

November 26, 2024

Ms. Debbie-Anne A. Reese, Secretary  
Federal Energy Regulatory Commission  
888 First St NE, Room 1A  
Washington, DC 20426

**Docket Number CP23-516:** East Tennessee Natural Gas, LLC's Abbreviated Application for a Certificate of Public Convenience and Necessity and Related Authorizations for the Ridgeline Expansion Project

Dear Secretary Reese,

The Southern Alliance for Clean Energy (SACE) is writing to provide information to FERC regarding the current state of pipeline safety standards and oversight regarding landslides and land movement, a topic that is of particular importance to the Ridgeline Expansion Project proposed by East Tennessee Natural Gas, LLC (ETNG). SACE filed comments<sup>1</sup> in this docket on the Draft Environmental Impact Statement (DEIS) on July 15, 2024, outlining our concerns with the significant potential for public safety related to the steep slopes, seismic activity, and landslide potential along much of the proposed alignment. ETNG dismissed these concerns, though FERC staff did request additional information from ETNG on the subject. We are writing to add new information on this subject to the docket – information sourced from those within the pipeline safety field itself.

On October 2, 2024, the Pipeline Technology Podcast aired an episode titled “API 1187, The Need for a Landslide Hazard Standard with Mark Piazza & Andy Duncan.”<sup>2</sup> Mark Piazza is the Senior Policy Advisor at the American Petroleum Institute (API) and Andy Duncan is the Manager for Pipeline Integrity Engineering at Enbridge, the parent company of ETNG. The transcript of the podcast episode is attached as Exhibit A.

The discussion centered around the threat that landslides pose to large diameter, high pressure pipelines due to steep slopes, variation in soil types, and significant rain events. The consensus among the three appears to be that 1) landslides can happen anywhere, but the Marcellus and Utica region neighboring Tennessee is an example of special and increasing concern, 2) landslides are not predictable and manageable in the way pipe corrosion is, 3) there isn't the same level of understanding and available advanced

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<sup>1</sup> SACE comments: [https://elibrary.ferc.gov/eLibrary/filelist?accession\\_number=20240715-5128&optimized=false](https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20240715-5128&optimized=false) (accessed November 25, 2024)

<sup>2</sup> Podcast: <https://pipelinepodcastnetwork.com/api-1187-the-need-for-a-landslide-hazard-standard/> (accessed November 25, 2024)

technology for landslides as there is for the pipeline metal itself; and 4) there is no guidance yet from the Pipelines and Hazardous Materials Safety Administration (PHMSA).

This frank conversation among industry participants should give FERC pause as they consider issuing a Certificate for a 122-mile large diameter, high-pressure project that traverses a *geographic region adjacent to and geologically nearly identical to the Marcellus and Utica mountain region*. The Foldbelt Marcellus Shale Gas AU actually extends into eastern Tennessee.<sup>3</sup> The same slope, soil, and rainfall concerns exist in Tennessee as at the wellheads and gathering sites referenced in the podcast discussion. Enbridge's Andy Duncan noted that higher strength steel is allowing pipelines to be built in "aggressive terrains" and they are "seeing more interacting threats to pipelines due to landslides." The Commission is already aware that these more concerning types of terrain are present along the Ridgeline Expansion Project's route.<sup>4</sup> The project conditions, together with the consensus on landslide threats, cast doubt on FERC's conclusions to date that "the Project would not significantly contribute to or be impacted by slope stability hazards."<sup>5</sup>

Several additional observations made during the conversation should be especially concerning to FERC when considering the Ridgeline Expansion Project:

**Andy Duncan:** "The reality is landslides have been a threat for pipelines since their inception. Ever since we've put them into the ground, landslides have posed a threat and *have been something that we've needed to address.*" (emphasis added)

**Andy Duncan:** "They go to these enormous slopes, enormous mountains and think that's the real threat. They are, but *any slope*, especially, you mentioned steep, wet, and then disturbed and that's when you put a pipeline in. That terrain, a lot of slopes that go through the area and it creates *so many opportunities for a single failure to happen. It only takes one slope to move.*" (emphasis added)

**Andy Duncan:** "We see PHMSA data... that shows *we continue to have pipeline safety incidents that are driven by landslides.*" (emphasis added)

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<sup>3</sup> [https://d9-wret.s3.us-west-2.amazonaws.com/assets/palladium/production/s3fs-public/thumbnails/image/den19-0060\\_fig01.jpg](https://d9-wret.s3.us-west-2.amazonaws.com/assets/palladium/production/s3fs-public/thumbnails/image/den19-0060_fig01.jpg)

<sup>4</sup> *E.g.*, FERC, Ridgeline Expansion Project: Draft Environmental Impact Statement at 4-10, CP23-516-000, CP23-516-001 (May 2024) (eLibrary accession no. 20240524-3015) (identifying "9.3 miles of slopes greater than 30 percent, including twelve unique locations where slopes exceed 50 percent" in the DEIS for the project).

<sup>5</sup> *Id.* at 4-12.

**Russel Treat** (host): “We’re struggling, as an industry, with all the data that it’s providing, but we’re not having a lot of issues in the industry with that threat. That threat’s pretty well-managed, versus the whole area of landslide. Mark’s comment about ground movement is right on point. *We don’t have nearly the same level of understanding.*

*We don’t have really a lot in the way of advanced technology that allows us to monitor that and mitigate and manage that risk well....”* (emphasis added)

**Andy Duncan:** “(I)t’s really not a time-dependent threat, it’s an event. You mentioned rainfall and water in the soils early on. We have a threat that may exist in a thousand slopes in the Utica, but only one of them is going to move. *We don’t know which one and we don’t know when.*” (emphasis added)

**Russel Treat:** “Would it be correct to say that *the current state is there’s no direct guidance*, but it is a threat that the regulators are aware of and are asking questions about?

**Mark Piazza:** Yeah.” (emphasis added)

The entire transcript is attached as Appendix A and SACE’s comments on the DEIS, outlining our heightened concerns for public safety associated with this project are attached as Appendix B.

We encourage the Commission to weigh the increasing evidence that construction of the Ridgeline Expansion Project *inevitably* will pose a significant safety threat to the communities along its pathway. In the absence of any applicable PHMSA standard, this safety threat is FERC’s to consider. We reiterate our concerns that the sole anchor shipper project at the end of the pipeline – the proposed TVA Kingston Gas Plant – lacks transparency and is of questionable necessity itself (see Appendix B).

Please do not hesitate to reach out with any questions.

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## **APPENDIX A**

## Transcript: Pipeline Technology Podcast – October 2, 2024

Link: <https://pipelinepodcastnetwork.com/api-1187-the-need-for-a-landslide-hazard-standard/>

### START

#### Description

In this episode of the Pipeline Technology Podcast, host Russel Treat discusses the API 1187 Pipeline Integrity Management of Landslide Hazards recommended practice with guests Mark Piazza from API and Andy Duncan from Enbridge.

The conversation explores the historical significance of landslides as a threat to pipelines, the challenges of managing these hazards, and the industry's ongoing efforts to improve landslide detection, prevention, and mitigation practices through advancements in technology and standards.

#### API 1187, The Need for a Landslide Hazard Standard Show Notes, Links, and Insider Terms

- **Mark Piazza** is the Senior Policy Advisor at API. Connect with [Mark on LinkedIn](#).
  - **API** ([American Petroleum Institute](#)) represents all segments of America's natural gas and oil industry. API has developed more than 700 standards to enhance operational and environmental safety, efficiency, and sustainability.
- **Andy Duncan** is the Manager for Pipeline Integrity Engineering at Enbridge. [Connect with Andy on LinkedIn](#).
  - [Enbridge](#) is a leading North American energy delivery company, focused on providing secure, reliable, and affordable energy through four core businesses: liquids pipelines, natural gas pipelines, gas utilities and storage, and renewable energy.
- **The PDCA** (Plan-Do-Check-Act Cycle) is [embedded in Pipeline SMS](#) (API RP 1173) as a continuous quality improvement model consisting of a logical sequence of four repetitive steps for continuous improvement and learning.
- **Geohazards**, or geological hazards, are the result of natural, active geologic processes which may include landslides, soil erosion, karst phenomena, and river migration.

- **The PRCI** ([Pipeline Research Council International](#)) is the preeminent global collaborative research development organization of, by, and for the energy pipeline industry.
- **Pipeline SMS** ([Pipeline Safety Management Systems](#)) or **PSMS** is an industry-wide focus to improve pipeline safety, driving toward zero incidents.
  - **API RP 1187**, also known as Landslide Integrity Management for Pipeline, is a recommended practice from the American Petroleum Institute that focuses on geohazards and pipeline integrity management.
- **Process Safety Management (PSM)** refers to a set of interrelated approaches to managing hazards associated with the process industries and is intended to reduce the frequency and severity of incidents resulting from releases of chemicals and other energy sources.
- **PHMSA** ([Pipeline and Hazardous Materials Safety Administration](#)) is responsible for providing pipeline safety oversight through regulatory rulemaking, [NTSB](#) recommendations, and other important functions to protect people and the environment through the safe transportation of energy and other hazardous materials.

## **API 1187, The Need for a Landslide Hazard Standard Full Episode Transcript**

[background music]

**Announcer:** The “Pipeline Technology Podcast,” brought to you by “Pipeline & Gas Journal,” the decision-making resource for pipeline and midstream professionals. Now your host, Russel Treat.

**Russel Treat:** Welcome to the Pipeline Technology Podcast, episode 15. On this episode, our guests are Mark Piazza with API and Andy Duncan with Enbridge. We’re going to talk to Mark and Andy about the need for the API 1187 Pipeline Integrity Management of Landslide Hazards recommended practice. Mark, Andy, welcome to the Pipeline Technology Podcast.

**Mark Piazza:** Thank you, Russel. Always a pleasure to be on your show and share knowledge and information.

**Andy Duncan:** Thanks very much for having us.

**Russel:** I’d like you guys to do some introductions. Mark, I’m going to ask you to go first because you’ve been here. You know how to do this. We’ll model for Andy how to do a really great introduction, so no pressure.

**Mark:** No pressure at all. I'll do the best modeling I can. Mark Piazza with API. I'm a Senior Policy Advisor in our midstream group focusing on pipeline issues, pipeline safety, pipeline integrity management and really helping support the development of standards through API's programs.

I've been at API for three years now. Prior to that, worked at Colonial Pipeline for eight years and Pipeline Research Council International for seven. A long and illustrious career in the pipeline world and loving every minute of it.

**Russel:** There you go. Great job. Well done. Andy, go ahead. You're next.

**Andy:** Thank you very much. Andy Duncan. I'm the Pipeline Integrity Engineering Manager in the Liquids Pipeline division of Enbridge. I've been in this role about three years. Prior to that, I was involved for about 10 years in pipeline construction in our Major Projects Group.

My background is welding engineering, metallurgical engineering. Prior to Enbridge, worked for about 10 years with various heavy industrial contractors building piping, pressure vessels, heat exchangers, and the like, largely for the Canadian oil sands, for the product that we put through the pipelines now.

**Russel:** Great. I asked you guys to come on and talk about some of the work that's going on in the industry around landslides and landslide threats. Probably the best thing to do is to set a little context and just ask this general question of, what's been the history of landslides as a threat?

What kinds of things have been occurring and over what timeframe have we begun to become sensitized to landslides?

**Andy:** Maybe I'll take that and look at it maybe from a bigger, broader picture. A lot of the time we think about pipelines, we think about corrosion, we think about cracking, and we think about mechanical damage from third parties, denting and the like.

The reality is landslides have been a threat for pipelines since their inception. Ever since we've put them into the ground, landslides have posed a threat and have been something that we've needed to address.

What's maybe changed for us or has brought them more to the forefront is, as we've moved to higher-strength steels, higher-strength pipelines, and going through some more aggressive terrains, we're seeing some of the limits being reached, depending on how they were designed and installed and then operated.

We're seeing more interacting threats on the pipelines due to landslides and that's drawing some of the attention to landslide management, to the integrity space.

**Russel:** I know, at least from my experience and some other conversations I've had through doing this podcast is there's been a particular attention in the Marcellus and Utica. For anybody who's not been in that terrain, it's very hilly. A lot of those hills, they're 2,000, 3,000 feet tops, but they're very steep. There's a lot of rain in that area.

There's been a lot of recent development the last 20 years in that area. There's been a lot of, I would say, probably more well-publicized landslide events in that area than there have been prior. The other thing about the Marcellus that's also true is they're moving a lot of liquids, a lot of natural gas liquids and the gathering pipelines there are larger and higher-pressure.

These incidents, when they have occurred, have been more...I'm looking for a word to use. Maybe you guys can help me. They make better pictures for the news cameras is maybe the way to say that.

**Andy:** Right. They're often a higher consequence compared to small-diameter, low-pressure lines. That geography is exactly what we're really focused on. People often naturally think about landslides and they think of the Rocky Mountains.

They go to these enormous slopes, enormous mountains and think that's the real threat. They are, but any slope, especially, you mentioned steep, wet, and then disturbed and that's when you put a pipeline in. That terrain, a lot of slopes that go through the area and it creates so many opportunities for a single failure to happen. It only takes one slope to move.

**Mark:** I would add, Russel, to what Andy's stated. The term "landslide," another way to think of it is ground movement. It doesn't have to be a significant event where you've got this giant mass of land, as Andy just mentioned, with like the Rocky Mountains heading towards a pipeline. Ground movement can happen on a small scale as well.

We really want to have the appropriate threat assessment on pipeline systems and the appropriate design parameters for all types of conditions where ground movement is a potential.

**Russel:** That's a good point, Mark. I also think it's interesting too, if you understand anything about ground movement and how that works, you get into all these conversations about soils. The primary thing that affects soils is water, rainfall, and then the soil type. Sand is different than clay is different than rocky.

One of the things that's really interesting about particularly the Marcellus and the Utica is there's a lot of variation in soil types there. Andy used the example of the Rocky Mountains.



There's not a lot of variation there. That soil is relatively stable, versus what you find in the Marcellus is it's relatively unstable, particularly when there's a lot of water moving.

That's what makes the nature of the threat and the need for addressing that particular threat can become paramount, at least talking as a non-integrity guy.

**Andy:** Agreed, 100 percent. The amount of time we spend talking about water management, dewatering slopes, and controlling what the soil is like so that we have an understanding of how it could behave, that's a real driver here, is when you get that variability that you described, the north slope could be different than the south slope. Understanding that and designing and managing appropriately.

**Mark:** There's, I would say, across the industry, with the events that have occurred recently in that Utica/Marcellus conversation we just had, the recognition that data that needs to be collected, looking at publicly available sources of information like rainfall data. We've all gotten smarter and are using the tools out there that are available to us.

It's an interesting story for me. Prior to being in the pipeline world, I was in the environmental community and did a lot of site characterizations and geotechnical investigations.

Wasn't sure I would ever see those again when I came into the pipeline industry, but now here I am, going back to all those things that I did many, many years ago and understanding the importance of it and soil characterization, how important that is in some of the things that we've been talking about with regard to ground movement.

**Russel:** It's interesting as an engineer. I'm similarly disposed. My education is civil/structural, but I went into the Air Force. Civil/structural, you think you're going to build things that go upwards. I was in the Air Force. They don't do a lot of that. They build things that run along the ground.

If you're dealing with pavements, if you're trying to get survivability and long-term use, it's all about how you manage the water. First, you got to design for the load, but the reliability and long-term use is all about how you manage the water. That's very much true in this situation as well.

The other thing, if you're not working around the mechanical aspects of a pipeline, what you don't realize is even a pipeline in soil is a dynamic thing. It's not moving a lot, but it's moving all the time.

Metal is expanding and contracting because of temperature change. You've got the soil expanding and contracting and moving because of moisture and drying cycles. There's just a lot going on there that has impacts on the mechanical integrity of the pipeline.

The other thing too about just the science as I understand what we do, we spend a lot of time with tools looking at the pipeline itself. We haven't spent as much time looking at the environment the pipeline's in. It just points out we're learning more about what we need to learn.

**Mark:** Continuous improvement. Never stop learning.

**Andy:** Exactly.

**Mark:** Taking the opportunities from lessons learned and continuing to drive performance improvement across the industry.

**Russel:** Andy, I wanted you to elaborate on something we talked about off-mic as we were preparing for this episode and that was the idea of changes without improvement. Can you talk to that a little bit, elaborate what you meant by that term?

**Andy:** Yeah. I think a big picture. I want to make sure this is a very broad statement, as opposed to focused in any one location or to one operator or anything of the like, but that we've seen a fairly stable performance in our performance around the safety around landslides.

We're experiencing, and have for decades, these events, but we're still trying to learn and actually improve the performance across the industry. We see PHMSA data, we see some CER data out of Canada that shows we continue to have pipeline safety incidents that are driven by landslides.

There's been a real push, certainly in the last, I'm going to say, about five years, to demonstrate and actually achieve enhanced performance in the area around landslides. That's where the work has gone recently to really take those learnings and turn them into something that everybody can use.

As much as I like continuous improvement and sharing sessions, it would be really nice to hear fewer presentations on landslide failures and hear more presentations on integrity management about landslides and how incidents are being prevented going forward.

**Russel:** That's really interesting. One of the things too is that, and this is true in any industry, but as you move through time and as technology and understanding evolve, you focus on those threats where you can have the most impact.

I'm going to make a declarative statement. You guys might not agree with this. I would say that when you come to the inline inspection tools and the things we do to look for metal loss and cracking and all that kind of stuff, we're right at the edge of what the technology is capable of.

We're struggling, as an industry, with all the data that it's providing, but we're not having a lot of issues in the industry with that threat. That threat's pretty well-managed, versus the whole area of landslide. Mark's comment about ground movement is right on point. We don't have nearly the same level of understanding.

We don't have really a lot in the way of advanced technology that allows us to monitor that and mitigate and manage that risk well or as well, probably a better way to say it. That goes to why there's a need for a standard.

I'll make one other comment. I'd like you guys to respond to it. My experience working in soils, being a structural engineer, when you think about the metal, the metal is something we have a fairly large amount of control over that process.

We have a lot less control over the process related to soils, so there's a lot higher degree of variability in it. You agree with that assessment? If you do, what does that mean in terms of the challenges for mitigating those kind of risks?

**Andy:** I largely agree with it. When we talk about corrosion, cracking, where we get into a differentiation that's important for landslides is we have a very, very deep understanding of the time-dependent nature of cracking and corrosion and metal loss, so we can predict.

We can say, "I understand how the corrosion is happening here and I can predict the life that I expect to get out of the asset."

Where we deviate and when we get into landslides in particular is, it's really not a time-dependent threat, it's an event. You mentioned rainfall and water in the soils early on. We have a threat that may exist in a thousand slopes in the Utica, but only one of them is going to move. We don't know which one and we don't know when.

We have to really focus on predicting and learning how to predict and be accurate on when that's going to happen. That, to me, is where the difference comes. We know why it happens. We know what the failure mechanisms are, but it's not the same time-dependent threat that we see in metal loss and cracking.

**Russel:** Andy, that's an excellent comment. It's causing my head to spin a little bit because it really gets to the core issue, the core challenge, and drives at the need for the standard. When I was doing work in geotechnical, which has been a long time ago, the kinds of things that we would do is we would measure movement and we would inspect the ground.

What we never did is we never looked at, what level of rainfall of this location would...? The event is driven by external factors. It's, what are those key external factors and how do you measure those things and then use that as a predictive mechanism? I think that's what

you're driving at. It's causing my head to spin a little bit because that's a very complex problem.

**Mark:** Looking at being able to predict a ground movement issue, very difficult. I don't disagree with that. You develop a monitoring program. You gather the data that you think you need to help you understand the characteristics around the pipeline.

I don't disagree that cracking and corrosion, yes, the predictive aspects of that are there, better established than we have currently for ground movement issues. Certainly, opportunities are there.

Back to continuous improvement again, we do continue to push the envelope with research projects that are being done, working with, again, these publicly available databases. A lot of universities are doing work in this area.

It will be more difficult to predict, but hopefully, we continue to move in the direction of utilizing some of the tools and capabilities that things like AI and machine learning provide for us now and can help us at least understand when something might happen, even though we can't firmly predict when it will happen.

**Russel:** There's also probably opportunities to look at research in other areas and determine how it applies. The universities have done a ton of research around erosion. Erosion and ground movement, they're cousins.

They're not the same thing. They're not the same mechanism, but there's a lot of similarities, a lot of learnings to be found in all of that. Again, that's a really interesting point, Mark.

**Mark:** It's something that is front and center. As Andy mentioned, it's in front of the industry. We do want to have fewer incidents and hopefully working towards developing standardization in the processes and giving operators the tools to be able to do P&M measures, preventive and mitigative measures, to help better manage some of those ground movement conditions along the pipeline.

**Russel:** What kind of regulatory framework is around this issue? What kind of guidance? Where is PHMSA with regards to its understanding and regulation of ground movement?

**Mark:** Andy, I'll let you take that first.

**Russel:** [laughs]

**Andy:** I was really hoping you would, Mark.

**Mark:** [laughs]

**Andy:** PHMSA has a good understanding. They understand the threat that's out there. Really, their primary focus is public safety. There have been incidents recently that really compromised public safety and it's important for them.

It's a high-profile topic that they want to see progress on, they want to see action on. Right now, it's not a prescriptive requirement in terms of how each operator will address landslides.

That's one of the things we're trying to get here with API 1187, is to really get a little bit more of a guidance for the industry, a collection of the best practices, so that we don't end up with PHMSA taking us down one road when any of the three roads would be acceptable and get us to the same destination.

I always think about it as we would like PHMSA to regulate and mandate an outcome. As an industry and as individual operators, we can set the details of exactly how we'll get there but achieve that level of safety that is expected by the regulator and by the public, frankly.

**Russel:** Would it be correct to say that the current state is there's no direct guidance, but it is a threat that the regulators are aware of and are asking questions about?

**Mark:** Yeah.

**Andy:** Go ahead.

**Mark:** I'm sorry. PHMSA has issued two advisory bulletins. As Andy said, it's a topic of interest, front and center in PHMSA's head. They are focusing on reminding operators that these advisory bulletins are really just a notification to say, "Make sure you're managing your geohazard threats. Make sure you understand our expectations."

Andy hit it on the head. There's no prescriptive requirement. There are general statements in both the natural gas and hazardous liquid regulatory code that says, "You will not operate unsafely," at a very high level.

**Russel:** There's due care provisions.

**Mark:** Yes. The weather and outside force has been one of original nine threats in B31.8. That's been out there for a while too. As we've talked about, we're fully aware that this threat exists. From the regulatory perspective, it is on the operators, as Andy stated, to develop a program to manage that threat and ensure that we don't have safety incidents.

**Russel:** Prior to 1187, what's been out there that the operators have used for guidance?

**Mark:** I would say there's a lot of past PRCI reports and documents that have been published, that deal with geohazard ground movement, how to manage it, even some P&M

approaches to take. That's been the primary, from my understanding. I'll let Andy speak next from the operator side.

Those reports were typically what I used and referenced, working in the integrity management realm. There may be an ISO standard out there that's available to operators as well and could be others that I'm just not familiar with. Those are the primary tools that have been available to the operating community for several years, many years.

**Andy:** It's been a collection of industry research, operator sharings, incident investigations that have guided the how, trying to collect those learnings and industry groups that have got together to try to define a little bit and share those best practices of "You don't need to invent it on your own. Here's what each of us is learning. Let's share so that we can all operate more safely."

[crosstalk]

**Mark:** Sorry, Russel. As we come up on the 2024 International Pipeline Conference — that's in a week or so — that's a primary mechanism as well for sharing that information. There's a lot of technical papers, a lot of literature that's cited in supporting development of ground movement programs.

**Andy:** I heard there's nine sessions and 27 papers on landslides [inaudible 24:26].

**Russel:** This is a great tee-up. I'm teasing out our second part of this episode a little bit. What you're pointing at is, what's the need for a standard?

The biggest challenge for any engineer, particularly working in the integrity management domain, is understanding how to navigate the immense volume of technical material that's out there and understand, out of all these reports and all this information and all the tools that come out of that, which one do I pick for my situation? [laughs]

That is very much a non-trivial challenge. It's very much a non-trivial challenge. It drives at the need for a standard.

**Andy:** I might sum it up that, why do we need the standard? You have really well-intentioned people who are trying their best to create an effective program. There's so much information out there, as you mentioned, that it is really hard to reflect on your own program and understand, how do you benchmark against industry?

An API-recommended practice gives you something to measure against, to set some expectations, to point you in the right direction to resources that can help you build or assess your own program depending on the maturity level of your company. It really sets something for everybody to look at and say, "Here's a measuring stick with help to..."

[crosstalk]

**Russel:** It lays out a path. It lays out a process. It lays out a path. You're not figuring that out from scratch, right?

**Andy:** Correct.

**Russel:** That's a huge, huge deal. That's a great place to end this episode. For the listeners that have listened to this and want to hear the second part, we're doing something unusual here, or unique, because we haven't done it before.

This is the first of a two-part episode, part one being The Need for a Standard, which we've been talking about up till now. We're doing this on the Pipeline Technology Podcast.

[background music]

**Russel:** Part two is on the "Pipeliners' Podcast." I would encourage you to find and listen to that episode as well. Thank you, gentlemen.

**Andy:** Thanks very much.

**Mark:** Yeah.

**Russel:** I hope you enjoyed this month's episode of the Pipeline Technology Podcast and our conversation with Mark and Andy. If you'd like to support the podcast, please leave us a review. You can do that wherever you listen. You can find instructions at [pipelinepodcastnetwork.com](https://pipelinepodcastnetwork.com).

If there's a Pipeline & Gas Journal article where you'd like to hear from the author, please let me know on the Contact Us page at [pipelinepodcastnetwork.com](https://pipelinepodcastnetwork.com), or reach out to me on LinkedIn. Thanks for listening. I'll talk to you next month.

**END**

## **APPENDIX B**



### Comments of Southern Alliance for Clean Energy

The pipeline that the East Tennessee Natural Gas Company, LLC (ETNG) is proposing to construct is based on the claim by the Tennessee Valley Authority (TVA) that it needs to replace the Kingston Fossil Plant in part with a combined cycle (CC) gas plant paired with 16 dual-fuel aero combustion turbines totaling 1,500 megawatts of capacity, speciously necessitating the proposed 122-mile fossil gas pipeline. TVA proposed the replacement of the Kingston Fossil Plant with methane gas options on June 15, 2021<sup>6</sup>, and firmed up the configuration in a flawed Draft Environmental Statement (DEIS) for the plant released on May 12, 2023.<sup>7</sup>

The Kingston Plant DEIS was found to be inadequate by the US Environmental Protection Agency (EPA) in a letter to TVA on March 25, 2024.<sup>8</sup> The letter specifically stated “Our review has determined that the Final EIS fails to address numerous EPA concerns identified with the Draft Environmental Impact Statement and the lack of transparency prevents us from understanding TVA’s treatment of several important issues. Thus, the Final EIS is inadequate. The EPA requests that Tennessee Valley Authority prepare a supplemental EIS in accordance with 40 CFR 1502.9(d).”

TVA did not do this, and instead announced its Record of Decision adopting Preferred Alternative A (the Kingston Plant with some solar and battery storage) *a mere one week later*, on April 2, 2024, indicating clearly that TVA does not recognize any authoritative oversight by the US EPA. Herein, we provide reasons that TVA’s Kingston Plant DEIS should not be relied upon as a foundational expression of need for the Ridgeline Expansion Pipeline. Instead, FERC should recognize that the process in this docket is flawed by the very nature of the relationship of TVA to FERC, to the EPA, to ETNG, and to the public.

Our review of the DEIS for this project reveals that the proposed pipeline will expose Tennesseans to an unacceptable level of compounded High Consequence risk due to the level of seismic activity and landslide likelihood along the proposed route. The DEIS is organized in a way that understates, isolates, and camouflages these risks from reviewers, fails to recognize the compounded risks of low-probability, high impact events resulting from multiple projects co-located in a high-risk region, and as such, it should not be relied upon to calculate these risks.

Further, ETNG has not addressed the impact that climate change most assuredly will have on upland construction activities, resulting in greater negative impacts to water bodies than this DEIS anticipates. These concerns have been raised in docket after docket for pipelines proposed in areas with steep slopes (Dominion's Transco to Charleston in the Upstate of South Carolina, the Mountain Valley Pipeline in West Virginia and Virginia), and each time warnings were ignored, approvals were given, and significant environmental impact events occurred. The fact is that there is no amount of erosion protection that can withstand today’s climate-fueled rain events.

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<sup>6</sup> <https://www.federalregister.gov/documents/2021/06/15/2021-12693/environmental-impact-statement-for-kingston-fossil-plant-retirement>

<sup>7</sup> [https://tva-azr-eastus-cdn-ep-tvawcm-prd.azureedge.net/cdn-tvawcma/docs/default-source/environment/environmental-stewardship/nepa-environmental-reviews/kingston-retirement/kif-deis-final-compiled-package\\_tva-site.pdf?sfvrsn=8a7e8c76\\_3](https://tva-azr-eastus-cdn-ep-tvawcm-prd.azureedge.net/cdn-tvawcma/docs/default-source/environment/environmental-stewardship/nepa-environmental-reviews/kingston-retirement/kif-deis-final-compiled-package_tva-site.pdf?sfvrsn=8a7e8c76_3)

<sup>8</sup> <https://cdxapps.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=456881>

## **I. Background on SACE**

The Southern Alliance for Clean Energy (SACE) is a non-profit organization that promotes responsible and equitable energy choices to ensure clean, safe, and healthy communities throughout the Southeast. Founded in 1985 under its original name the Tennessee Valley Energy Coalition, SACE has championed rate-payer protections and tracked the environmental and energy policies of the Tennessee Valley Authority. Now headquartered in Knoxville, Tennessee, SACE has over 30 years of experience as a leading voice calling for smart energy policies in our region that help protect our quality of life and treasured places. SACE has more than 38,000 members and online activists in the states served by TVA who are concerned about: reducing emissions that contribute to extreme weather from climate change; creating jobs and economic development in the clean energy sector; and reducing electric bill burdens through effective efficiency programs. SACE intervened in Docket CP23-516-000 on May 30, 2024, and in Docket CP23-516-001 on July 8, 2024.

## **II. The DEIS prepared for East Tennessee Natural Gas by FERC is based on a TVA project that lacks transparency and oversight, a fact that should negate the stated need for the project.**

TVA has a conflict of interest in this proceeding for two reasons, and the resulting TVA IRP, EIS and Record of Decision for the Kingston Plant should not be relied upon to justify the need for this pipeline project. First, compensation of TVA executives will increase if TVA replaces the Kingston Fossil Plant with a methane gas plant rather than non-combustion alternatives.<sup>9</sup> Second, ETNG requested the opening of a FERC pre-filing docket (PF22-7) for this project on May 6, 2022, stating that the customer would be TVA. ETNG signed a precedent agreement with TVA on August 21, 2021. The Kingston Project is defined in the 2021 Precedent Agreement as a 1,450 MW combined cycle gas plant. This indicates that this project was a foregone conclusion and that the EIS for the Kingston Plant was for show, with no real analytical value, and a waste of TVA ratepayer money.

TVA and ETNG colluded on the project, making a mockery of any notion that the FERC pipeline approval is based upon any degree of market competition that supports claims of “necessity” in the Certificate of Public Convenience and Necessity process. The pre-filing and certificate process dockets at FERC both began before TVA issued their Notice of Record authorizing the gas plant on April 2, 2024. TVA finalized plans for the gas plant one month before this DEIS was filed. At any point prior to April 2 (and indeed at any point after), TVA could theoretically change its mind and eliminate the gas plant from the Kingston Fossil Plant replacement plan. This overlap of processes, at great expense, serves to illustrate that the concept of “necessity” in this particular docket is circular at best, arbitrary at worst.

Further, TVA investment decisions are governed only by an executive staff and a nine-member board of directors. There are no shareholders, and there is no market to judge whether TVA’s decision to build the Kingston Plant is prudent. As such, TVA fails the transparency tests that anchor tenants on other FERC-regulated pipeline projects are held to.

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<sup>9</sup> Source: <https://www.biologicaldiversity.org/programs/energy-justice/pdfs/Perverse-Pay-report.pdf> (accessed July 12, 2024)

**III. The proposed pipeline will expose Tennesseans to an unacceptable level of compounded High Consequence risk due to the level of seismic activity and landslide likelihood along the proposed route. The DEIS is organized in a way that understates, isolates, and camouflages these risks from reviewers, fails to recognize the compounded risks of low-probability, high impact events resulting from multiple projects co-located in a high-risk region, and as such, it should not be relied upon to calculate these risks. Far more transparent assessment and explanation of these risks should be ordered and conveyed to the public before any additional action takes place.**

The Ridgeline Expansion alignment largely follows the alignment of an existing 22-inch natural gas pipeline (Line 3100) built in 1949, before today's technology for assessing hazards and today's environmental protection regulations were in place. It should not be assumed that the route is safe merely because a pipeline already exists along that route. The proposed pipeline has a Maximum Allowed Operating Pressure (MAOP) of 1,440 psig, a somewhat standardized rate that doesn't seem to consider the consequences of combining this level of pressure with the risks associated with slopes that necessitate pipeline bends and seismic activity.

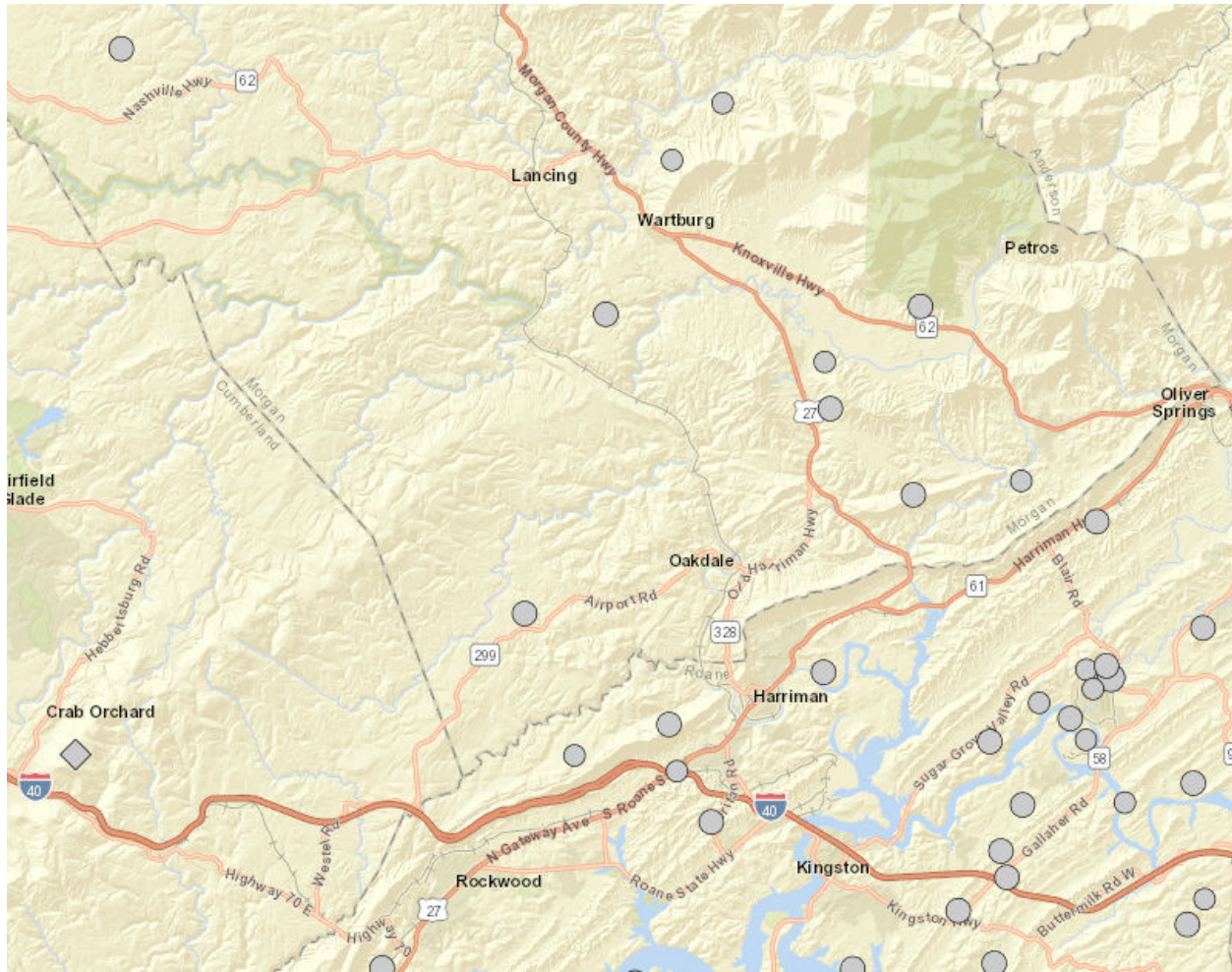
The DEIS devotes only three sentences to earthquakes. "A total of 10 earthquakes with a magnitude greater than 2.5 have occurred within 10 miles of the Project area since 1900.... The earthquakes ranged in magnitude between 2.5 and 3.6 on the modified Richter scale.... The closest earthquake to the Project area occurred approximately 1.4 miles east of MP 117.0 with a magnitude of 2.6." (p. 4-10 of Section 4.1.5.1 Seismicity and Soil Liquefaction) This language dilutes the sense of risk by implying that the 10 earthquakes were spread across time all the way back to 1900. In fact, *a query by SACE of the same USGS database*<sup>10</sup> shows that they all occurred in 1975 or after, concentrating the activity and the risk much more.

The query by SACE (lowering the threshold to 1.5) revealed that the 2.6 earthquake near MP 117 occurred in 1975. The DEIS *did not note* that an earthquake of 1.7 was registered near MP 119 in 1986; an earthquake measuring 2.3 occurred within 1 mile of the alignment at MP 110 in 2020; an earthquake measuring 1.9 was recorded in the same month in 2020 between MP 108 and 109; and an earthquake measuring 2.0 was recorded in 2005 within 1.5 miles of MP 88. The DEIS did not assess earthquakes under 2.5 on the Richter scale, and it does not provide a map of detected earthquakes near the route alignment. Lowering the threshold to 1.5 provides a broader look at the prevalence of seismic activity in Tennessee.

A screenshot of the SACE USGS earthquake query (below) provides an image of seismic activity generally in the eastern portion of Tennessee. It is worth noting that *activity increases in the Kingston vicinity, where the pipeline terminates and where TVA proposes to build the 1,500 MW gas plant*. Eastern Tennessee is the most seismically active part of the state. SACE has serious concerns about ETNG's and TVA's plans to *add* high pressure explosive gas infrastructure in this area, the approval of which is based on a project - the TVA Kingston gas plant - that has no real market or regulatory oversight confirming its necessity.

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<sup>10</sup> <https://earthquake.usgs.gov/earthquakes/search/>



Screenshot from search of historic earthquakes greater than 1.5 on the Richter scale on [earthquake.usgs.gov](https://earthquake.usgs.gov) (accessed July 6, 2024). Gray circles are geologic earthquakes, gray squares are earthquakes caused by mine collapse.

ETNG must construct the pipeline in accordance with US Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) standards, which were revised in 2019 to take seismic activity into account, but these new standards have been in place for only five years and have not yet been tested by time. The DEIS states "(W)e conclude that there is low potential for ground shaking, ground rupture, or soil liquefaction to occur or significantly affect Project facilities" on p. 4-10, but this conclusion is built upon an incomplete picture as we have detailed here. It is noted that ETNG will monitor for seismic movement, but this is merely a reporting of an event after it has happened. It is not predictive.

The DEIS buries and obfuscates the risks of a catastrophic event by treating the issue lightly toward the end of the narrative body of the document - devoting less than one page to Section 4.12.2.1 Pipeline Safety - and then by burying the details of the High Consequence classifications in Appendix D in Table D-19 on page 506 of a 711-page document. This treatment fails to convey the gravity of the issue. In areas of High Consequence, significant loss of life is likely in the event of an explosion. **Along the project route, 31.4 miles, or 26 percent of the route, is classified as "High Consequence." One quarter of this unnecessary project could result in a High Consequence loss of life event if the pipeline fails due to a seismic event or if an accident impacts it.** Table D-20 in Appendix D identifies (by milepost) 51.9 miles of additional project sections classified as locations of Medium Consequence



along the pipeline. The DEIS does not include these important mileage totals up front in the narrative, and *this treatment appears to differ from other sections* such as those that describe water crossings, noise, air impacts, etc. This is an egregious and misleading omission from the main narrative, especially considering the specious basis upon which this project is based.

It is then noted in the separate document titled “Appendix 6D - Phase I - Geohazard Assessment Report Desktop Study”<sup>11</sup> on **Table 5.1 Landslide Susceptibility and Incidence Summary** (shown below) that MP 87 to MP 123 are characterized as “High Susceptibility, Moderate Incidence” landslide areas. Indeed, almost half the length of the proposed alignment is classified as “High Susceptibility” on this chart.

**Table 5.1: Landslide Susceptibility and Incidence Summary**

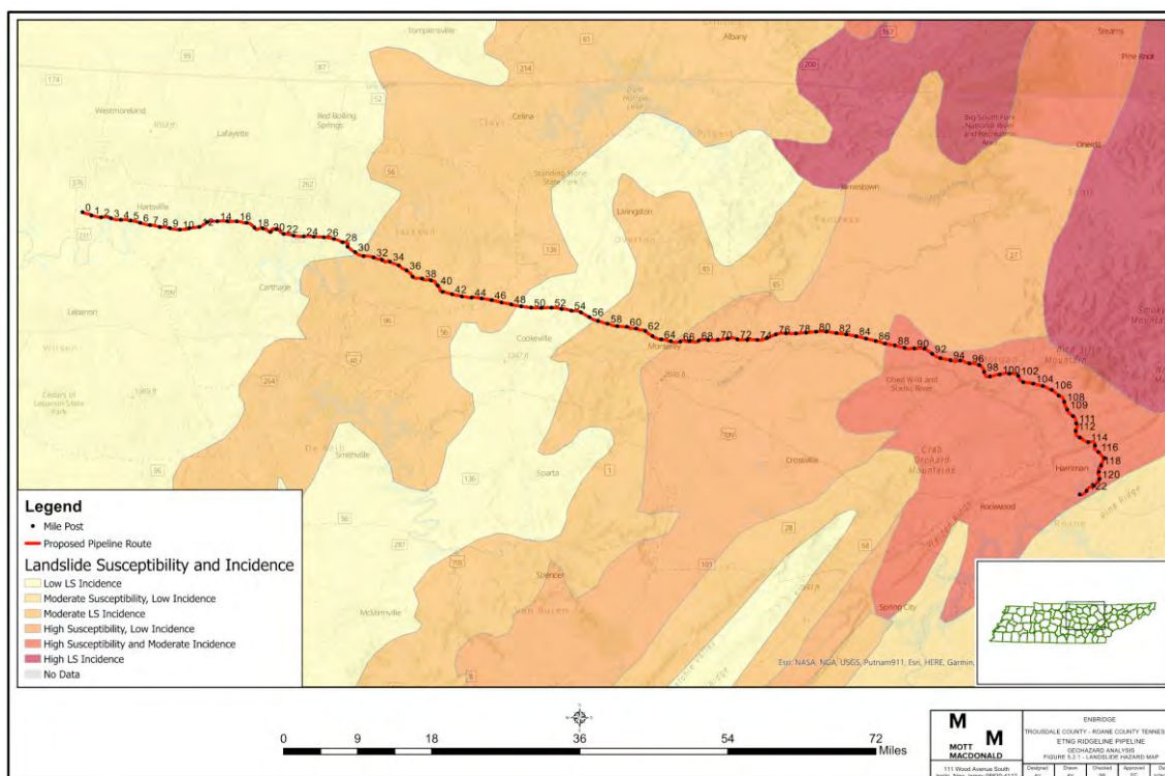
MP Start	MP Finish	Landslide Susceptibility and Incidence
0	30	Low Susceptibility and Incidence
30	48.5	Moderate Susceptibility and Incidence
48.5	56.5	Low Susceptibility and Incidence
56.5	65.5	Moderate Susceptibility and Incidence
65.5	87	High Susceptibility, Low Incidence
87	123	High Susceptibility, Moderate Incidence

P. 18 Appendix 6D Phase I - Geohazard Assessment Report Desktop Study

This risk can be visualized using **Figure 5.2.1: Landslide Hazard Map** (shown below) from the same Resource Report 6. This map seems like *an important element that was excluded* from the main body of the DEIS.

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<sup>11</sup> Appendix 6D was prepared for Enbridge/ETNG by Mott Macdonald as part of Resource Report 6 - Geologic Resources and is dated March 31, 2022



**Figure 5.2.1: Landslide Hazard Map**

When sections of this DEIS document (including Appendix D) and Appendix 6D from Resource Report 6 are pulled into one place, supplemented with our own check of the USGS’s Earthquake Database, a clearer picture of the risks is presented. Of special concern, though not exclusively, is the eastern portion of the pipeline, from MP 87 to the terminus and the proposed Kingston Plant. The gas plant itself adds to the risk of a High Consequence event given its proximity to a fairly active seismic zone. The pipeline is subject to High Consequence events, and it *enables* and fuels a gas plant that is also subject to High Consequence events. The DEIS does not consider the *compounding of risks to populations* associated with the construction of this pipeline. Given that there are alternatives that will meet the existing and future electricity needs within the TVA territory, the risks to life and property associated with this pipeline - compounded by the existing pipeline as well as the proposed gas plant - are not in the public interest.

The DEIS disguises the risks of building this pipeline in mountainous and seismic terrain by manipulating how the content is presented. The DEIS devotes the three sentences to earthquake activity in Section 4.1.5.1 Seismicity and Soil Liquefaction (listed above), and then dismisses the risk with the statement “In general, modern electric arc welded steel pipelines have not sustained damage during seismic events....” (p. 4-9) The paragraph continues, noting that there is a 2 percent probability of the proposed pipeline experiencing “peak ground acceleration” (PGA) as a percent of gravity (g) of *between 26 and 36 percent g* being exceeded from MP 117.7 to the terminus at 122.2. A PGA of *10 percent g* is “generally considered the minimum *threshold for damage* to older structures or structures not constructed to resist earthquakes.” The existing pipeline falls into this category. And the terminus of the proposed pipeline is a 1,500 MW gas plant. These compounded risks are ignored and not acknowledged in the DEIS. Even Kinder Morgan (who state that 40 percent of the natural gas produced in the United States is transported

through their pipelines<sup>12</sup>), acknowledged these risks in their April 2021 issue of The Responder: “However, when significant pipeline bending or strain occurs due to ground displacement, during and after an earthquake, pipeline failures can occur.”<sup>13</sup>

We have noted many examples of *risk camouflage*, but a few more are worth noting. The DEIS under-represents the potential for landslides in Section 4.1.5.2 Landslides and Slope Stability by noting that ETNG has identified five areas of high landslide risk, but then refers to them only as “Areas of Interest 3, 8, 9, 10, and 15” and then buries the details - mileposts and descriptions - in Appendix D in **Table D-8: Summary of Locations Identified in Landslide Mitigation Plan**. Only here do we find descriptions of the alignment sections where the risk of landslides is considered high.

Within Table D-8, some of the recommendations to protect the pipeline in these “Areas of Interest” for landslides, in the notes section of the table, include embedding the pipeline in bedrock as “the ultimate protective measure.” But in Section 4.1.5.2 Landslides and Slope Stability on p. 4-10 of the narrative it states that construction itself can trigger landslides (from machinery vibrations, traffic, addition of new load on slopes, removal of deep-rooted vegetation). This would certainly include the explosive blasting that would be needed to create a trench for the pipeline in bedrock. But the DEIS does not make the connection between these two points when recommending how to construct the pipeline in these locations.

The DEIS notes that the project alignment would cross 9.3 miles of slopes greater than 30 percent. In **Table 5.2 Slope Summary** in Appendix 6D, it is noted that 20.5 percent of the pipeline length has a slope of more than 15 percent. And **Table 5.1 Landslide Susceptibility and Incidence Summary** (shown above) shows that there is a High Susceptibility from MP 65.5 to MP 123 - almost half the length of the entire pipeline.

It must also be noted that there have already been two explosions along the existing 22-inch pipeline, and both of these explosions were in Smith County, in the western portion of the alignment for the proposed pipeline. This section, like the eastern section, has steep slopes. The first explosion occurred in 1949, the year of its completion. A child was injured and barely escaped death.<sup>14</sup> The second explosion occurred on December 15, 2018.<sup>15</sup> The cause of the 2018 incident, recorded by PHMSA, is “material failure of pipe or weld - environmental cracking-related.”<sup>16</sup>

Certain cumulative impacts *are* evaluated within this study. **Table 4.13-2 Past, Present, and Reasonably Foreseeable Future Projects Evaluated for Potential Cumulative Impacts with the Ridgeline Expansion Project** on p. 4-132 in this DEIS presents a summary of projects considered for cumulative impacts with the proposed pipeline, and the Kingston Plant is included in the table, but compounded safety risk from a seismic event in the area was not considered in this analysis. We believe that it should be, given the preponderance of evidence.

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<sup>12</sup> Source: <https://www.kindermorgan.com/> (accessed July 8, 2024)

<sup>13</sup> Source: [https://www.kindermorgan.com/WWK/Media/Safety-Environmental/documents/the-responder/The\\_Responder\\_2021\\_01.pdf](https://www.kindermorgan.com/WWK/Media/Safety-Environmental/documents/the-responder/The_Responder_2021_01.pdf) (accessed July 8, 2024)

<sup>14</sup> Source: <https://www.carthagecourier.com/2018/12/25/explosion-occurred-at-pipeline-in-1949/> (accessed July 10, 2024)

<sup>15</sup> Source: <https://www.carthagecourier.com/2018/12/25/explosion-probe-to-take-months/> (accessed July 10, 2024)

<sup>16</sup> <https://dac-phmsa-usdot.hub.arcgis.com/pages/gas-transmission>

#### **IV. The proposed pipeline's upland construction activities cannot be effectively mitigated enough to offset the impacts of increasingly torrential rainfall exacerbated by climate change.**

Upland activities at water crossings will inevitably damage the water bodies themselves. FERC has been warned of these impacts again and again, but pipeline projects are approved in regions with steep slopes regardless. In South Carolina, erosion and runoff from upland clearing in an area with steep slopes associated with the construction of a Dominion Energy's FERC-approved 55-mile Transco to Charleston pipeline forced a water utility to shut off its intakes in the Tyger River after a heavy rainfall event.<sup>17</sup> The FERC-approved Mountain Valley Pipeline (MVP) was cited by the Virginia Department of Environmental Quality for causing over 300 violations of erosion and sedimentation control. Both Virginia and West Virginia fined the operators of the MVP for erosion and sedimentation issues, with Virginia levying a \$2.15 million penalty in a 2019 consent decree<sup>18</sup>, the rules of which were broken, resulting in additional fines for 29 new construction violations totaling \$34,000 as recently as this past spring.<sup>19</sup>

The Ridgeline Expansion similarly crosses steep slope terrain, and if the project is approved and built, it will, without any doubt, cause more water impacts than have been anticipated in the DEIS. Given how climate change has dramatically altered and increased torrential rainfall in the Southeast, it would be impossible to protect Tennessee's streams and rivers from erosion and sedimentation associated with upland construction activities. The BMPs commonly used today are meaningless in torrential rain. TVA, the anchor for this project, noted in 2023 that it had seen above-average rainfall for six years in a row.<sup>20</sup> Damage to aquatic habitat most assuredly will occur if this pipeline is approved and constructed, and that damage will exceed what has been deemed acceptable loss in this DEIS. Because this damage cannot be mitigated, as has been proven in recent FERC-approved pipeline cases, the conclusions of this DEIS are flawed.

#### **V. Conclusion**

Given that the project that is used to justify this pipeline has been found to be deeply flawed by the US EPA and is the product of a complete lack of oversight and accountability, and given the unacceptable likelihood that this pipeline increases the risk of a High Consequence event caused by seismic activity and/or slope instability, and given that the likelihood of a High Consequence event at the terminus of the pipeline - where it would coincide with the existing pipeline as well as the new combustion turbine facility, and given the evidence presented above that indicates that this pipeline is guaranteed to cause significant damage to water bodies given the steep slopes of the terrain and likelihood for landslides, and given the increasing impact of heavy rain events exacerbated by climate change, we conclude that the risks of this project far outweigh any benefits.

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<sup>17</sup> Source: <https://www.greenvilleonline.com/story/news/2018/05/25/dominion-energy-under-scrutiny-after-mud-clogs-water-system-near-utility-s-c-project/645320002/> (accessed July 9, 2024)

<sup>18</sup> Source: <https://virginiamercury.com/briefs/mountain-valley-pipeline-agrees-to-pay-virginia-2-15-million-for-environmental-violations/> (accessed July 9, 2024)

<sup>19</sup> Source: <https://www.wvtf.org/news/2024-03-28/virginia-fines-mvp-for-environmental-violations> (accessed July 9, 2024)

<sup>20</sup> Source: <https://www.wbir.com/article/weather/tva-said-2022-marked-the-sixth-straight-year-of-above-average-precipitation-in-tennessee-river-basin/51-ca20076e-ad32-496a-9eea-e83304cb963f> (accessed July 8, 2024)



FERC staff did not make any recommendations that address or mitigate these risks, especially with respect to High Consequence events. As we noted above, seismic monitoring only records an event after it starts, and it will be impossible to install BMPs that can protect streams and water bodies near slopes from erosion due to upland activities during a high intensity rain event.

The purpose given for the project - to provide up to 300,000 Dth/day of natural gas transportation capacity and 95,000 Dth of parking capability to TVA's proposed gas-fired generation at its Kingston Plant - is written to be so narrow that a No Action Alternative by ETNG is impossible to consider. The only "alternatives" evaluated were all pipeline projects. The "need" for the pipeline originated from TVA's 2019 Integrated Resource Plan and associated EIS for the Kingston Plant. But unlike most every other utility in the United States, TVA's IRP is not subject to any sort of oversight, whether from a utility commission or a state legislative body. TVA could have proposed 3 gigawatts of combustion turbines at Kingston, and the results of the need assessment for a pipeline project would have been the same.

In the Section 3.2 System Alternatives (p. 3-3), FERC staff stated "(I)t is outside the scope of this EIS to speculate whether theoretical pipelines or alternative energy sources could one day provide energy as suggested by some commenters...." We disagree, given the special circumstances surrounding the lack of oversight of TVA and the fact that the agency does not even acknowledge the authority of the US EPA, as we noted in our opening. This is not a run-of-the-mill pipeline project serving a run-of-the-mill utility need. This pipeline project - based on a specious need - involves greater-than ordinary risks that could cost lives of Tennesseans. Given these facts, we urge FERC to reject this DEIS as inadequate and ultimately to deny the request for a Certificate of Public Convenience and Necessity.