more-conservative but less accurate peak TSS equations.

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No. 18-1173

IN THE UNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT

SIERRA CLUB; WEST VIRGINIA RIVERS COALITION; INDIAN CREEK WATERSHED ASSOCIATION; APPALACHIAN VOICES; and CHESAPEAKE CLIMATE ACTION NETWORK,
Petitioners,

v.

UNITED STATES ARMY CORPS OF ENGINEERS; MARK T. ESPER, in his official capacity as Secretary of the U.S. Army; TODD T. SEMONITE, in his official capacity as U.S. Army Chief of Engineers and Commanding General of the U.S. Army Corps of Engineers; PHILIP M. SECRIST, in his official capacity as District Commander of the U.S. Army Corps of Engineers, Huntington District; and MICHAEL E. HATTEN, in his official capacity as Chief, Regulatory Branch, U.S. Army Corps of Engineers, Huntington District;
Respondents.

FEDERAL RESPONDENTS' OPPOSITION TO PETITIONERS' SECOND MOTION TO STAY AGENCY ACTION

Exhibit 6

West Virginia Department of Environmental Protection, letter of July 21, 2017 to Mountain Valley Pipeline, LLC

west virginia department of environmental protection

Division of Water and Waste Management
601 57th Street SE
Charleston, WV 25304
Telephone Number: (304) 926-0495
Fax Number: (304) 926-0496

Jim Justice, Governor
Austin Capterton, Cabinet Secretary
dep.wv.gov

July 21, 2017

Shawn Posey
Mountain Valley Pipeline, LLC
555 Southpoint Boulevard, Suite 2000
Canonsburg, Pennsylvania 15317

Re: West Virginia Natural Streams Preservation Act Permit, Mountain Valley Pipeline, LLC, Mountain Valley Pipeline Project, install natural gas pipeline across the Greenbrier River at Mile Point 171.6, north of Pence Springs, Summers County, West Virginia; NSP-17-0001

Dear Mr. Posey:

The West Virginia Department of Environmental Protection-Division of Water and Waste Management (WVDEP-DWWM) in conjunction with the West Virginia Division of Natural Resources - Wildlife Resources Section (WVDNR-WRS), has completed review of the above-referenced permit application.

Mountain Valley Pipeline, LLC (MVP) has proposed to install a 42-inch diameter natural gas pipeline across the Greenbrier River in association with the MVP project. The project is designed to transport natural gas to markets in the Appalachian region and the Mid-Atlantic, southeastern United States. The approximate coordinates are 37.680131 N, -80.731502 W. The Greenbrier River, from its confluence with Knapps Creek to its confluence with the New River, is protected under WV Code Chapter 22, Article 13, also known as the WV Natural Streams Preservation Act, from activities that impound, divert, or flood the body of water.

The temporary crossing is proposed to be an open-cut, dry ditch crossing using a portadam system, which will allow the river to flow continuously throughout construction. A downstream turbidity curtain will be used to prevent sediment from leaving the construction area. The Portadam will create a dry workable area while minimizing stream impacts, and be installed in two stages to allow excavation of the trench and installation of the pipe. It will then be removed and the same process will begin on the other side of the river. The half width

construction method will allow continual downstream flow of the river during construction. When the pipeline crossing is complete, the portadam and turbidity curtain will be removed.

The proposed Greenbrier River crossing will temporarily impact an area 407 feet across and 75 feet wide with 10 ft wide by 10 ft deep trench. The crossing is non-perpendicular which requires approximately 130 feet more in-water construction than would a perpendicular crossing. The non-perpendicular pipeline crossing of the Greenbrier River is necessary to avoid impacts to cultural resources. On the south side of the river, a perpendicular crossing would have directly impacted the National Register eligible Wiseman Residence. Substrate in the channel will be removed and stockpiled separately from other excavated material. Approximately 1,507 cubic yards of the native material will be re-used in restoration of the stream bed. Although no permanent impacts are expected from the Greenbrier River crossing, MVP has agreed to make a onetime payment, prior to construction, of $50,000 to WVDNR-WRS to be used towards aquatic life enhancement in the Greenbrier watershed to compensate for any temporary impacts during the construction of the crossing.

The Greenbrier watershed is known to contain the candy darter, *Etheostoma osburni*, a designated West Virginia Species of Greatest Conservation Need. The candy darter is an imperiled endemic fish due to the hybridization with variegate darters, *Etheostoma variatum*. In order to prevent impingement or entrainment of the candy darter, screens must be installed on any water withdrawal during the crossing operation. The screen must have openings no larger than 3/16 inches for floating intake structures or 0.10 inches for submerged or buried intakes, as specified in the WVDEP-DWWM's Entrainment and Impingement Prevention Best Management Practices. All screens must be inspected and maintained frequently. The Greenbrier River also contains native freshwater mussel species, therefore, mussel salvage and relocation will be required.

A public hearing was held on March 7, 2017 to hear evidence related to the effects the proposed project will have on the community and the river. After considering all comments on the project, and its effect on the Greenbrier River, it is the opinion of WVDEP-DWWM that this project will not materially alter or affect the free-flowing characteristics of the river and should be permitted, with the following special conditions and attached standard conditions.

Special Conditions:

1. Boat passage must be maintained at all times during construction.

2. In case of severe weather which may induce flooding all materials must be removed from the river until flooding subsides.

Therefore, a West Virginia Natural Streams Preservation Act Permit, as required by WV Code Chapter 22, Article 13 is issued to Mountain Valley Pipeline, LLC to install a 42-inch natural gas pipeline across the Greenbrier River as referenced above. The permit will be effective thirty (30) days after receipt unless appealed under W. Va. Code §22B-1-7. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It should be directed to: West Virginia Environmental Quality Board, 601 57th Street SE, Charleston, West Virginia, 25304.

Sincerely,

Scott G. Mandirola
Director

SGM/wir

Cc: WVDNR-Wildlife Resources Section, Elkins – Danny Bennett

No. 18-1173

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SIERRA CLUB; WEST VIRGINIA RIVERS COALITION; INDIAN CREEK WATERSHED ASSOCIATION; APPALACHIAN VOICES; and CHESAPEAKE CLIMATE ACTION NETWORK,
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Respondents.

FEDERAL RESPONDENTS' OPPOSITION TO PETITIONERS' SECOND MOTION TO STAY AGENCY ACTION

Exhibit 7

West Virginia Department of Environmental Protection, letter of May 31, 2018 to U.S. Army Corps of Engineers

west virginia department of environmental protection

Division of Water and Waste Management
601 57th Street, Southeast
Charleston, West Virginia 25304
Phone: (304) 926-0440
Fax: (304) 926-0496

Austin Caperton, Cabinet Secretary
dep.wv.gov

May 31, 2018

Michael E. Hatten
Chief, Regulatory Division
Huntington District
U.S. Army Corps of Engineers
502 Eighth Street
Huntington, WV 25701-2070

Subject: Nationwide Permit Verification (NWP 12) – Mountain Valley Pipeline (MVP)

Dear Chief Hatten:

The West Virginia Department of Environmental Protection (WVDEP) has received and reviewed your letter dated May 30, 2018 requesting information and/or clarification on the applicability of the "NWP 12 West Virginia 401 Water Quality Certification Special Conditions" and its Water Quality Certification waiver, dated November 1, 2017. Your letter submits two questions to our agency. Each is addressed in turn below.

First, you ask, "What are WVDEP's views on whether the use of the dry cut construction method is protective of water quality at the four crossings mentioned above? If it is, does your Department believe that requiring the use of the method is more stringent for protecting water quality than the time requirement in Special Condition C?"

The WVDEP believes the use of the "dry" cut construction method described below is more protective of water quality at each of the crossings of the Gauley, Greenbrier, Elk, and Meadow Rivers at issue. We also believe that the "dry" cut construction method provides more stringent water quality protections than the time requirement in Special Condition C.

In this instance, MVP submitted its original request to use NWP 12 in West Virginia on February 25, 2016. At that time, the Corps' 2012 NWP's (with WVDEP's 2012 Certification Conditions) were in effect. Because MVP's pipeline is 42 inches in diameter, WVDEP initially elected to require an individual water quality certification, and MVP submitted an application for one in February 2016, which it updated in December 2016. The updated application observed

generally that "MVP will adhere to the FERC Plan and Procedures for pipeline construction." Application, p. 3. Additionally, it observed that MVP could use water isolation and dry ditch techniques to cross "intermediate" (up to 100') waters within 48 hours "when blasting or extensive rock excavation is not required," and that "major" waterbodies (over 100') had been assessed on a site-specific basis to determine the best crossing method. Application, p. 6.

During the FERC certification process, MVP had originally reserved the right to undertake the major river crossings using so-called "wet" open cuts. *See* Draft Environmental Impact Statement, pp. 4-86 to 4-87. This technique utilizes a trench excavated across the river during times of low or no flow, but without isolating the excavated area from any stream flow. Draft EIS, p.4-110. We understand that later, in response to information requests from FERC, MVP elected to use "dry" cut methods by which the river bottoms would be isolated from flowing waters during pipeline installation. Final EIS, pp. 2-44, 4-118, 4-119.

As you will recall, WVDEP issued an individual 401 certification to MVP on March 23, 2017. It required MVP to adhere to FERC-approved crossing plans. *See* Individual Certification at Special Conditions 5 and 6. In WVDEP's technical judgment, "dry" cut techniques that rely on water isolation techniques such as coffer dams, flumes, and "pump arounds" generally provide better control of environmental sedimentation and more protection to the aquatic environment than do "wet" cuts. While "dry" crossings take longer to complete, the actual stream disturbance activity is of similar duration and poses substantially lower risk to the aquatic environment.

For these reasons, in July 2017 WVDEP issued a permit to MVP under the State Natural Stream Preservation Act that authorized the use of portable cofferdams in a "dry" crossing of over 400 feet of the Greenbrier River. Our approval noted that the "open-cut, dry ditch crossing" will rely on a "portadam system," which will be installed in two stages. Each stage will cover only half the river, thereby allowing "the river to flow continuously throughout construction." During construction, MVP is required to remove and stockpile substrate for replacement after pipeline installation and to salvage and relocate native freshwater mussels. The protections afforded by these conditions are more difficult or impossible to achieve when "wet" cut techniques are used. We always understood these efforts would take weeks, but would provide more environmental protection than utilizing faster, but less protective methods, like "wet" open cuts.

We further endorsed this approach when the agency granted a separate stormwater construction permit to MVP, which explicitly authorized the use of the same portable cofferdams in "dry" crossings of the rivers described above.

In our view, MVP must, pursuant to Special Condition 2 of the Corps' verification, comply with the NSPA permit, the FERC crossing plans, and our construction stormwater permit, which mandate the use of water isolation plans that will take more than 72 hours, but which will provide considerably more environmental protection than a strict time requirement to cross in 72 hours. Any construction of our certification conditions that effectively prohibits the use of these more protective crossing techniques in favor of less-protective techniques that can be completed within 72 hours is at odds with WVDEP's intent, the NSPA permit we issued for the Greenbrier River, the construction stormwater permit, and the FERC-approved crossing plans, not to mention the more restrictive and environmentally protective conditions imposed on the 404 verification by the Corps. To the extent that there is any confusion about whether Special Condition C prohibits or restricts the use of more protective "dry" crossing methods with regard

to the four crossings at issue, the WVDEP will either waive Special Condition C or modify it to allow and require more environmentally protective methods.

For these reasons, the WVDEP unequivocally states that the use of the "dry" cut construction method described below is more protective of water quality at each of the crossings of the Gauley, Greenbrier, Elk, and Meadow Rivers at issue. Without a doubt, the WVDEP believes that the "dry" cut construction method provides more stringent water quality protections than the 72 hour requirement in Special Condition C.

Your letter also asked, "Does WVDEP intend to take any additional actions with regard to Special Condition C and/or its application to the Corps' verifications of the four crossings?"

Yes, the WVDEP intends to take whatever action is necessary to make it clear that the most environmentally protective methods are used for the stream crossings detailed in your letter. As more and more pipelines are built, we continue to learn and recognize the need to adapt permitting language to be protective of the environment while also allowing for the use of more appropriate controls.

To ensure that the general condition we promulgated for the NWP 12 in April 2017 is not subject to further confusion and misapplication, the WVDEP will either propose a modification to Special Condition C or waive Special Condition C in the coming weeks. A proposed modification would clarify that Special Condition C does not restrict the use of "dry" isolation techniques that will take longer than 72 hours, but which also provide significantly greater environmental protection than "wet" crossing methods. A waiver would remove application of Special Condition C entirely.

As always, please feel free to contact me if you have any questions or comments.

Sincerely,

Scott Mandirola
Director

cc: Lieutenant Colonel William J. Miller
Teresa Spagna