

**IN THE CIRCUIT COURT OF WETZEL COUNTY, WEST VIRGINIA
BUSINESS COURT DIVISION**

**MARKWEST LIBERTY MIDSTREAM &
RESOURCES, L.L.C.,**

Plaintiff,

v.

**Civil Action No. 16-C-82
Honorable H. Charles Carl, III**

**J.F. ALLEN COMPANY; AMEC FOSTER
WHEELER ENVIRONMENT & INFRASTRUCTURE,
INC.; REDSTONE INTERNATIONAL, INC.; CIVIL
& ENVIRONMENTAL CONSULTANTS, INC.; and
COASTAL DRILLING EAST, LLC,**

Defendants.

JUDGMENT ORDER

This matter came before the Court on September 21, 2020, for a bench trial. For each day of the trial, from September 21, 2020, to October 9, 2020, and October 14 and 15, 2020, this Court entered a Day Order, which orders are part of the record in this case. The Plaintiff appeared in person by counsel and the Defendants appeared in person by counsel. The Court received proposed orders from all parties on June 3, 2021.

This case involves a dispute arising around the construction of a hybrid retaining wall in Wetzel County, West Virginia at a natural gas processing plant owned by Plaintiff MarkWest Liberty Midstream & Resources, L.L.C. ("MarkWest"). Plaintiff contracted with Defendant J.F. Allen Company ("J.F. Allen") to construct a large retaining wall referred to as the Eastern Valley Retaining Wall and, later, as the Great Wall of Mobley (the "Wall"). J.F. Allen subcontracted with Defendant AMEC Foster Wheeler Environment & Infrastructure, Inc. ("AMEC") to design the Wall and provide quality control. J.F. Allen subcontracted with Defendant Redstone International, Inc. ("Redstone") to construct the steel pile anchored portion of the Wall. The issues that have

arisen between the parties, including claims for negligence and breach of contract, are the basis for this civil action.

During the trial, the Court heard the testimony of Daniel Rowlands, Tyler Adams, Christopher Ramsey, Thomas Stack, Dr. Jonathan Wren, Dr. Jeffrey Hunt, Bradley Wolf, Gregory Hadjis, Jerry DiMaggio, Bryon Willoughby, Brian Leatherman, Heath Kefover, Terry Cunningham, Dr. Donald Bruce, Charles Bolyard, Jr., Dr. Paul Sabatini, Dr. James Collin, Don Dotson (by deposition), and William Burton, all of which was subject to cross-examination.

Also during the trial, Plaintiff submitted Exhibits designated as MarkWest 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 13, 15, 16, 17, 18, 20, 22, 24, 28, 33, 34, 35, 36, 38, 40, 41, 42, 44, 48, 51, 52, 54, 55, 57, 59, 60, 62, 63, 67, 70, 71, 72, 75, 76, 79, 83, 89, 90, 92, 94, 96, 99, 104, 106, 107, 108, 109, 110, 111, 113, 115, 116, 118, 121, 126, 133, 134, 136, 137, 142, 145, 152, 157, 158, 160, 161, 170, 171, 174, 175, 176, 177, 180, 183, 185, 187, 189, 191, 192, 193, 194, 196, 197, 201, 202, 203, 210, 212, 213, 215, 216, 217, 220, 222, 224, 225, 227, 229, 248, 251, 252, 254, 256, 257, 266, 269, 284, 284a, 284b, 285, 285a, 285b, J.F. Allen 2, 3, 4, 6, 9, 10, 11, 41, 50, 56, 57, 58, 60, 62, 63, 114, 141, 141a, AMEC 9, 18, 26, 32, 33, 34, 35, 152, 153, 191, 246, 267, 269, Redstone 7, 7a, 8, 8a, 11, 11a, 20a, all of which were admitted to the record of this case without objection.

Defendant J.F. Allen submitted Exhibits designated as J.F. Allen 1, 2, 3, 4, 5, 6, 7, 8, 8a, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 35a, 36, 37, 38, 39, 40, 41, 41a, 41b, 41c, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 71, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 90a, 90b, 91, 92, 93, 94, 95, 96, 97, 98, 101, 102, 103, 104, 105, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 133, 134, 137, 138, 139, 140, 143, 145a, 146, 147, 148, 149, 151, 152, 153, 154,

157, 158, 159, 160, 161, 162, 163, 164, 165, 167, 168, 169, 170, 171, 171a, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 184a, 184b, 184c, 185, 186, 187, 188, 189, 190, 190a, 191, 192, 228, 228a, 228b, 228c, 288d, 288e, 229, 230, 230a, 231, 232, 233, 234, 235, 236, 237, 238, 239, 241, 242, 243, 244, and 245, all of which were admitted to the record of this case without objection.

Defendant Redstone submitted Exhibits 20a, J.F. Allen 31, 7, 9, 20, 31, 114, 47, 116, Redstone 19a, 19a-1, 19a-6, 19a-7, J.F. Allen 204, 190a, 121, 148, 112, Redstone 2a-3, 2a-27, 2a-35, 2a-37, 2a-42, 25, 41, 41a, 41b, 42, 43, 44, 45, 46, 46a, 46b, 46c, 47, and 48, all of which were admitted to the record of this case without objection, with the exception of MarkWest's objection to Redstone Exhibit 25 which was overruled, and with exception of MarkWest's objection to the attachments Mr. Charles Bolyard's expert reports, which was overruled.

Defendant AMEC submitted Exhibits 1, 2, 3, 4, 5, 7, 11, 12, 13, 16, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 44, 48, 49, 50, 53, 55, 56, 57, 59, 61, 62, 63, 64, 66, 67, 69, 70, 71, 72, 73, 74, 76, 77, 78, 79, 80, 81, 82, 83, 84, 87, 88, 89, 91, 94, 96, 97, 98, 103, 104, 105, 107, 110, 112, 115, 116, 117, 118, 119, 120, 122, 124, 125, 126, 127, 128, 133, 134, 135, 136, 137, 139, 143, 145, 146, 147, 148, 149, 152, 153, 156, 159, 164, 166, 167, 172, 173, 180, 186, 187, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 205, 206, 207, 212, 214, 216, 218, 219, 221, 225, 237, 239, 240, 241, 242, 243, 244, 245, 247, 249, 250, 251, 252, 253, 254, 255, 256, 257, 259, 262, 263, 267, 268, 269, 270, 272, 273, 274, 275, 276, 277, 278, 279, and 280, all of which were admitted to the record of this case without objection.

Upon consideration of the testimony of the witnesses presented and exhibits introduced into evidence, the entire record of this case, and pertinent legal authority, the Court makes the

following separate findings of fact and conclusions of law pursuant to Rule 52(a) of the West Virginia Rules of Civil Procedure:

FINDINGS OF FACT: PROCEDURAL HISTORY

1. MarkWest filed its Complaint in the Circuit Court of Wetzel County, West Virginia on August 18, 2016, naming J.F. Allen, AMEC, Redstone, Civil & Environmental Consultants, Inc. (“CEC”), and Coastal Drilling East, LLC (“Coastal”) as Defendants. Subsequently, a Third-Party Complaint was filed by J.F. Allen on October 20, 2016 against The Lane Construction Company (“Lane”) who was added to this civil action as a Third-Party Defendant. In addition, there were various counterclaims and cross claims between the parties. The claims involving CEC, Lane and Coastal were settled before the commencement of the bench trial of this matter.

2. J.F. Allen is a heavy highway contractor and earthmover that operates two limestone quarries that crush rock, as well as an asphalt plant. (Tr. 197:16-21, Day 8.) Gregory Hadjis is J.F. Allen’s president. (*Id.* 198:6.) With respect to J.F. Allen, MarkWest alleges that it breached the Contract it entered into with MarkWest by failing to design and build the retaining Wall to have a useful life expectancy of 75-100 years, failing to otherwise design and build the Wall in a workmanlike manner consistent with industry standards as expressly warranted in the Contract, failing to complete the Project by March 31, 2015, and failing to design and build the Project with a Factor of Safety of 1.5. MarkWest alleges that J.F. Allen was negligent in failing to complete the Wall by March 31, 2015, failing to design the Wall consistent with generally accepted design and engineering practices and standards of its industry, failing to construct the Wall consistent with generally accepted construction practices and standards of its industry, and failing to hire qualified and capable subcontractors, including AMEC, Redstone and Coastal.

MarkWest further alleges that J.F. Allen was negligent for failing to install monitoring instrumentation.

3. J.F. Allen filed its Answer, Affirmative Defenses, Cross-Claims and Counterclaim to MarkWest's Complaint on October 11, 2016. Pursuant to its Counterclaim against MarkWest, J.F. Allen alleges that it is owed \$1,723,080.46 on its Contract with MarkWest. Further, J.F. Allen alleges that MarkWest breached the Contract by refusing to accept an agreed upon lower Factor of Safety and inducing Project delays. J.F. Allen alleges that as a result of MarkWest's breach of the Prime Contract, it incurred extended quality assurance (hereinafter "QA") and quality control (hereinafter "QC") costs, extended home office overhead, extended general conditions, construction inefficiencies and expenses, adverse weather delays inefficiencies, down time and costs associated with the acceleration to repair and replace Redstone's work, as well as costs incurred to extend the rental period of necessary equipment to complete the Project.

4. AMEC was the design engineer for the entire Project. (J.F. Allen Ex. 26; Tr. 192:11-21, Day 9.) The Court finds AMEC designed the Wall using certain industry design standards, as well as their own professional judgment and knowledge, including FHWA Geotechnical Engineering Circular No. 4 ("Circular 4"), Post-Tensioning Institute Recommendation for Prestress Rock and Soil Anchors ("PTI"), the American Institute of Steel Construction Manual on Steel Construction, 13th Edition ("Steel Manual"), and the American Concrete Institute "Building Code Requirements for Structural Concrete" ("ACI-318-11") (collectively the "Design Standards"). (Tr. 111:7– 113:12, Day 4.) AMEC also provided daily quality assurance personnel for the Project who documented work and prepared daily notes. (AMEC Ex. 35; *Id.* 189:18-24.) AMEC was under direct contract with J.F. Allen. (J.F. Allen Ex. 26; Tr. 192:11-21, Day 9.) J.F. Allen subcontracted with AMEC for the design of the Project ("Design Subcontract"). (J.F. Allen

Ex. 26; Tr. 192:11-21, Day 9.) J.F. Allen also subcontracted with AMEC for quality control services during construction of the Project (“QC Subcontract”). (AMEC Ex. 35; *Id.* 189:18-24.)

5. Pursuant to its Cross-Claim against AMEC, J.F. Allen alleges that AMEC breached the Design and QC Subcontracts by committing design or monitoring deficiencies. J.F. Allen alleges that it incurred significant costs associated with repairing and/or replacing AMEC’s work, including repair/replacement of failed anchors, removal and replacement of walers that deformed upon full loading, modification of soldier piles to achieve minimum bearing on lagging, removal and replacement of dislodged lagging, surveying associated with Project monitoring, extended QA/QC costs, and costs associated with AMEC-caused delays in completing the Project.

6. J.F. Allen subcontracted with Redstone for the construction of a steel pile anchored portion of the Project (the “Redstone Subcontract”). (J.F. Allen Ex. 133; Tr. 212:19-24, Day 8.) Pursuant to its Cross-Claim against Redstone, J.F. Allen alleges that Redstone breached the Redstone Subcontract and its warranty by engaging in design modification, failing to advise J.F. Allen of the differing site conditions it encountered on the Project, failing to timely pay its vendors, thereby resulting in liens against the Project that J.F. Allen satisfied, and failing to adequately staff the Project, thereby causing delays. Further, J.F. Allen alleges that it is owed contractual indemnification pursuant to Article 6.19 of the Redstone Subcontract’s General Conditions.

7. AMEC filed a Cross-Claim against J.F. Allen for contractual indemnity for any negligent acts by J.F. Allen.

8. Redstone filed Cross-Claims against J.F. Allen for contribution, MarkWest for quantum meruit, unjust enrichment, and failure to coordinate multiple prime contractors (the latter claim was dismissed), breach of contract against J.F. Allen, negligence against AMEC, and tortious interference against J.F. Allen.

FINDINGS OF FACT: BACKGROUND

9. MarkWest is engaged in the business of processing natural gas. MarkWest does not itself own or produce the natural gas, but instead it provides processing services to the producers, which are the exploration and production companies who drill and complete the wells. (Tr. 98:24 - 99:7, Day 1.) Natural gas producers connect their wells to MarkWest's processing facilities via pipelines. MarkWest receives and processes the natural gas into various products, such as methane, ethane, propane, etc., and then ships the various products at the direction of the producers for additional processing or for sale and distribution to consumers. (*Id.* 102:24 – 104:24.)

10. MarkWest maintains a natural gas processing facility in Mobley, Wetzel County, West Virginia, wherein MarkWest processes natural gas for, among others, EQT Corporation (hereinafter "EQT"). Despite its remote location and challenging geography, Mobley was deemed a suitable location for a natural gas processing facility because of its proximity to the gas wells, existing pipelines and electricity from high voltage transmission lines. (*Id.* 120:3-24.) On December 20, 2012, MarkWest entered into contracts with EQT wherein MarkWest agreed to maintain sufficient processing facilities to process EQT's future natural gas processing needs at the Mobley facility. (J.F. Allen Ex. 2). Previously, MarkWest constructed and maintained four processing plants at the Mobley facility designated as Mobley I, Mobley II, Mobley III, and Mobley IV. (Tr. 93:3 - 94:4, Day 1.) As part of the ongoing relationship under the MarkWest-EQT contracts, EQT had the contractual ability to nominate an additional processing plant. In other words, EQT could require MarkWest to build an additional processing plant to handle its additional capacity at the Mobley facility. (J.F. Allen Ex. 2).

11. The contracts between MarkWest and EQT were referred to, during trial, as “take or pay” contracts¹, meaning, upon EQT’s nomination of a processing plant and MarkWest’s construction of the nominated processing plant, EQT agreed to produce a minimum amount of natural gas for processing, or alternatively, pay a minimum amount of processing fees regardless of whether EQT produced the minimum amount of natural gas for processing. (Tr. 101:7 - 102:1, Day 1.) The Court heard testimony that given the nature of these contracts between MarkWest and EQT, MarkWest deploys the capital expenditure necessary to build a plant without speculation or risk because MarkWest is assured that EQT will either utilize the plant and generate revenue—thus creating a return on the investment of building the plant—or EQT will pay MarkWest for the capacity of the plant. Thus, EQT will either “take” the capacity created by the plant and compensate MarkWest through processing fees, or EQT will “pay” MarkWest for the unused opportunity to do so. (*Id.* 101:7 - 102:1.)

12. In or about the Spring of 2014, EQT nominated a fifth plant at Mobley with MarkWest for processing of its natural gas. As part of the contracts between MarkWest and EQT, MarkWest had 24 months to construct and make the fifth plant operational. This plant became known as “Mobley V.” (J.F. Allen Ex. 2). Upon receiving the nomination, and though having considered the possibility of building a fifth plant before EQT’s nomination, MarkWest began, in earnest, considering the logistics of constructing a fifth plant on the limited space available at the Mobley facility. (Tr. 112:11-113:18; 130:17-132:23, Day 1.) In that regard, MarkWest consulted with CEC, a civil engineering firm, for purposes of developing a location and site plans for the construction of Mobley V (“the Project”). (*Id.* 130:17-131:4.) MarkWest determined that the Project would require significant excavation of a portion of the mountain upon which the Mobley

¹ The Court notes there is no reference in the Design-Build Contract to EQT or reference to any MarkWest agreement with EQT related to “take or pay” contracts. (Rowlands Day 3, p. 69).

facility is situated for construction of a flat pad (“the Pad”), installation of concrete foundations upon the pad (“the Foundations”), and installation of natural gas processing equipment and accompanying electric equipment (“the Plant”). (*Id.* 131:16 - 131:23.)

13. The Court finds MarkWest’s Project Management Team coordinated all the contracts for the Mobley V Project. CEC was under direct contract with MarkWest. (Tr. 129:22-24; 130:1-24; 154:22-24, Day 1.) The Project Management Team designated by Markwest to define Project design parameters, to review and approve the Wall design, and to supervise the Project included CEC engineer Thomas Stack and Markwest engineer Dan Rowlands. (Amec Ex. 1). CEC had worked for MarkWest for many years related to the Mobley facility. [Rowlands Day 3, p. 33]. Prior to the claims set forth in this case, MarkWest constructed and maintained four processing plants at the Mobley facility designated as Mobley I, Mobley II, Mobley III, and Mobley IV. (Trial Tr. 93:3 - 94:4, September 21, 2020). In addition to CEC, Lane was also under direct contract with MarkWest. To coordinate all the contracts for the Mobley V Project, MarkWest oversaw its contract with Lane, oversaw the parameters of the design and the construction with CEC, and oversaw its contract with the prime contractor, which was J.F. Allen.

14. During the consideration of development plans for the Project, MarkWest considered a plan wherein a large portion of the mountain would be excavated, and the material removed from the mountain would be placed inside and behind an adjacent retaining wall, thus filling the wall. (*Id.* 163:4 – 13.) MarkWest also considered excavating the mountain and removing the material to a remote landfill location. MarkWest ultimately decided to seek the construction of an onsite retaining wall in the valley located on the eastern side of the Mobley property. The Wall was originally known as the Eastern Valley Retaining Wall. The Wall would be built in the valley and raised to the level of the existing site. The side of the mountain would be excavated to clear a pad

for Mobley V, with excavated material going behind the Wall (“Backfill Material”), thus creating the flat surface between Mobley V and the edge of the Wall that would be available for parking and future construction. (*Id.* 106:14 – 110:17.)

15. Having made the decision to seek construction of the Wall, MarkWest also determined that doing so would be outside of its internal engineering and construction capabilities, and therefore, MarkWest decided to put a bid package together and hire a contractor for purposes of designing, constructing, and building the Wall. (*Id.* 132:7-132:23.) MarkWest retained CEC to conduct testing and prepare a preliminary analysis of the soils present on the site, including analysis of test borings from various locations within the boundaries of the Project. (“CEC Soils Investigation Report”). (*Id.* 152:12-153:24.) MarkWest, in collaboration with CEC, prepared requests for bids for the design, construction, and building of the Wall (“the Wall RFB”). (*Id.* 133:2-19.) The RFB and Instructions to Bidders, including all attachments, became part of the contract between MarkWest and J.F. Allen. (Tr. 34, Day 3.) MarkWest hired CEC to prepare the bid documents for Plant 5 as well as for the Wall, and Dan Rowlands with MarkWest and Tom Stack with CEC prepared the Request for Proposal documents for the Project. (*Id.* 32-33.) CEC (on behalf of Markwest) performed a geotechnical study for the Plant 5 and Wall site, prepared Wall design layout drawings, provided proposed Wall design parameters, and prepared the Instructions to Bidders. (*Id.* 33.) Markwest expected proposed contractors to read, review, and fully understand the preliminary retaining wall drawings prepared by CEC. (*Id.* 40.) Markwest and CEC expected contractors to rely upon CEC’s geotechnical report and soil boring information for purposes of preparing their bid. (*Id.* 43; Tr. 122-24, Day 5.)

16. The Wall RFB was for “design-build,” which meant that a single contractor would be fully responsible for designing, procuring materials, and constructing, and would have full design

freedom and responsibility once the projects were awarded. (Tr. 134:3 - 11, Day 1.) This “design-build” method is unlike the “design-bid-build” method wherein the design is pre-established, and the successful bidders build to the design. Using “design-build” provides contractors the opportunity to work with a team of their choosing. (*Id.* 134:16-136:10.) While this allowed contractors the flexibility to build their own team, the Court finds the members of this team were required to design to the drawings and parameters pre-determined by CEC². The Project Management Team designated by MarkWest to define Project design parameters, to review and approve the Wall design, and to supervise the Project included CEC engineer Thomas Stack and MarkWest engineer Dan Rowlands. (AMEC Ex. 1). As part of the Wall RFB, MarkWest would provide a completion date, and the contractor would be responsible for creating and maintaining a schedule for completion. (Tr. 142:1-7, Day 1.) The Wall RFB required that any proposals submitted be accompanied by a preliminary design for the Wall. (*Id.* 143:11-15.)

17. MarkWest, in collaboration with CEC, prepared separate requests for excavation bids (“the Excavation RFB”). The Excavation RFB encompassed the work of tearing down the mountain, providing the backfill material to specifications to be placed behind and to fill the Wall, providing moisture control for backfill, and preparing the site for Mobley V. (J.F. Allen Ex. 9). The entity that MarkWest chose for excavation would ultimately have its own contract with MarkWest, instead of being a subcontractor of the main contractor. MarkWest entered into a written contract with Lane³ on October 1, 2014 (“the Excavation Contract”) to take down the mountain, process the Backfill Material to a certain specification, and place the Backfill Material

² For example, Page 4 of Instructions to Bidders (which was made part of the Contract) shows that CEC dictated that the acceptable wall systems would consist of a combination of soldier pile and lagging, and reinforced soil slope project.

³ The Court notes that J.F. Allen also put a bid in for the Excavation Contract, but was not selected by MarkWest. (Tr. 179:16 - 180:12, Day 1.)

in a stockpile wherein the J.F. Allen Team would haul and place the Backfill Material behind the Wall. (J.F. Allen Ex. 11).

18. On or about July 2014, MarkWest distributed the Wall RFB to numerous contractors; in addition, MarkWest prepared and distributed the Excavation RFB. All potential bidders were provided with the CEC Soils Investigation Report. (Tr. 133:8-9, Day 1.) The Wall RFB contemplated substantial completion by January 1, 2015. (MarkWest Ex. 1). In the weeks that followed, MarkWest received proposals from numerous contractors regarding the Wall RFB, including a proposal from J.F. Allen. (Tr. 164:8 - 15, Day 1.) MarkWest reduced the proposals submitted in response to the Wall RFB to two potential design-build teams: one team consisted of Lane as the general contractor, with Geosyntec as a design engineer and Moretrench as a subcontractor; the other team consisted of J.F. Allen as the general contractor, with AMEC as the design engineer and Redstone as a subcontractor. (*Id.* 166:24-167:17.)

19. A pre-bid meeting was held on July 15, 2014 at the site, where potential bidders were able to examine the site and ask questions of MarkWest and CEC, and this meeting was attended by Redstone and AMEC. (*Id.* 160:14 – 161:23; MarkWest Ex. 1). According to the testimony of Dan Rowlands, the purpose of this meeting was so that the design build team could familiarize themselves with the project location, logistics, and the conditions they would be facing. (MarkWest Ex. 1.) At the meeting, minutes were kept. (MarkWest Ex. 2). According to Section 7.0 of the Instructions to Bidders, as to the test boring logs and rock core photos drilled within the proposed wall location and proposed Plant 5 excavation area, “subsurface data collected by CEC are not considered all conclusive and it is the Contractor’s responsibility to further investigate conditions as it determines necessary.” (MarkWest Ex. 1.) According to Section 6.0 of the Instructions to Bidders, proposals were to be submitted by July 31, 2014, leaving AMEC, as the

party creating the preliminary design of the Wall, had AMEC chosen to conduct its own test borings and rock photos, only sixteen days from the pre-bid meeting to perform extensive onsite testing, create the preliminary design of the hybrid wall, and submit a binding proposal. (*Id.*) Ultimately, the evidence shows that AMEC, and all the other bidders, chose to rely on the CEC soil boring samples (used to calculate the weight of the backfill) in designing the Wall and did not perform independent testing.

20. MarkWest ultimately chose the team consisting of J.F. Allen as the general contractor, with AMEC as the design engineer and Redstone as a subcontractor (“the J.F. Allen Team”). (*Id.*) The Court finds that MarkWest chose the J.F. Allen Team because of AMEC’s strong reputation and extensive experience in building retaining wall structures all over the world. (Tr. 165:21-166:7, Day 1.) The Court also finds that MarkWest relied upon Redstone’s President and owner Heath Kefover’s experience and expertise in choosing the J.F. Allen Team. (*Id.* 165:1-7.) With regard to Mr. Kefover choosing the team, specifically, the Court finds that in the summer of 2014, AMEC was contacted by Mr. Kefover with whom AMEC had previously worked. (Tr. 105:1-10, Day 4.) On July 28, 2014, AMEC submitted a proposal for a preliminary design to Redstone. (*See* MW Ex. #3); (Tr. 106:12-18, Day 4.) At this juncture, J.F. Allen was not involved with the Project. (*Id.* 19-21.) Chris Ramsey (“Mr. Ramsey”), AMEC’s Project Engineer, worked on the AMEC preliminary design on behalf of Redstone. (*Id.* 107:11-22.) Subsequently, Mr. Hadjis was contacted by another Redstone principal, Jim Jones, who advised that Redstone was pre-qualified by MarkWest for Project bidding and had attended a pre-bid meeting. (Tr. 200:1-7, Day 8.) Redstone did not have the ability to handle the earth moving component of the Project and was looking for a partner. (*Id.* 7-10.) The Court finds that Mr. Ramsey assured J.F. Allen of

Mr. Kefover's 20-plus years of experience with anchored wall construction. (*Id.* 201: 5-11.) Mr. Hadjis was familiar with AMEC and considered them to be a first-class designer. (*Id.* 11-19.)

21. The stated purpose of the Wall was to establish a location to deposit waste soil material excavated and removed in connection with the proposed location of Plant 5. (AMEC Ex. 2). With regard to the purpose of the Wall, the Court finds that the J.F. Allen Team visited the site and understood the space restrictions, that the Wall was going to accommodate a gas processing plant⁴ and that the newly created flat surface on the top of the Wall would accommodate future buildings. (Tr. 145:14 - 146:8, Day 1.) However, the Court finds the evidence presented at trial showed that the stated purpose of the Wall Project was to "provide real estate to construct lightly-loaded buildings such as a warehouse and also provide additional parking and equipment laydown area", as stated in the RFB. (*Id.* 36; AMEC Ex. 2/MarkWest Trial Ex. 1). In fact, the Project Pre-Bid Meeting Minutes reflect that the primary purpose of the Wall was to "lose fill material" and use the area for a future warehouse. (Tr. 47, Day 3, p. 47; AMEC Ex. 4.)

FINDINGS OF FACT: THE DESIGN-BUILD CONTRACT

22. Following selection of the J.F. Allen Team, at a meeting at AMEC's offices in Nashville, Mr. Kefover (with Redstone) requested that AMEC modify its proposed design and substitute the originally designed 5'9" wide concrete lagging panels for smaller 5'6" wide concrete lagging panels, which smaller panels could be inserted at ground level diagonally between the soldier piles instead of by crane from above the soldier piles. (Tr. 179:2 – 184:17, Day 4.). The Court notes the date of the meeting was not included in the record, but the Court gives weight to the testimony of Chris Ramsey that the meeting occurred before the final design was completed (and thus also before the Design-Build Contract was signed). (*Id.* 179:2 – 180:1.)

⁴ Indeed, according to the Instructions to Bidders, the stated purpose of the Wall was to allow MarkWest to proceed with construction of what would be known as Plant 5. [AMEC 2].

23. MarkWest ultimately chose the team consisting of the J.F. Allen Team. On August 29, 2014, MarkWest notified J.F. Allen that it had been awarded the Design-Build Contract for the Project. (Tr. 210:10-24, Day 8.) J.F. Allen entered into the Design-Build Contract (hereinafter “the Contract”) with MarkWest with an effective date of September 5, 2014. The Contract detailed the following Required Completion Dates: Mechanical Completion by February 28, 2015, and Project Completion by March 31, 2015. (*Id.* 221:9-17; J.F. Allen Ex. 8.) J.F. Allen subcontracted with AMEC to develop the design and to provide design support during construction. J.F. Allen subcontracted separately with AMEC to provide observation and testing on site (in the field) during construction of the Wall. AMEC’s design, in compliance with CEC’s requirements, consisted of a soldier pile retaining wall and reinforced soil slope (RSS) wall extending up to the final grade, providing a level site for MarkWest’s construction of the Plant. J.F. Allen would self-perform excavation, earth moving, backfill with material provided by Lane, and survey work, and would construct the RSS wall atop the soldier pile wall and backfill. Construction of the soldier pile retaining wall, to include installation of steel piles, precast concrete lagging and anchor assemblies, was subcontracted by J.F. Allen to Redstone.

24. The executed Design-Build Contract laid out the specifications for the Wall per the design prepared by AMEC, as follows:

- a. The Wall would be constructed from the ground up as a hybrid wall consisting of a soldier pile wall with rock anchors and a reinforced soil slope (“RSS”).
- b. Approximately 200 soldier piles would be installed every six feet along the base of the Wall within four inches of plumb.
- c. Approximately 285 walers, designed by AMEC, would be installed on the Wall face and extending from one soldier pile to an adjacent soldier pile.

d. Approximately 1,340 concrete lagging panels would be installed in between the soldier piles; the preliminary design called for the concrete panels to be 5-foot 9-inches wide, with a minimum 3" bearing, which would require the concrete lagging panels to be lifted over the top of the soldier piles and slide down along the soldier pile flanges until seated in place.

e. The preliminary design was modified, however, to 5-foot 6-inch concrete panels so that the lagging panels could be installed from the side (ground level) instead of over the top of the soldier piles (being lowered by crane).

f. The 5-foot 6-inch concrete lagging panels would have minimum one-inch of bearing against the soldier pile flange, which is to say there would be at least one inch of concrete panel behind the soldier pile flange on either side of each panel.

g. The colluvial soil behind the Wall would be excavated away to expose the rock face of the slope (for anchor testing purposes).

h. Approximately 550 anchor rods would be installed horizontally into the rock face of the slope in pairs and with each pair being two feet apart.

i. To install the anchors, a hole would be drilled into the rock face, the anchor would be placed into the drilled hole in the rock face; with the anchor in place, the anchor would be grouted into the hole with the notion of bonding the anchor to the rock.

j. Upon grouting the anchors into the rock, each anchor would be proof tested and performance tested at the rock face.

k. In the proof test, the anchor would be tested at 75% of its design load.

l. In the performance test, the anchor would be tested at 120% of its design load.

m. The anchor rods, upon successful testing, would be extended through the face of the Wall and through a waler.

- n. The end of the anchor rod extending through the Wall face and the waler would be threaded, and a nut would be screwed onto the anchor rod.
 - o. The Backfill Material would then be placed over the installed anchors.
 - p. Once the Backfill Material was placed, a hydraulic jack would then be placed on the end of the anchor, and the anchor would be tensioned to a designated lock-off load.
 - q. Once tensioned, the nut would be tightened at the lock-off load.
 - r. After tightening the nut to the designed lock-off load, the end of the anchor and nut would be covered with a PVC cap filled with grease as a mechanism of corrosion protection.
 - s. The original design of the Wall called for the anchor forces of 294,000 pounds with test loads of 353,000 pounds, which is to say that the design load of each anchor would be 294,000 pounds, but each anchor would be performance tested to 353,000 pounds.
 - t. The RSS portion of the Wall would then be constructed on top of the soldier pile Wall area approximately 60 feet high at its tallest point. (AMEC Ex. 32; AMEC Ex. 33.)
- The Court notes the Wall length was to be approximately 1250 feet long. (AMEC Ex. 2.)

25. The Design-Build Contract provided a scope of work, attached to the Design-Build Contract as Exhibit A, to be completed by the J.F. Allen Team. (J.F. Allen Ex. 2.) Significantly, the Design-Build Contract also included a “Time is of the Essence” clause, which required completion of all construction by no later than March 31, 2015. The Time is of the Essence clause is discussed more thoroughly in the Delay Analysis contained within this Order. As stated above, the Design-Build Contract’s scope of work expressly included the Wall RFB. (*Id.*) The Design-Build Contract provided that any changes to the scope of the work “shall be accomplished only by a written change order issued by [MarkWest].” (*Id.*) The Design-Build Contract provided, as

consideration for the work to be completed, a lump sum payment from MarkWest to J.F. Allen for \$12,350,000.00. (*Id.*) The Design-Build Contract provided that the work “shall be performed by [J.F. Allen] as an independent contractor and ... [J.F. Allen] shall have the full power and authority to select the means, manner and methods of performing all work without supervision, direction or control by [MarkWest].” (*Id.*)

26. According to the Design-Build Contract, MarkWest’s representative Dan Rowlands had “authority to suspend all Work of Contractor whenever Company’s Representative deems such action necessary to secure the proper performance of the Scope of Work.” (Tr. 68, Day 3; AMEC Ex. 23, p. 11, ¶16.) Also according to the Design-Build Contract, MarkWest agreed that “all information in Company’s possession concerning the physical condition of Company’s property which is the subject of the Services has been or shall be made available to Contractor.” (AMEC Ex. 23, p. 17, ¶29.) MarkWest did not contract directly with AMEC for the supply or performance of any design services related to the Project. (Tr. 175, Day 1.)

FINDINGS OF FACT: CONSTRUCTION OF THE WALL

27. With regard to the excavation, MarkWest received numerous proposals and ultimately decided upon and entered into a written contract with The Lane Construction Corporation on October 1, 2014 (“the Excavation Contract”) to take down the mountain, process the Backfill Material to conform with Project specifications, and place the Backfill Material in a stockpile wherein the J.F. Allen Team would haul and place the Backfill Material behind the Wall. (J.F. Allen Ex. 11). Shortly after October 1, 2014, Lane began its excavation work at the Mobley facility. (*Id.*)

28. Following entry of the Design-Build Contract, MarkWest issued a Notice to Proceed on or about September 4, 2014. (AMEC Ex. 22). J.F. Allen mobilized to the construction site on

or about September 14, 2014. (Tr. 82:4-6, Day 9.) Construction on the Wall commenced on or about September 15, 2014. (Tr. 184:4-7, Day 1.) The J.F. Allen team began construction with erosion and sediment control and removing the colluvial soil from the side of the mountain. (*Id.* 189:10-13.) Originally, Redstone's laydown area for materials was conveniently located at the top of the access area close to the wall location. (Tr. 107:7-24; 108:1-23, Day 12.) Shortly after October 1, 2014, Lane began its excavation work at the Mobley facility. (J.F. Allen Ex. 11.) According to J.F. Allen's September 6, 2014 schedule, soldier pile beam installation was to begin on September 30, 2014, and conclude on November 3, 2014. (J.F. Allen Ex. 25.) However, the first soldier pile beams were not even delivered to the site until October 16, 2014.

29. Redstone began coordinating with the steel beams (referred to as "soldier piles" or "H-piles" during the testimony) fabricator in early September 2014; however, it did not place the order for the beams until September 16, 2014, when J.F. Allen's design was being finalized and definitive quantities of materials required for Redstone's Work on the Wall were known, as Redstone did not receive the executed Subcontract Agreement from J.F. Allen until September 18, 2014. (Tr. 104:10-22; 115:21-24; 116:1-14, Day 12.) The Court notes neither Redstone nor J.F. Allen ever sought a Change Order for additional time due to this issue. (Tr. 116:2 - 14, Day 12; Tr. 97:13 - 20, Day 3.) On October 17, 2014, Redstone began installation of the first soldier pile. (Tr. 194:6 - 20, Day 9.) As the soldier piles were installed, the piles were numbered from left to right as though looking at the Wall from inside of the fill area, or behind the Wall. (Tr. 133:3-11, Day 4; MarkWest Ex. 263.) Despite the fact that Redstone anticipated installing nine per day, a photograph from October 22, 2014, showed only 13 total soldier piles had been installed as of that date. (Tr. 185:24-187:19, Day 1.)

30. By late October 2014, Lane had begun stockpiling Backfill Material. In preparing its design and specifications for the Wall, relying on CEC's soil bore tests, AMEC used 125 pounds per cubic foot (125 pcf) as the anticipated density of the Backfill Material. (MarkWest Ex. 11.) As set forth in Paragraph 19 of this Order, AMEC did not perform its own independent tests regarding the density of the backfill material.

31. On October 27, 2014, prior to any Backfill Material being placed, Tom Stack, an engineer with CEC, informed AMEC's Chris Ramsey, the engineer of record for the Wall, that proctor test results analyzing stockpiled Backfill Material revealed a total density of 152 pcf, which was significantly greater than anticipated by AMEC in its design. (MarkWest Ex. 15.) Chris Ramsey testified that he did not believe Tom Stack's findings, although he did share the findings with Don Dotson, Neill Belk and Mario Glorioso, fellow engineers at AMEC who had involvement with the Wall design and specifications. (MarkWest Ex. 15; Tr. 242:6-13, Day 16.) AMEC took no action at that time to adjust its design or specifications for the Wall after it was notified that the Backfill Material was significantly denser than its design calculations considered. (Tr. 162:15-166:1, Day 4.)

32. After receiving the proctor test, AMEC determined that such value was not "realistic" and that additional testing was appropriate before checking the Wall design. (Tr. 165-166, Day 4.) The unit weight of backfill reported by CEC was a changed condition from the unit weight provided in CEC's geotechnical report. (Tr. 128-129, Day 16.) AMEC and J.F. Allen agreed to proceed with construction and perform additional soil proctor tests that might yield soil unit weights in-line with AMEC's specification. (AMEC Ex. 44.)

FINDINGS OF FACT: THE SUBCONTRACTS

AMEC/J.F. Allen Subcontracts

33. As stated above in Paragraph 4, J.F. Allen subcontracted with AMEC with regard to design services, and also subcontracted separately with AMEC to provide observation and testing on site (in the field) during construction of the Wall. On September 9, 2014, AMEC submitted a proposal to J.F. Allen for Wall design services. (AMEC Ex. 26.) J.F. Allen and AMEC executed the proposal and entered into a design services contract (“AMEC Design Subcontract”) wherein AMEC agreed to complete the final Wall design to be submitted by J.F. Allen to MarkWest and CEC for approval. (AMEC Ex. 26; Tr. 102, Day 16; Tr. 192, Day 9.)

34. Under the AMEC Design Subcontract, J.F. Allen agreed to “indemnify, defend and save AMEC harmless from and against any liability, claim, judgment, demand, or cause of action arising out of or relating to . . . the negligent acts or omissions of CLIENT [J.F. Allen] or its employees, contractors or agents.” (AMEC Ex. 26, p. 2 of 6, ¶9.) Specifically, under the AMEC Design Subcontract, AMEC was only to indemnify and hold harmless J.F. Allen “from reasonable claims, costs, losses, and damages arising out of or relating to the Project, provided that such claim, cost, loss or damage is attributable to bodily injury, sickness, disease, or death or to injury to or destruction of tangible property (other than the Construction itself), but only to the extent caused by the negligent acts or omissions of AMEC or AMEC’s officers, directors, members, partners, employees, and AMEC’s consultants in the performance and furnishing of AMEC’s services under this agreement.” (*Id.* 2 of 6, ¶12.A.1.) Under the AMEC Design Subcontract, J.F. Allen agreed that “[n]otwithstanding any other provision of this Agreement, the total liability of AMEC, its officers, directors, employees for liabilities, claims, judgments, demands and causes of action arising under or related to the Agreement, whether based in contract or tort, shall be limited to

\$2,000,000.” (*Id.* p. 3 of 6, ¶12.A.5.) Under the AMEC Design Subcontract, J.F. Allen agreed that “AMEC and CLIENT shall not be responsible to each other for any special, incidental, indirect, or consequential damages (including lost profits) incurred by either AMEC or CLIENT or for which either party may be liable to any third party, which damages have been or are occasioned by Services performed or reports prepared or other work performed hereunder.” (*Id.*) Further, under the AMEC Design Subcontract, J.F. Allen agreed that “[t]his Agreement shall be governed and construed in accordance with the laws of the state of the AMEC office entering into this Agreement”, which in this case is Tennessee. (*Id.* p. 3 of 6, ¶19.)

35. In addition to the AMEC Design Subcontract, on September 19, 2014, AMEC submitted a proposal to J.F. Allen to perform construction oversight and material inspection/testing for the Project. (AMEC Ex. 35.) AMEC and J.F. Allen subsequently entered into a Construction Oversight and Material Inspection/Testing subcontract (“AMEC Quality Control Subcontract” or “QC Subcontract”)⁵. (*Id.*; Tr. 121, Day 16; Tr. 189-90, Day 9.) AMEC’s scope of work under the AMEC Quality Control Subcontract was to monitor proof-rolling of the sub-grade prior to fill placement, monitor and test the placement of fill material, monitor and placement of grout and collection of grout specimens for compressive strength testing, provide daily reports of operations/tests inspected by AMEC along with a determination of their conformance with project plans/specs. (AMEC Ex. 35.) AMEC’s scope of work did not include verifying corrosion protection installation, the performance of anchor testing or the recording data associated with anchor tests. *Id.*

36. Under the AMEC Quality Control Subcontract, J.F. Allen agreed to “indemnify, defend and save AMEC harmless from and against any liability, claim, judgment, demand, or cause of

⁵ The Court notes simultaneously CEC performed quality assurance services for MarkWest on all three Project contracts relating to the Wall.

action arising out of or relating to . . . the negligent acts or omissions of CLIENT [J.F. Allen] or its employees, contractors or agents.” (AMEC Ex. 35, p. 2 of 6, ¶9.) Under the AMEC Quality Control Subcontract, AMEC was only to indemnify and hold harmless J.F. Allen “from reasonable claims, costs, losses, and damages arising out of or relating to the Project, provided that such claim, cost, loss or damage is attributable to bodily injury, sickness, disease, or death or to injury to or destruction of tangible property (other than the Construction itself), but only to the extent caused by the negligent acts or omissions of AMEC or AMEC’s officers, directors, members, partners, employees, and AMEC’s consultants in the performance and furnishing of AMEC’s services under this agreement.” (AMEC Ex. 26, p. 2 of 6, ¶12.A.1.)

37. Under the AMEC Quality Control Subcontract, J.F. Allen agreed that “[n]otwithstanding any other provision of this Agreement, the total liability of AMEC, its officers, directors, employees for liabilities, claims, judgments, demands and causes of action arising under or related to the Agreement, whether based in contract or tort, shall be limited to \$2,000,000.” (AMEC Ex. 35, p. 3 of 6, ¶12.A.5.) Under the same Subcontract, J.F. Allen agreed that “AMEC and CLIENT shall not be responsible to each other for any special, incidental, indirect, or consequential damages (including lost profits) incurred by either AMEC or CLIENT or for which either party may be liable to any third party, which damages have been or are occasioned by Services performed or reports prepared or other work performed hereunder.” (*Id.*)

38. The Court finds J.F. Allen paid all invoiced fees associated with the AMEC Quality Control Subcontract through Change Order No. 7 dated November 19, 2015, in the amount of \$46,440.00 (Tr. 191-92, Day 9; AMEC Ex. 35.)

J.F. Allen/Redstone Subcontract

39. As stated above in Paragraph 6, J.F. Allen entered into a subcontract agreement with Redstone whereby Redstone agreed to construct the Wall portion of the Project (steel H beam soldier piles, concrete lagging panels between soldier piles, tie-back rock anchors and steel walers between soldier piles to support tie-back anchors) in accordance with the Wall design. (AMEC Ex. 27.) The Court finds that with regard to Redstone's wall construction, J.F. Allen was responsible for the transport, placement and compaction of fill behind the Wall that was supplied by MarkWest/Lane via the Excavation Contract. (*Id.*)

40. Above in Paragraph 29, the Court detailed Redstone's delayed commencement of work. With regard to its contract, on August 26, 2014, Redstone provided a scope letter to J.F. Allen for installation of the permanent soldier pile retaining wall, along with a cost proposal that included all labor, materials, and equipment to install and test the soldier pile (beam) and lagging wall and tieback anchor bars. The Work included constructing a 30,927-square foot (SF) soldier pile wall for the total amount of \$6,584,687.77. (J.F. Allen Ex. 133.) The pricing was broken out in lump sum and unit price components.

41. Although dated September 10, 2014, J.F. Allen did not return the executed Subcontract Agreement to Redstone until September 18, 2014 (via email), and included "agreed-to" price proposal modifications wherein the quantity of Wall to be constructed increased, while the total dollar amount of the Subcontract remained unchanged. (J.F. Allen Ex. 13.)

42. The Subcontract Agreement included the following schedule of payments breakout under Article 4 – Subcontract Price:

-Mobilization - \$500,000.00

-Delivery of Material for Soldier Wall - \$1,200,000.00

- Soldier Wall Complete – Open Area - \$2,150,000.00
- Soldier Wall Complete – Treed Area - \$2,150,000.00
- Final Payment – Mobley V Retaining Wall Project Complete and Accepted by MarkWest
- \$584,687.77

43. The Court notes that although J.F. Allen's Design-Build Contract with MarkWest was a stipulated/lump sum, J.F. Allen's Subcontract with Redstone was a Unit Price Contract, based upon a specific square foot quantity of Wall to be constructed. (J.F. Allen Ex. 8, 133, 134, 139.)

44. According to the J.F. Allen baseline schedule (AMEC Ex. 24 & 25), all anchors were to be completed in a sequenced fashion as follows:

- a. Sta. 2+00 to 6+50 by November 27, 2014
- b. Sta. 6+50 to 12+50 by January 5, 2015
- c. Sta. 0+00 to 2+00 by January 19, 2015

45. Anchors for the tallest portions of the Wall (and deepest fill) were to be completed by November 27, 2014 (Sta. 2+00 to 6+50). (AMEC Ex. 25.) According to the J.F. Allen baseline schedule, fill placement covering all anchors was to be completed in the same sequence by December 8, 2014 (Sta. 2+00 to 6+50), January 9, 2015 (Sta. 6+50 to 12+50), and February 2, 2015 (Sta. 0+00 to 2+00) respectively. (*Id.*) Fill placement over anchors for the deepest fill section behind the Wall was to be completed by December 8, 2014 (Sta. 2+00 to 6+50). (*Id.*) No fill placement over anchors for the deepest fill section behind the Wall was anticipated after December 8, 2014 (Sta. 2+00 to 6+50). (*Id.*) Therefore, the Court notes that with regard to this anticipated timeline, no fill placement over the anchors for the majority of the Wall was anticipated after January 9, 2015 (Sta. 2+00 to 12+50). (*Id.*) The reinforced soil slope portion above the Wall was

to be completed in the same sequence by January 15, 2015 (Sta. 2+00 to 6+50), February 25, 2015 (Sta. 6+50 to 12+50) and March 19, 2015 (Sta. 0+00 to 2+00) respectively. (*Id.*)

46. On the north end of the Wall, the piles numbering starts with P11 and ends with P200 (revised during construction to P208) on the south end; P1-P10 were not used. (Redstone Ex. 41, p. 9, Sec. 2.12.)

47. The general sequence of activities during Wall construction was as follows:

a. J.F. Allen excavated along the existing slope, where pockets (holes) for the piles were to be drilled by Redstone, creating a bench to access the area at the base of the Wall from the existing facility at higher elevation above and on which Redstone would mobilize its drilling equipment (rigs). Excavation of the bench area extended from the face of the Wall into the hillside (behind the Wall) where the rock anchors were designed by AMEC to be drilled and grouted into position by Redstone.

b. J.F. Allen surveyed and marked the pile locations.

c. Redstone drilled, installed, and grouted piles for a section of the Wall.

d. J.F. Allen surveyed and marked rock anchor locations on the side of the mountain that J.F. Allen had excavated behind the Wall to remove unsuitable existing material.

e. Redstone (and their subcontractor 3D Drilling) drilled horizontal rock anchor sockets, and then installed and grouted the anchors according to J.F. Allen's design as prepared by AMEC.

f. Redstone installed precast concrete lagging panels and walers between the soldier piles up to the elevation of the anchors.

g. J.F. Allen backfilled and compacted the area of backfill between the back side of the lagging panels and the excavated face of the mountain, then trenched laterally through the backfill from the back side of the lagging to the rock anchor to permit connection of the rock anchor to the Wall with a tie-rod (threaded bar anchor extension).

h. Redstone set the tie-rod in place (extended horizontally from the rock anchor through the face of the Wall lagging) and then secured it to the waler, that Redstone set on the face of the Wall, with a bearing plate and hex nut, all per J.F. Allen's design.

i. Redstone installed lagging above the waler while J.F. Allen backfilled and compacted the fill materials behind the Wall to a minimum of five feet above the installed anchors.

j. Redstone performed initial performance testing of the anchor to 120% of design load and then locked-off the anchor at 75% as required by J.F. Allen's design.

k. The final proof testing of the anchors occurred when the final anchors in a given horizontal row of anchors had a minimum of five feet and a maximum of 15 feet of backfill placed above them.

(Redstone Ex. 41, at p. 10-12, Sec. 2.15.)

48. The Court finds that Redstone submitted several Change Orders for extra work related to lowering the bottom of the Wall from the design elevation, due to a differing site condition. (Tr. 272-73, Day 12.) This lowering resulted in the addition of concrete panels. (*Id.*) The actual cost to add Wall panels due to lowering the Wall was reported to be \$50.00 per square foot. (*Id.* 273.) However, the actual invoiced amount for the Wall panels was \$37.00 per square foot. (*Id.* 204.) The actual cost of a concrete panel according to Redstone's bid documents was \$11.50 per square foot. (*Id.* 278; J. F. Allen Ex. 140.) According to AMEC Exhibit 104, Redstone is claiming a change to the Wall square footage at a price of \$215.00 per square foot even though a prior change order was priced at \$50.00 per square foot and cost records indicate that adding panels actually cost Redstone \$11.50 per square foot. (Tr. 295-299, Day 12.)

FINDINGS OF FACT: CONSTRUCTION OF THE WALL/DELAY ISSUES

49. In November 2014, as a result of its concern with the lack of progress on the Wall, MarkWest hosted a meeting in Bridgeport, West Virginia. Via written correspondence thereafter, the J.F. Allen Team agreed to recover the delay and affirmed its ability to achieve completion of the Wall consistent with the Design-Build Contract. (Tr. 106:20-108:5, Day 2.) Specifically, the Court finds that during the Bridgeport meeting, MarkWest suggested that because of the J.F. Allen Team's slow pace, it was considering cancelling the Contract and having the fill material hauled off-site rather than place it behind the Wall. J.F. Allen responded that cancelling the Contract was

unnecessary and recommitted to making the original Mechanical Completion Date of February 28, 2015, by which placement of all 220,000 cubic yards of fill material behind the Wall would be complete. (Tr. 197:17-200:14, Day 1.) The Court further heard evidence that shortly after the meeting, J.F. Allen circulated a revised schedule, recovery plan and fill material volume projections that still had J.F. Allen meeting the February 28th deadline. (*Id.* 199:6-21; Tr. 288:13 - 289:6, Day 8.)

50. On or about November 16, 2014, the Project site was ready for the commencement of anchor installation. (AMEC Ex. 48.) As of November 17, 2014, Redstone's soldier pile installation was averaging 2.21 soldier piles per shift. (J.F. Allen Ex. 237 at Attachment 10; Tr. 226:15-22, Day 10.) Redstone's as-planned production for soldier pile installation was 9 soldier piles per 14-hour shift. (*Id.* 221:12-22.) As of November 19, 2014, the Project was 28 days behind schedule. (Tr. 195-96, Day 9; AMEC Ex. 49.) MarkWest representatives noted on November 19, 2014, that there was no sense of urgency with J.F. Allen and Redstone. (AMEC Ex. 50.) On November 24, 2014, Redstone began drilling for the installation of horizontal production anchors. (AMEC Ex. 56; Tr. 284, Day 12.)

51. In late November 2014, J.F. Allen required Redstone to move its laydown area approximately several hundred yards further away from the Wall, to a location near the top of the road entering the plant facility. (Tr. 107:7-24; 108:1-23, Day 12.) The Court finds this was due to issues with the growing stockpile of backfill material J.F. Allen was not placing as quickly as Lane was crushing. The Court finds evidence at trial indicated there were space constraints at the site, including multiple contractors, the existence of Plants I-IV, and room for materials, such as the 198 steel piles (steel I beams) of varying lengths (heights). (Redstone Ex. 41, p. 9, Sec. 2.12.) Work areas behind the soldier pile Wall were limited and often congested with equipment and

material, with JFA initially bringing trucks with material at a constant and steady rate as Lane, under its separate contract with MarkWest, worked to complete excavation and a stockpile of backfill material elsewhere on the property. (*Id.*) The Court finds site congestion remained a problem into the timeframe of Plant construction in 2015. The Court was presented evidence that by mid-June of 2015, the substation area was completely covered with stockpiled fill material and the site had run out of room to take excavated material. (MarkWest Ex. 29 to Ex. 285). With contractor Westcon arriving on site and the substation area still covered in fill, the situation was becoming increasingly dire. A meeting was held on July 24, 2015, and the congestion caused by the stockpiles persisted after the meeting and contractor Chapman at one point was forced to suspend work in the area where the residue compressor building was to be built, so that room could be made for the follow-on contractor, Westcon, to access the site. (Trial Tr. 217:14 - 19, 228:8 - 229:10, September 23, 2020).

Testing of Rock Anchors from Slope Face to Rock Face

52. On or about November 28, 2014, Redstone commenced with the testing of rock anchors at the slope face. (AMEC Ex. 57 & 59.) Redstone encountered conditions of slope instability above the anchor testing location. (*Id.*) According to testimony from Redstone, loose and colluvial soils prevented testing the anchors at the rock face because of a lack of sufficient bearing area. (Tr. 134:15-138:2, Day 12.) Specifically, the Court finds that as pressure was applied to the anchor, the bearing surface of the hydraulic jack sunk into the rock face, rather than pull back against the anchors. (*Id.*) Therefore, AMEC changed the design of the Wall, at Redstone's request, to permit anchor testing to be moved from the rock face to the face of the Wall. (Tr. 8:2-5, Day 7; Tr. 138:7-17, Day 9.) The Court notes that Redstone proposed this plan to AMEC to maintain the Project schedule. (AMEC Ex. 59; Tr. 286, Day 12.) Donald Dotson, geotechnical engineer with AMEC,

testified that moving the anchor testing from the rock face to the Wall face was a “game changer.” (Tr. 70:19-23, Day 13; Redstone Ex. 11.) The Court notes that throughout the course of the trial, several of the other witnesses agreed and echoed Mr. Dotson’s labelling of this change as a “game changer.”

53. On December 20, 2014, anchor testing began at the Wall face. (Tr. 287-288, Day 12.) Once testing at the Wall face began, the testing procedure itself proceeded without any problems (i.e. as pressure was applied to the anchor, the bearing surface of the hydraulic jack no longer sunk into the rock face, rather than pull back against the anchors) and was successfully carried out throughout the remainder of the Project. (Tr. 197, 198, Day 9.) However, as testing proceeded at the Wall face, other issues arose when the walers began deforming, deflecting, and caving. (Tr. 134:15-138:2, Day 12.)

54. Additionally, once testing at the Wall face began, movement of the soldier piles (during testing at the Wall face) resulted in the concrete lagging panels becoming dislodged from their bearing surfaces. (Tr. 16:11-18:4, Day 7; Redstone Ex. 11 at 24:9 – 34:21.) The Court finds that in addition to dislodging, some of the concrete lagging panels cracked and spalled. (Tr. 18: 5-19:9, Day 7; Redstone Ex. 11 at 24:9 – 34:21.)

55. The Court heard testimony from Dr. Donald Bruce, Redstone’s rock anchor expert, that as construction continued, anchors started failing. (Tr. 242:7 -10, Day 13.) The Court was presented evidence that because of the horizontal design configuration of the anchor and its placement through the concrete lagging panel, the placement of backfill behind the Wall in some instances placed downward force on the anchor, creating a shear force of the anchor against concrete and resulting in the anchor breaking or “shearing” at the face of the Wall. (MarkWest Ex. 284 at Section 5.2.1.) The Court heard testimony from Mr. Kefover that other anchors failed to

form proper bonds with the rock because of faulty grouting, which had to be remedied by reinstalling and grouting the anchors in the rock face at an incline. (Tr. 163:4-165:17, Day 12.) The delay caused by grouting issues is more thoroughly discussed in later paragraphs of this Order.

56. In addition, during construction, a landslide or washout occurred at the base of the Wall in the vicinity of piles 125 and 138, causing the structural integrity of that section of the Wall to be lessened. (Tr. 237:10-238:8, Day 4.)

Factor of Safety

57. As of January 9, 2015, CEC had completed a thorough review of AMEC's Wall design and calculations. (AMEC Ex. 70.) As of January 13, 2015, and based on CEC's detailed structural design review of the soldier pile Wall elements, MarkWest inquired about certain Wall design and construction issues. (AMEC Ex. 71.) The Wall elements questioned by CEC were the flexural and shear capacity of concrete lagging panels, the drilled shaft lateral analysis (for soldier piles), and the expected anchor loads due to the unit weight of backfill of 150 pcf. (*Id.*) After witnessing the waler deflection and dislodging of the concrete lagging panels, Tom Stack again contacted Chris Ramsey of AMEC on January 13, 2015, regarding the proctor test results showing a density greater than 150 pcf on October 27, 2014. (MarkWest Ex. 41.)

58. On January 13, 2015, to allow more time for further Wall design analysis and discussion, construction of the Wall was temporarily suspended by MarkWest until the Wall design could be re-evaluated. (Tr. 72-73, Day 3; AMEC Ex. 72, 73 & 74.) Using the 150 pcf soil backfill parameter, AMEC determined that a Factor of Safety ("FS") of 1.5 could not be achieved at all Wall sections but that a minimum FS of 1.4 could be achieved. (AMEC Ex. 76.) As such, during a January 14, 2015 conference call, AMEC informed MarkWest and CEC representatives that the minimum design Factor of Safety was reduced from a minimum 1.5 to a minimum of 1.4 based on

the revised unit weight of soil. (Tr. 77, Day 3.) According to MarkWest, CEC noted that it was “ok” with the lower Factor of Safety because industry standards are 1.35. (*Id.* 76; AMEC Ex. 76.) MarkWest considered the change in unit weight of backfill to be a minor item at the time it was raised on or about January 13 or 14, 2015. (Tr. 76, Day 3.) After updating the global stability model using the higher unit weight of soil, MarkWest and CEC indicated that they were comfortable with that result at the time of the January 14, 2015 conference call. (Tr. 139-140, Day 16.) Thus, the Court finds that with knowledge of the Factor of Safety of 1.4 now achievable, MarkWest allowed construction to continue on January 14, 2015. (Tr. 79-80, Day 3; Tr. 154, Day 5.) Work on the Project was suspended for one day due to the Factor of Safety discussion on January 14, 2015. (Tr. 140-141, Day 16; Tr. 153, Day 5.) After January 14, 2015, MarkWest and CEC never suspended work again due to Wall design concerns. (Tr. 141, Day 16.)

59. By letter of January 16, 2015, AMEC responded to Tom Stack of CEC, stating that it had assumed a fill weight of 125 pcf because the exact value was unknown, that its original design for the concrete lagging panel remained adequate, even though the Backfill Material was 150 pcf, and that in light of the denser fill, a minimum Factor of Safety of 1.4 was achievable. (MarkWest Ex. 42.) MarkWest did not indicate in writing in January 2015 that a Factor of Safety of 1.5 would be expected after being informed that calculations showed that the Wall had a Factor of Safety of 1.4. (Tr. 78, Day 3.)

60. However, on February 5, 2015, Tom Stack responded to AMEC’s January 16th letter and advised that the minimum Factor of Safety per the Design-Build Contract is 1.5, and that AMEC should revise its design to achieve a minimum Factor of Safety of 1.5 accordingly. (MarkWest Ex. 53.)

61. On February 11, 2015, AMEC again stated that a Factor of Safety of 1.4 was achievable, and that 1.5 was “developed for highway entities.” MarkWest did not stop construction after receiving correspondence from AMEC. (AMEC Ex. 79; Tr. 84, Day 3.) MarkWest did not request a redesign of the Wall after being informed that the Factor of Safety had been lowered from 1.5 to 1.4. (Tr. 84, 122, Day 3; Tr. 14, Day 16; Tr. 161, Day 5.)

62. On May 29, 2015, Chris Ramsey of AMEC *drafted* a letter to J.F. Allen in which he acknowledged the industry standard Factor of Safety to be 1.5; however, this letter was not sent. (MarkWest Ex. 104.)

63. Rather, on June 3, 2015, a revised letter was sent to J.F. Allen, signed by Chris Ramsey and Don Dotson which stated, “Our analyses indicate that the F.S. would be reduced to between 1.2 and 1.3. As such, it is our opinion that a reduction of this magnitude should have the involvement of the Owner [MarkWest] in the ultimate decision.” (MarkWest Ex. 107.)

64. As of June 11, 2015, CEC and MarkWest wanted to verify that the Wall Factor of Safety was at least 1.4 based upon existing conditions. (Tr. 183-186, Day 5.) A conference call was held on June 19, 2015 with all parties to discuss the design and stability of the Wall. (Tr. 104, Day 3; AMEC Ex. 149, 152, 153.) During the June 19, 2015 call, CEC representative Tom Stack and MarkWest representative Dan Rowlands requested confirmation that the Wall had a Factor of Safety of at least 1.4. (Tr. 105-106, Day 3.) MarkWest project manager Tyler Adams testified that he also sought to verify that a Factor of Safety of at least 1.4 was maintained for the Wall. (Tr. 40, Day 4.) Evidence showed that during the June 19, 2015 call, Tom Stack states “We just want to verify that we at least have a Factor of Safety of 1.4 based on existing conditions and not original design conditions.” (Tr. 106-108, Day 3.) During the June 19 call, Dan Rowlands stated that he just wants to make sure the Wall is ok and everything is safe and we’re still within design.

(*Id.* 108.) Dan Rowlands did not indicate that he expected a Factor of Safety of 1.5. (*Id.*) The Court heard testimony from Mr. Ramsey that at the time of the June 19, 2015 conference call, it was understood by AMEC that the Factor of Safety of 1.4 was acceptable. (Tr. 173, Day 16.)

65. As a result of the June 19, 2015 call, AMEC created an action item list which included a plan to provide a monitoring program, to provide criteria for maximum allowable deflection of bearing plate/walers before replacement/repair is required, to provide a cracked precast lagging panel repair procedure, and to provide precast lagging bearing support plate detail at face of pile. (AMEC Ex. 152.) The action item list requested of AMEC during the June 19, 2015 conference call did not require updating the Wall design to meet a Factor of Safety of 1.5. (Tr. 174-75, Day 16; AMEC Ex. 152.) MarkWest did not stop construction and allowed construction to continue after the June 19, 2015 call. The Court finds that evidence was presented at trial in the form of an email from Tom Stack to Dan Rowlands on July 5, 2016, commenting that “moving the project forward based on a technicality of the Factor of Safety not meeting spec while further analysis may prove that it does meet spec seemed the route to go.” (AMEC Ex. 251.)

Anchor Shearing

66. During the construction process, the Court finds J.F. Allen at times installed the Backfill Material in freezing temperatures, with high moisture content from rain and snow, (and outside of the presence of AMEC QC Inspectors) and this was asserted as a cause for settlement. (Tr. 16-20, Day 4.) As indicated in the Daily Logs, conditions as of January 27, 2015 were not the most ideal working conditions on the Project. (Tr. 202, Day 9; Amec Ex. 81.) As construction proceeded in January and February 2015, cold weather conditions affected the work progress and work quality. (Amec Ex. 81(photo).) During the month of February 2015, there were days where the temperature dropped below freezing. (Tr. 14-16, Day 4.) MarkWest ignored requests by

AMEC personnel on site to stop fill placement due to weather, and instead pushed for prompt completion of the Project. (Redstone Ex. #20a-17, MW Daily Log 2-26-2015 (“FYI-Amec stopped JFA from hauling due to snow around midnite [sic]. I raised hell with there [sic] inspector Jake and he asked if MarkWest wanted to get someone else to inspect. All I said was you can’t keep shutting the job down and expect us to meet our target.”))

67. The Court finds that the tieback anchors began to break, by “shearing” off at the Wall face. Subsequent investigation revealed that the shearing of these tieback anchor bars was the result of AMEC failing to account for the Backfill Material and J.F. Allen having improperly placed fill material over them and fill settlement that caused downward movement of the anchors which resulted in the anchors shearing off at the precast concrete facing. (Redstone Ex. 43.) Anchor shearing occurred between March of 2015 and primarily stopped by August of 2015, with one or two additional shears reported in early 2016. The Court finds the anchor shearing issue was during construction only, and was caused by fill settlement. The Court finds the anchor shearing issue was fixed by the “core and couple” repair method designed by AMEC and performed, primarily, by Redstone. The Court finds there is no ongoing concern with anchor shearing at the Project.

68. Meanwhile, through April 2015, much of the soldier pile and concrete lagging Wall was in place. This was in spite of impacts from J.F. Allen’s redesign of anchor testing and construction sequence that materially altered Redstone’s work that were beyond Redstone’s control or responsibility. These impacts were in addition to significant inclement weather, non-conforming backfill material issues, and underperformance of J.F. Allen’s backfill production. (Redstone Ex. #41, p. 17, Sec. 2.21.) Starting in March 2015 and through August 2015, numerous anchors experienced failure due to shear breakage as a result of properties of the backfill material

provided by Lane and placed by J.F. Allen. (*Id.*) In a May 2015 email, Mr. Kefover and Redstone's Project Engineer and Principal Jeff Waggett informed J.F. Allen that the shearing was caused by fill settlement. (AMEC Ex. #127, May 15, 2015 Email ("All indications are that the fill in this area has settled causing the bars to bear against the panels"); Tr. 87:7-24, 88:1-24, Day 3.) The Court finds that repairing the sheared anchors was time consuming and became a source of conflict between J.F. Allen and Redstone.

J.F. Allen/Redstone Relationship

69. The Court heard testimony from Mr. Hadjis that as of February 2015, the relationship between J.F. Allen and Redstone really started to deteriorate. (Tr. 213, Day 9; AMEC Ex. 105.) Tyler Adams testified that during the Project, there was a lot of finger pointing between J.F. Allen and Redstone. (Tr. 24, Day 4.) MarkWest project managers were frustrated due to the lack of a sense of urgency with J.F. Allen and Redstone. (*Id.* 26.)

70. The lack of manpower of J.F. Allen and Redstone on the Project was a concern for MarkWest project managers throughout the performance of the Project. (*Id.*) As of March 28, 2015, Project progress remained behind schedule and work coordination and progress issues between J.F. Allen and Redstone continued. (AMEC Exs. 112, 115, 116, 117, 119.)

71. Another major issue with Redstone arose during construction when in June of 2015, J.F. Allen was put on notice by Redstone equipment vendor ICE that Redstone was in default of paying its rental payments for its leased horizontal drill rigs and that ICE intended to repossess its equipment and file mechanic's liens against the Project. (JFA Ex. 161; Tr. 34:2-20, Day 9.) The removal of this equipment would effectively stop Redstone from performing any additional work on the Project. (*Id.* 19-23.) As a result of this Notice of Default, J.F. Allen contacted Redstone and requested outstanding accounts payable for all vendors and suppliers for Redstone. (*Id.* 35:11-

21.) Redstone provided its accounts payable for the Project and the delinquent accounts payable were satisfied by J.F. Allen through two party checks by J.F. Allen and Redstone from Redstone Subcontract balances. (JFA Ex. 161; *Id.* 36:8-22.) Per Redstone's accounts payable report, Redstone was over \$800,000.00 delinquent for a period greater than 90 days. (*Id.* 37:1-12.)

72. On August 24, 2015, J.F. Allen terminated Redstone for cause, claiming Redstone failed to pay its vendors and failed to properly staff the Project. (Tr. 247:20-24, Day 10.) The Court would further find that this was the culmination to a dysfunctional relationship, which was the result of the conduct of both parties at times and led to verbal altercations, lack of efficient production, and other negative effects as discussed herein. (AMEC Ex. 221.)

73. After Redstone was terminated from the project, J.F. Allen hired Coastal (which was eventually sued by MarkWest) to perform Redstone's remaining scope, or approximately 5% of the total Redstone scope of work. (Tr. 53:5-6, Day 9.) J.F. Allen also retained Brayman to supplement Redstone's anchor testing for which J.F. Allen paid Brayman \$25,012.00. (Tr. 62:15-23, Day 9.) Coastal was retained to complete Redstone's work scope and repair deficient work. (*Id.* 63:1-3.) Wilson Works was retained by J.F. Allen to perform all of Redstone's wall repairs and to weld extension plates on all H-Piles that were not meeting the minimum 1" of lagging bearing. (*Id.* 6-15.) Thrasher Engineering was retained to put target reflectors on the Wall for purposes of monitoring wall movement through periodic surveying of reflector locations. (*Id.* 65:10-24.) The Court heard testimony that "Coastal's work at least with installing the Wall" was completed on or around October 15, 2015. (Tr. 106:24-107:3, Day 14). At this point, construction of the Wall was completed, and the remaining phases of Plant construction, including the foundations and mechanical/electrical contracts began. This meant that Chapman Corporation⁶,

⁶ As of August 25, 2015, Chapman Corporation, MarkWest foundations contractor for Plant V, had completed all of its foundations except for the electrical substation. (J.F. Allen Ex. 47; Tr. 28:4-9, Day 2 p.m.)

MarkWest foundations contractor for Plant V, could then come in and build the foundations for Plant construction, following which the Westcon mechanical/electrical contract could commence construction on the electrical substation for Plant V. (Tr. 24:21-25:16, Day 1; *see also* Tr. 30:5-31:6, Day 2). Dan Rowlands testified that the Wall construction affected the ability to move forward with Plant construction because “the critical path continued to run through fill being placed behind the wall, pad space being cleared so that foundations and ultimately equipment and mechanical and electrical work could be completed”. (Tr. 29:17-30:4, Day 2).

FINDINGS OF FACT: PLANT V CONSTRUCTION

74. The Court also heard evidence regarding Plant V Construction, for which the Wall was designed. First, UOP was hired by MarkWest as the engineering firm to design Plant V. The Court was presented with evidence in the form of monthly project status reports prepared and issued by Mr. Rowlands and Mr. Adams for MarkWest. (J.F. Allen Ex. 17; Tr. 98:18-24; 99:1-4, Day 2 a.m.) The UOP mechanical/electrical bid package was anticipated to be received in December 2014 but was extended until January 15, 2015. Per the October status report, Mr. Rowlands reported that MarkWest’s target milestone was to have all mechanical construction bids received on or before January 15, 2015. (Tr. 99:7-10, Day 2 a.m.) UOP failed to meet this milestone. (*Id.*) In fact, UOP did not achieve this milestone until April 15, 2015. (*Id.*) Additionally, the milestone of achieving an air permit for the addition of Plant V was initially targeted for submittal on or before November 15, 2014. (*Id.*) Yet, MarkWest’s air permit application was not submitted to the West Virginia Department of Environmental Protection until April 2015. (*Id.*)

75. UOP was also responsible for issuing a flare study, as Plant V was adding new ignition sources. (J.F. Allen Ex. 19; Tr. 103:19-24; 104:121, Day 2 a.m.) UOP was late with all of its deliverable designs, studies and equipment supply to MarkWest. (*Id.* 104:9-21.)

76. The Plant V project could not be sent out for bid for any work to be done until the UOP bid package and design documents were available, which did not occur until April 15, 2015⁷. (*Id.* 101; 1-20.) In December 2014, Mr. Rowlands advised his team that UOP continued to be late with engineering services and products, thereby putting MarkWest in a tough spot on bidding and construction. (J.F. Allen Ex. 23; Tr. 110:15-24, Day 2 a.m.)

77. The Plant V construction bid was split into civil foundations and mechanical/electrical packages. (*Id.*) Mr. Rowlands was projecting the mechanical completion date for Plant V to be October 22, 2015, rather than the July 2015 date set forth in the Baseline Schedule. (*Id.* 111:4-10.) Mr. Rowlands's supervisor, John Paul Elder, advised that MarkWest would need to accelerate its contractor to achieve a July 2015 start-up and that this would be "extraordinarily costly and potentially impractical." (*Id.* 111:11-18.) In response to Mr. Elder's suggestion to accelerate the Plant V contract schedule, MarkWest's Chief Operating Officer Gregory Floerke wrote Mr. Elder and Mr. Rowlands, "based on EQT 2015 volume update that Paul Kress sent in this week, does not appear that there will be justification to spend more money to accelerate Plant V." (*Id.* 112:1-21.)

78. UOP's design for Plant V continued to be delayed, with UOP projecting a complete mechanical package to be submitted by the second week of February 2015. (J.F. Allen Ex. 24; Tr.

⁷ The Court notes that under the Baseline Schedule, exclusively relied upon by Bradley Wolf, MarkWest's damages expert, these bid packages would have had to have been done, at the latest, in the summer of 2014 to keep the Baseline Schedule.

112:22-24; 113:1-9, Day 2 a.m.) Mr. Rowlands responded that this was unacceptable; MarkWest expected a complete mechanical and electrical bid package by January 31, 2015. (*Id.* 113:10-24.)

79. Mr. Rowlands justified this demand to UOP by advising “our full bid package release date slides with every day UOP missed the January 31, 2015 date.” (*Id.* 114:1-9.) UOP did not achieve the January 31, 2015 bid package deadline, which was already an extended date. (*Id.* 9-20.) Ultimately, the UOP bid package was not received until April 15, 2015 – nine weeks beyond its extended deadline⁸. (*Id.* 16-20.).

80. Following the issuance of the UOP bid package, bids for Plant V were due on or before May 4, 2015. (J.F. Allen Ex. 41; Tr. 16:8-15, Day 2 p.m.) By this time, the Wall had not delayed the Plant V mechanical and electrical bid award. (*Id.* 16-23.) By letter of May 14, 2015, Westcon submitted four proposed lump sum bid options with different start and completion dates. The longer the proposed project duration was, the lower priced the bid. (J.F. Allen Ex. 41A; Tr. 18:15-24, Day 2 p.m.) MarkWest selected the Westcon proposal with a start date of July 1, 2015, and completion date of October 15, 2015. (*Id.*) This proposal was the most expensive, as its duration was the shortest, exceeding the other proposals by \$500,000.00. (*Id.*) The costly proposal was chosen because Mr. Rowlands wanted to accelerate the Project to a three-and-a-half month duration, despite Mr. Floerke’s admonishment that there was no justification for acceleration. (J.F. Allen Ex. 17; Tr. 19:1-4, 23-24, Day 2 p.m.)

81. The Westcon proposal was based on MarkWest awarding the Project on or before May 18, 2015, with a day-to-day extension of mechanical completion beyond the award date. (J.F. Allen Ex. 41A; Tr. 19:8-21, Day 2 p.m.) Accordingly, Westcon’s Project duration would be

⁸ Again, the Court notes that Mr. Wolf’s analysis does not account for this delay at all, instead he assumes that Plant V would have already been under construction, if not for the wall Project.

extended for each day that MarkWest failed to issue an award to Westcon beyond May 18, 2015. (*Id.*) Ultimately, MarkWest waited until June 2, 2015 to award Westcon the Plant V contract. (*Id.* 20:10-12.) MarkWest's delay in awarding Westcon the Plant V contract extended the Westcon completion date by 14 days to October 31, 2015. (*Id.* 21:1-4.)

82. As of August 25, 2015, Chapman Corporation, MarkWest foundations contractor for Plant V, had completed all of its foundations except for the electrical substation. (J.F. Allen Ex. 47; Tr. 28:4-9, Day 2 p.m.) All mechanical work was available for Westcon to perform at that time. (*Id.*) Westcon did not have any piping work to perform in Plant V's substation. (*Id.* 29:21-22.) The only mechanical work within the electrical substation was structural steel for the setting of buildings. (*Id.* 30:1-4.)

83. As of October 15, 2015, J.F. Allen had completed its fill operation for the Project and the electrical substation pad was available for foundations. (J.F. Allen Ex. 49; Tr. 30:5-15, Day 2.) As of September 17, 2015, Westcon was not on schedule to meet its in-service date of October 31, 2015. (J.F. Allen Ex. 63; Tr. 42:1-3, Day 2 p.m.) In addition to electrical substation availability, Westcon delayed mechanical completion due to welding issues, crane tip over, and employee misconduct. (Tr. 41:7-24; 42:1-7, Day 2 p.m.) These events caused Westcon to shut down for a safety review. (*Id.* 43:8-11.)

84. Plant V could not operate without the remaining mechanical work being performed by Westcon. (*Id.* 46:1-4.) Mr. Rowlands reported to David Fitch, MarkWest's Vice President of Engineering, that he anticipated electrical completion to occur on February 19, 2016, with mechanical completion to be achieved by February 26, 2016. (J.F. Allen Ex. 67; Tr. 48:7-22, Day 2 p.m.) MarkWest began commissioning of Plant V on or about February 26, 2016. (J.F. Allen Ex. 68; Tr. 52:14-18, Day 2 p.m.) At the time of the first commissioning update on February 26,

2016, Westcon was still performing mechanical, original scope piping work. (*Id.* 54:9-21.) MarkWest reported electrical work scope to be 99% complete. (*Id.* 55:2-7.) Mechanical instrumentation installation was a predecessor activity to energization of the instrument. (*Id.* 55:22-24; 56:5-8.)

85. As of February 11, 2016, Westcon was still installing its original scope of piping work; work not considered punch list work by MarkWest, as testified to by Mr. Rowlands. (J.F. Allen Ex. 66; Tr. 45:14-24, Day 2 p.m.) Commissioning Update No. 23 was issued by MarkWest on March 22, 2016, and identified ongoing mechanical work as the continued installation of instrumentation and tubing. (*Id.* 56:12-22; 57:1-11.) Ongoing electrical work was wiring instruments as they were installed. (*Id.*)

86. Also noteworthy is that repairing insulation required by the late delivery of the flare study commenced on March 22, 2016, under mechanical commissioning, and remained an item on the commissioning updates through April 8, 2016. (J. F. Allen Ex. 68.) Plant V could not start-up until these insulation repairs were complete. (Tr. 59:20-24; 60:1-20, Day 2 p.m.) Accordingly, Plant V's in-service date commenced on the day insulation repairs were completed. (*Id.* 60:5-20.) Mr. Rowlands testified that the late flare study and resultant vessel insulation re-work were on their own critical path, independent of the electrical substation of Plant V. (*Id.* 6-7.)

87. Commissioning and start-up of Plant V were complete and in-service as of April 8, 2016. (*Id.* 36:15-22.)

FINDINGS OF FACT: THE EXPERTS ON WALL DESIGN/CONSTRUCTION

Dr. Jonathan Wren

88. Dr. Jonathan Wren of Exponent testified on behalf of MarkWest. Dr. Wren has a Ph.D. in Geotechnical Engineering from Stanford University, twenty-seven years of experience in the

field, including with soldier pile retaining walls, and is a licensed Civil Engineer in the State of West Virginia. (Tr. 7:24 – 15:17, Day 6.) Dr. Wren is principal engineer and practice director for Exponent, which is an engineering and scientific firm retained by Plaintiff's counsel to investigate the condition of the Wall. (*Id.* 7:2-10:1.) He has experience in site characteristics that pertain to geotechnical findings on site, including design and performance of foundations to carry loads, slope stability, design and performance of retaining walls, but he does not oversee design and construction of retaining walls. (*Id.* 10:2-10:22.) The Court qualified Dr. Wren as a civil and geotechnical engineering expert. (*Id.* 15:18-16:16.)

89. The Court finds that Dr. Wren's past expert testimony is not focused on, and he has no particular specialization with, retaining wall design and construction. (*Id.* 105-109.) Rather, Dr. Wren has prepared concept plans for retaining walls. (*Id.* 109.) Further, Dr. Wren has not prepared any designs with regard to soldier pile retaining walls. (*Id.* 109-110.)

90. During Dr. Wren's testimony, a detailed drone video was presented to the Court that gave a detailed look of all relevant angles of the Wall. The use of the drone was able to give the Court a view of the Wall from heights and angles that would have not been possible had the Court conducted a site visit. A series of relevant photographs of the Wall was also presented. Dr. Wren visited the site on numerous occasions. Dr. Wren's testimony included his on-site inspections and observations, and the drone video and photographic evidence. In addition, Exponent performed liftoff testing at the Wall site, for which Dr. Wren was present (observing at the Wall face suspended in a basket). Also, Exponent commissioned Nicholson Construction ("Nicholson") to perform comprehensive anchor lift off testing using a representative sample of 122 anchors from random locations on the Wall.

91. Dr. Wren testified that Exponent's comprehensive anchor testing established that numerous anchors were detached from the Wall and had lost a substantial amount of their load, and that Exponent's testing and observations over time establish that anchors are continuing to lose load and detach from the Wall, while recognizing that they have not observed additional anchors breaking since 2016. (*Id.* 88:7-88:16.) Dr. Wren opined the following: (1) with regard to AMEC's design, the anchors were designed two feet apart contrary to design recommendations which were referenced in design standards directing the anchors to be spaced four feet apart; (2) the anchors were designed to be installed horizontally contrary to the PTI recommendation for avoidance of horizontal bars; and (3) the design failed to perform a settlement analysis. (*Id.* 88:17-89:1.) With regard to Redstone's construction deficiencies, Dr. Wren opined that corrosion was observed, anchor bars were exposed, the anchor bars at the walers were installed in conformance with the plans/not encapsulated with corrosion protection, and the anchors installed by Redstone are continuing to lose their load. (*Id.* 89:2-89:7.) Finally, with regard to J.F. Allen, Dr. Wren opined that it did not construct a Wall with a Factor of Safety of 1.5 with no significant design and construction defects, which was the Contract requirement. (*Id.* 89:8-89:11.) Under cross examination from counsel for AMEC, Dr. Wren admitted that he concluded and based his Wall repair opinion on his conclusion that none of the existing anchors can carry load. (*Id.* 115:17-115:19.)

92. Dr. Wren's 2017 Report grossly overstated the condition of the anchors until he was challenged in his deposition in 2019, which he corrected as a "typo."⁹ Dr. Wren opined that, at

⁹ The Exponent statement that "slightly over 2/3 (66%) of the tested anchors are carrying less than 10% of their design Lock-Off load", when compared with the actual data presented on the Exponent Figures (e.g., 17- 21). In Deposition, Dr. Wren then acknowledged this statement was erroneous, ascribing this to a "typo". The correct statement was alleged to be "...have lost more than 10% of their design Lock-Off load". This fundamental error/misstatement remained on the record for almost 2 years without challenge or correction and created an atmosphere of impending doom and disaster regarding the safety and reliability of the Mobley Wall. Redstone Ex. #48, p. 14.

some point, when he cannot say, all of the anchors on the Wall will reach zero load. (*Id.* 198-201.) (*See, also, e.g.*, Tr. 200:11-17, Day 6 (“Again, it’s looking into a crystal ball and saying I’m giving you five years or six years or seven years is virtually—we know it’s on that trajectory but it’s very difficult to assess that.”) and Tr. 198:5-10, Day 6 (“Q. So can you give us an estimate today if repairs are not done on the wall when there would be a significant problem with the wall? How many years in the future? A. As I mentioned in my deposition, that forecasting the performance of this wall is very difficult to do because it's going to depend on environmental conditions.”))

Dr. Jeffrey Hunt

93. Dr. Jeffrey Hunt of Exponent testified on behalf of MarkWest. He was retained to evaluate the structural components of the Wall. Dr. Hunt has a Ph.D. in Civil/Structural Engineering from University of California-Berkely, sixteen years of experience in the field and is a licensed Civil Engineer in the State of West Virginia. The Court qualified Dr. Hunt as an expert in civil and structural engineering.

94. Dr. Hunt presented many photographs and illustrations showing the condition of the structural elements of the Wall – i.e. piles, walers, bearing plates and concrete lagging panels on the Wall. Dr. Hunt also visited the Wall site. (Tr. 232:18-232:21, Day 6.) Dr. Hunt testified that the Wall is in a state of failure, panels are dislodging, he has observed corrosion, and walers and bearing plates have yielded and have been “taken past” what the steel manual/profession allows. (Tr. 46:9-46:19, Day 7.) With regard to AMEC, Dr. Hunt opined that they did not perform calculations for the local section yielding that they saw, they did not perform calculations for the additional ¾ inch bearing plates, and when testing was brought to the Wall face, there was no engineering backup, all of this combining for factors of safety inherent in design standards not being met. (*Id.* 48:5-48:10.) Dr. Hunt opined that AMEC’s design fell below the applicable

standard for a professional engineer in designing such elements. (*Id.* 46:20-47:13.) With regard to construction deficiencies, Dr. Hunt opined that Redstone installed some walers upside down, which caused water drainage issues, and pile corrosion issues. (*Id.* 47:14-47:25.)

Jerry DiMaggio

95. Jerry DiMaggio, P.E., D.GE testified on behalf of J.F. Allen. Mr. DiMaggio has a master's degree in civil engineering from Clarkson University, and he worked for thirty years at the Federal Highway Administration. Currently, Mr. DiMaggio works at Applied Research Associates. The Court qualified him as an expert in the geotechnical field as it relates to design construction and monitoring of the earthwork infrastructure. (Tr. 37:4-37:12, Day 10.) Mr. DiMaggio "initiated" a series of publications referred to as the Geotechnical Engineering Circulars ("GEC"), of which he testified there are currently 16, including GEC 4, which was cited as a design standard employed by AMEC in the design of the Wall. Mr. DiMaggio opined that the purpose of GEC 4 was to provide practitioner-based guidance as a reference document to the transportation community, to be used not only for highway construction but for all types of infrastructure that might need geotechnical features. (*Id.* 34:13-36:14.)

96. Mr. DiMaggio and Dr. Wren each concluded that based on the same Wall monitoring data, the Wall "has not demonstrated movements either vertically or laterally over 26 months of observation to raise concerns." (Tr. 101:20-24, Day 6.) Mr. DiMaggio also opined the following: (1) the Wall is currently in a stable condition; (2) significant design and construction deficiencies do exist as noted in previous expert reports; (3) the cause of the design lock-off load loss will require a defined reference point baseline and, if proven to be a valid occurrence, it should be further studied as to the cause; (4) stress relaxation is considered to be an insignificant factor related to loss of lock-off load; (5) a design for a minimum Factor of Safety of 1.4 represents an

acceptable minimum Factor of Safety factor; (6) if additional stabilization ground anchors are determined to be necessary to supplement the existing conditions, then the existing ground anchor system should be incorporated as part of the final stabilization solution; (7) many of the identified construction deficiencies are considered to be isolated, and most may be interpreted to be maintenance and preservation activities and not the responsibility of a design-builder; and (8) and all significant changes to design deficiencies made during construction were approved and reviewed by MarkWest's agent, CEC. (J.F. Allen Exs. 233, 234.)

Dr. Paul Sabatini

97. Dr. Paul Sabatini testified on behalf of AMEC. Dr. Sabatini is a senior principal engineer with Geosyntec Consultants. (Tr. 50, Day 15.) Dr. Sabatini is a licensed civil engineer in West Virginia and seven other states and has 31 years of experience in the geotechnical/geostructural profession. (*Id.* 50-51.) Dr. Sabatini has a Ph.D. in Geotechnical Engineering from Northwestern University. (*Id.* 51.) Dr. Sabatini's engineering specialty is in the geotechnical/geostructural area of practice which focuses on the design and construction of earth retaining systems including anchored walls and reinforced soil slopes. (*Id.*) Dr. Sabatini is a co-author of seven Federal Highway Administration, National Highway Institute publications on ground anchors, soil nailing, micropiles, and load and resistance factor design for earth retaining systems. (*Id.* 52.) Dr. Sabatini was the lead author of GEC No. 4. (*Id.* 65.) The Court qualified Dr. Sabatini as an expert in geotechnical structural design and construction of earth retaining systems.

98. Dr. Sabatini testified that the computed Factor of Safety of the Wall, based on available data for long-term testing, is 1.5 or higher. Dr. Sabatini further testified that based on all data collected and the acceptable Wall system performance, uncertainties related to the Wall design

have been reduced, and Wall performance indicates that the anchor Wall is fit for purpose and is performing as intended. (*Id.* 146.) Dr. Sabatini further testified the current Factor of Safety of the Wall is at least 1.5 and AMEC's hybrid Wall design and performance on the Project met the applicable standard of care for engineering services under the circumstances. (*Id.* 154.) Dr. Sabatini testified that future anchor shears are expected to be minimal, and he did not agree with the complete abandonment of the 530-plus anchors that are installed, or with implementing the Exponent remedial design comprising the construction of 135 new anchors. (*Id.* 146.)

99. Dr. Sabatini also opined that the landslide repair was not the responsibility of AMEC, and the colluvium issue could have been addressed by excavating and recompacting to the original grades. (*Id.* 146-47.) With regard to anchor spacing, he opined that anchor proof or performance testing with creep testing, which was done in this case, was standard practice to confirm the final design of an anchor. (*Id.* 147.) With regard to horizontal anchors, he testified the concerns with the horizontal anchors relate to construction entirely, not long-term performance. (*Id.* 148.) With regard to corrosion, he testified that to the extent AMEC designed corrosion features that were not constructed properly, that is not the responsibility of AMEC. (*Id.*) With regard to the concrete panels and the reduction in bearing length, he testified AMEC communicated the risks to Redstone, and issues from panel movement/dislodging are related to the installation and earthwork and not the responsibility of AMEC. (*Id.* 149.) With regard to settlement, he testified it was reasonable for AMEC to expect about two inches of fill settlement just behind the concrete panels based on the specified quality of fill and compaction controls, and this amount would have been tolerable for the anchor bars. (*Id.* 150.)

Dr. James Collin

100. Geotechnical engineer Dr. James Collin, Ph.D., P.E., D.GE, testified on behalf of Redstone. Dr. Collin graduated from the University of California – Berkeley with a Ph.D. in geotechnical engineering. (Tr. 50:4-50:12, Day 13). Dr. Collin is a licensed engineer in twenty-eight states, working for GeoFreeze, a specialty foundation contractor, STA Consultants, Tensar Earth Technologies, a company that manufactures and designs reinforced soil slopes and MSE Walls, and the Collin Group, and he has authored over 80 publications. (Tr. 47:9-48:21, Day 13.) The Court qualified Dr. Collin as an expert in geotechnical engineering, construction, and design. (*Id.* 50:8-50:24.)

101. Dr. Collin testified that he could find no evidence that the resulting bending and shear caused by settlement of the fill was considered in AMEC's design of the anchors. (*Id.* 71:23-72:7.) He opined that the decision to move anchor testing to the Wall face resulted in extra time and work to complete the soldier pile, concrete lagging, and tieback anchor portion of the Wall. Dr. Collin further opined AMEC was deficient by not performing an analysis to estimate the amount of settlement that would occur in the 100 feet of fill behind the face of the Wall, and therefore the potential impact on the horizontal extension bars, and that based on the photographic evidence, it appears anchors were overstressed due to settlement that caused bending in the bars. (Redstone Ex. 147.) Dr. Collin opined that Redstone's scope of work did not include anything with fill selection, placement or compaction, and that deficiencies in the backfill placement, compaction and testing contributed to the settlement observed in the failed anchors at the face of the Wall. (Redstone Ex. 42.)

Dr. Donald Bruce

102. Rock anchor expert Dr. Donald Bruce testified as a geotechnical expert on behalf of Redstone. Dr. Bruce earned a Ph.D. in civil engineering from University of Aberdeen, Scotland. (Tr. 148, Day 13.) Dr. Bruce's professional specialty is rock anchors inclusive of rock anchor drilling and grouting. (*Id.* 151-152.) Dr. Bruce's opinions regarding the performance of the anchors is based upon his 47 years of experience in the rock anchor business. (*Id.* 256.) The Court qualified Dr. Bruce as an expert in the field of geotechnical engineering, specializing in rock anchor design and performance.

103. Dr. Donald Bruce testified:

- a. Anchors were installed and stressed initially to an acceptable standard of care.
- b. Anchor bar shear failures were due to fill settlement.
- c. Anchor pull out failures were principally due to grout washout and/or inferior ground conditions. Some may be ascribed to subsequent tendon rupture unobserved far behind the Wall.
- d. The Exponent liftoff testing on this project is not a credible or reasonable basis to determine current anchor capacity and to therefore predict future performance.
- e. Berkel's tests confirm adequate anchor capacity in anchors held to be seriously defective by Exponent, and not previously ruptured.
- f. There is no systematic evidence for "pervasive," rapid and continuing load loss in the anchors at Mobley.
- g. There is no scientific or experimental evidence to support Exponent's allegation that the close proximity of bond zones or any other construction issue, has affected individual anchor capacity.
- h. There is no question the beams flexed and deflected during Wall construction (and possibly for a few months thereafter) by amounts capable of radically affecting the residual load in previously and successfully stressed anchors. Inward and outward wall deflection would account for anchor load loss or gain respectively during subsequent lift-off testing.

- i. Based on a dispassionate interpretation of the Redstone, Exponent, and Berkel testing programs, the results of over 2 years of Wall monitoring, there is no justification for an extensive re-anchoring program.

(*Id.* 189-190.)

104. The Court would also note that in giving proper weight to Dr. Bruce's testimony and opinions, the Court considered that Dr. Bruce authored a memo on September 1, 2015 based on an August 25, 2015 site visit, and an initial review of documents, in which he expressed "serious concerns about the current and future condition and performance of the wall." (Redstone Ex. 48.) Redstone later learned this memo had been transmitted to MarkWest, who then transmitted it to J.F. Allen. (*Id.*) This memo recommended that an independent third-party geotechnical engineering firm conduct a technical audit of the design, construction, and performance of the anchored Wall, and included a similar recommendation for the RSS portion of the Wall. (*Id.*) The Court considered Dr. Bruce's prior assessment regarding the stability of the Wall, and balanced that with his later opinion on this issue, as well as the opinions of Mr. DiMaggio and Dr. Sabatini. The Court considered and weighed Dr. Bruce's apparent errors, relied on in his prior opinion, including an Affidavit he submitted when the Court ruled on pretrial motions.

CONCLUSIONS OF LAW FOR BREACH OF CONTRACT

105. "In West Virginia, the elements of breach of contract are (1) a contract exists between the parties; (2) a defendant failed to comply with a term in the contract, and (3) damage arose from the breach." *Nance v. Huntington W. Va. Hous. Auth.*, No. 16-0855, 2017 WL 2210152, *5 (W. Va. May 19, 2017) (memorandum decision) (*citing Wittenberg v. Wells Fargo Bank, N.A.*, 852 F.Supp.2d 731, 749 (N.D. W. Va. 2012)).

106. "[I]nterpretation of contract language is a question of law." Syl. Pt. 1, *Toppings v. Rainbow Homes*, 200 W.Va. 728, 490 S.E.2d 817 (1997) ('It is the province of the circuit court,

and not of a jury, to interpret a written contract.’). Indeed, “[i]f a court properly determines that the contract is unambiguous on the dispositive issue, it may then properly interpret the contract as a matter of law.” *Williams v. Precision Coil, Inc.*, 94 W.Va. 52, 66 n.26, 459 S.E.2d 329 n.26 (1995).

Analysis of the MarkWest/J.F. Allen Design-Build Contract

107. The Court concludes MarkWest and J.F. Allen negotiated and entered into a binding contract for the design and construction of the Wall – the “Design-Build Contract” (also referred to as the “Prime Contract” by the parties) which was supported by good and valuable consideration. The Court concludes that under the Design-Build Contract, J.F. Allen was responsible for designing the Wall, supplying all materials and all labor necessary for design, construction, managing the construction, coordinating subcontractors, quality control and oversight, and for ensuring that the Wall met the contractual specifications and warranty requirements. Significantly, time was of the essence in completing construction of the Wall. The Court also concludes that AMEC and Redstone entered into binding subcontracts with J.F. Allen to provide design and construction service to J.F. Allen under the Design-Build Contract. As such, J.F. Allen is contractually liable to MarkWest for the acts and omissions of AMEC and Redstone in their performance of work under their respective subcontracts. Further, J.F. Allen is not relieved of its contractual obligation(s) to MarkWest by virtue of the acts or omissions of AMEC and Redstone.

108. With regard to the Wall, the Court finds and concludes that MarkWest has not proven that J.F. Allen breached the Design-Build Contract by failing to design and build the Wall in a workmanlike manner. The Court accepts and deems credible J.F. Allen’s expert Jerry DiMaggio’s expert testimony that the Wall is stable. Further, the Court accepts and deems credible

MarkWest's expert, Dr. Wren's expert opinion that there is no movement in the rock fill zone or at the Wall face. Finally, AMEC's expert, Dr. Sabatini corroborated the expert testimony of Mr. DiMaggio and Dr. Wren, and agreed that instrumentation measurements conclude that the Wall is indeed stable. The Court likewise finds Dr. Sabatini's testimony to be credible. For these reasons, the Court concludes MarkWest has failed to prove that the Wall as-built was not designed and built in a workmanlike manner.

109. However, although the Court concludes the overall condition of the as-built Wall does not rise to the level of being unworkmanlike, the Court concludes J.F. Allen breached the Design-Build Contract because there are defects in the Wall for which MarkWest shall be awarded damages for repair. The Court finds evidence presented throughout the course of trial established evidence of defects, including damage to lagging panels, such as cracks and spalling, dislodged lagging panels, broken anchors, corrosion, and the need for repair braces/tabs.

110. Regarding the broken anchors, the evidence at trial showed J.F. Allen's use of non-conforming backfill, unanticipated fill settlement that resulted from heavier than anticipated and non-conforming fill material, and ineffective compaction methods directly resulted in anchor failures. (Redstone Ex. 41.) Daily work reports for February 2015 indicate the hauling of unsuitable soil material from the Wall site, the placement of soil material when temperatures were below 20 degrees, the removal of snow and frozen soil material from the Wall site, and the performance of night shift work outside the presence of AMEC personnel. (AMEC Ex. 83 and 98.) Chris Ramsey testified that placing material in freezing conditions could affect the quality of fill placement due to moisture swelling and then thawing later causing settlement. (Tr. 148-149, Day 16.) He also testified that if soil is placed and compacted and meets compaction requirements,

freezing temperatures can cause material to lose some of its compaction characteristics, which could cause settlement. (*Id.* 149.)

111. With regard to the issue of J.F. Allen placing frozen or non-conforming fill behind the Wall, the Court finds the following:

- a. As construction proceeded in January and February 2015, cold weather conditions affected the work progress and work quality, including days where the temperature was below freezing (AMEC Ex. 81);
- b. MarkWest considered the AMEC inspectors to be “good quality control inspectors” (Tr. 236, Day 3);
- c. AMEC’s second shift observation services were suspended by J.F. Allen during the winter months of 2015 (Tr. 16-17, Day 12);
- d. J.F. Allen placed fill material during freezing conditions during the timeframe when an AMEC representative was not present. (*Id.* 17; Tr. 146-47, Day 16; Tr. 178-79, Day 9; Tr. 235-36, Day 3);
- e. Concerns were raised about the placement and compaction of processed fill over frozen ground (Tr. 233, Day 3; AMEC Ex. 82);
- f. On January 31, 2015, AMEC provided clarifications and guidance to J.F. Allen with regard to winter fill placement in subfreezing conditions (AMEC Ex. 82; Tr. 19, Day 12);
- g. AMEC notified J.F. Allen that freezing ground causes water within the fill to swell (AMEC Ex. 82);
- h. AMEC notified J.F. Allen that ice prevents compactive effort (*Id.*);
- i. AMEC notified J.F. Allen that thawing processed fill causes soil settlement (*Id.*);
- j. AMEC notified J.F. Allen that it was not advisable to place and compact processed soil fill in temperatures below 20 degrees and that such activity should stop should temperatures drop below 0 degrees. (*Id.*); and
- k. Redstone observed J.F. Allen using large compaction equipment within three feet of the back of the Wall. (Tr. 166-67, 194, Day 12.)

112. The Court also finds that while AMEC provided engineered specifications to J.F. Allen, AMEC failed to properly account for fill settlement in the design itself, ignoring the warning from Tom Stack about the proctor test, which showed a much greater density of the backfill material. Mr. Stack warned AMEC in October 2014 of the greater density of the backfill material, prior to any backfill placement had started. Despite this warning, AMEC made no design change and proceeded based upon the original CEC soil bore testing results. Therefore, for all of these reasons, the Court finds, regarding the issue of sheared anchors, J.F. Allen and AMEC both have blame.

113. The Court also finds AMEC, as part of its QC duties it contracted to do with J.F. Allen, was required to inspect J.F. Allen's work when placing fill. The Court finds that AMEC did give J.F. Allen instructions on handling frozen fill, as evidenced by a January 2015 email which gave specific directions, including that placement is not advisable and should stop at certain cold temperatures, the use of ground heaters, and scarifying the exposed ground.

114. The Court finds evidence of instances in February 2015 where fill was placed by J.F. Allen outside of the presence of AMEC inspectors while air temperatures were below zero, and those zones experienced sheared anchors. Further, the Court finds AMEC's design did not account for fill settlement of any kind, and the fact that Mr. Ramsey disregarded warnings that the fill was measuring heavier than designed for. For these reasons, considering the conduct of both AMEC and J.F. Allen, the Court finds AMEC and J.F. Allen shall split these damages related to the sheared anchors, with 60% of damages being allocated to AMEC, and 40% being allocated to J.F. Allen.

115. During construction, there was a landslide or slope slippage (also referred to by the parties as a "washout") that required remediation. J.F. Allen repaired the slope slippage that

occurred at the Wall base in front of soldier piles 125-138 without engineering direction. (Tr., 178, Day 5; Tr. 237-39, Day 4.) This repair led to the affected area of the Wall having a lower Factor of Safety. The Court finds J.F. Allen should have requested AMEC provide an engineered remediation plan for the slope slippage.

116. Further, the Court heard evidence from multiple witnesses during the trial that the relationship between Redstone and J.F. Allen disintegrated to the point of being “dysfunctional,” which the Court concludes contributed to delay. (Tr. 9, 230, Day 2; AMEC Ex. 147.) J.F. Allen and Redstone argued over staffing and lack of manpower on site, blame for the failing anchors, Redstone’s failure to pay its vendors, Redstone’s withholding of anchor proof testing results in order to maintain leverage, and other issues, to the point that MarkWest’s project management team tried to intercede. The Court concludes J.F. Allen also did not coordinate with subcontractor AMEC, when it repaired the slope slippage without even notifying AMEC, let alone obtaining an engineered solution before repairing the slope slippage.

117. For these reasons, the Court concludes that J.F. Allen failed to coordinate its subcontractors and adequately oversee their work, in breach of its Contract with MarkWest.

118. The Court concludes J.F. Allen also breached the Design-Build Contract with MarkWest by failing to coordinate with Lane, which it was obligated to do by contract provision. J.F. Allen was responsible for the transport, placement and compaction of fill behind the Wall that was supplied by Lane under their Excavation Contract with MarkWest (AMEC Ex. 27.) Under the Design-Build Contract, J.F. Allen was required to coordinate with Lane regarding utilization of the fill, moisture control, and material specifications, as already described above. When stockpiles accumulated, J.F. Allen was not able to place fill at the same rate that Lane was processing it, leading directly to site congestion and requiring the contractors to work around the

stockpiles, also causing delay. In addition, the stockpiling problem also contributed to the moisture control issues with the backfill, which eventually required rehandling/recrushing of the material and also led to delay.

119. Further, the Court finds that J.F. Allen did not properly utilize Change Orders. The Design-Build Contract provided that any changes to the scope of the work “shall be accomplished only by a written change order issued by [MarkWest].” With the justifications for its delay J.F. Allen argued at trial, including conduct of the other parties, the Court has considered those circumstances with the fact that J.F. Allen did not utilize Change Orders as the issues arose and the Project fell behind (other than the limited Change Orders 1-3). J.F. Allen did not seek a Project extension date.

120. Regarding the allegation that J.F. Allen breached the Contract for failure to remove colluvial soil to “competent rock,” described as being rock of substantial formation that would withstand anchor testing, the Court concludes from the evidence that J.F. Allen made every effort to reach competent rock. The failure of J.F. Allen to removal the colluvial soil to “solid” or competent rock ultimately required the anchor testing to be shifted to the Wall face, which created a myriad of additional problems and, according to AMEC’s Don Dotson, was a “game changer.” However, based upon the evidence at trial, the Court finds that J.F. Allen was not at fault and the changing of testing to the Wall face was necessary and proper under the circumstances.

121. Also, the Court finds there was no breach of Contract by J.F. Allen for negligent hiring of the subcontractors. The Court finds that MarkWest and CEC were both familiar with the work of Redstone and AMEC and, in fact, discussed the Project with Redstone prior to J.F. Allen’s involvement. J.F. Allen, although ultimately the general contractor in this Design-Build Contract, was actually the last entity on the Design Build Team to become involved in the Project.

122. In sum, the Court concludes by a preponderance of the evidence that J.F. Allen breached the Design-Build Contract with MarkWest by providing a Wall that, although stable, has defects which require remediation, replacement, or repair. The Court also concludes J.F. Allen breached the Design-Build Contract with MarkWest by failing to coordinate with its subcontractors, as well as failing to coordinate with Lane, who it was required to coordinate with via contract provision. The Court also concludes J.F. Allen breached the Design-Build Contract with MarkWest by failing to deliver a Wall in a timely fashion, which is detailed and analyzed in the Delay section of this Order below. In short, the Design-Build Contract provided that time was of the essence and that J.F. Allen was required to complete work under the Design-Build Contract by March 31, 2015. The Court finds J.F. Allen did not complete its Work on the Wall until October 15, 2015, according to daily reports. Although some delay in completion was excusable and justified, there was also some delay that caused MarkWest to suffer damages as hereinafter discussed.

Analysis of the J.F. Allen/Redstone Subcontract

123. The Court next analyzes the Subcontract between Redstone and J.F. Allen. As the Court found above, J.F. Allen entered into a Subcontract with Redstone whereby Redstone agreed to construct the Wall portion of the Project (steel H beam soldier piles, concrete lagging panels between soldier piles, tie-back rock anchors and steel walers between soldier piles to support tie-back anchors) in accordance with the Wall design. (AMEC Ex. 27.) The Court finds from the evidence presented, including photographic evidence, that Redstone committed errors in construction. Redstone installed some of the walers upside down, so that the drain hole was on top instead of in the bottom where water and debris could have escaped. The Court finds that Redstone's error led to debris collection issues and water collection and corrosion issues.

124. Further, the Court finds that Redstone failed to properly grease anchor caps as a mechanism for corrosion protection. Additionally, the Court heard evidence from Greg Hadjis, President of J.F. Allen, and finds that when Redstone welded the additional steel plates or “tabs” which were welded upon the soldier pile flanges to hold the concrete lagging panels in place, they did not use a certified welder as required¹⁰. Also, the welds failed inspection and had to be redone. (Tr. 221:4-222:6, Day 1.)

125. The Court heard evidence provided by multiple exhibits and witnesses regarding the problems with J.F. Allen which led to delay issues, and Redstone’s termination. The poor relationship between J.F. Allen and Redstone led to incidents such as Redstone withholding anchor proof tests and exerting leverage over J.F. Allen. The Court finds these problems included J.F. Allen’s complaints with Redstone’s work progress, failing to adequately staff the Project, disputes regarding pay and Change Orders, Redstone’s failure to pay its vendors, and J.F. Allen’s blaming Redstone for anchor failure. The Court finds that J.F. Allen blamed Redstone for the anchor failures that were ultimately determined to be caused by anchor shearing due to AMEC’s failure to properly calculate the fill settlement and J.F. Allen’s placement of improper or frozen backfill. This blaming contributed to the breakdown of the relationship. Eventually, the relationship became toxic. Specifically, by internal email within Redstone dated June 15, 2015, Redstone’s Project Engineer and Principal Jeff Waggett wrote Redstone’s CFO, Rich Walton “build your wall then lose your leverage” to which Mr. Walton responded, “bingo.” (J.F. Allen Ex. 167; Tr. 41:7-14, Day 9.)

126. Additionally, pursuant to the Redstone Subcontract’s differing site condition clause, Redstone was required to give notice of any condition that differed materially from those

¹⁰ According to the wall design, all structural welding of steel was to be performed by certified welders. (AMEC Ex. 34).

indicated in the Redstone Subcontract. (J.F. Allen Ex. 133; Tr. 23:4-17, Day 9.) The Court finds that despite encountering ground water in the process of attempting to install anchors in May of 2015, Redstone did not provide notice to J.F. Allen of this differing condition. Mainly because of this, the grouting process utilized by Redstone failed, causing some of the anchors to pull out or fail.

127. Further, with regard to grouting, the Court finds Redstone's installation resulted in anchors failing to form proper bonds with the rock because of faulty grouting. (Tr. 163:4-165:17, Day 12.) The Court further finds that evidence showed J.F. Allen relied on Redstone's expertise in installing rock anchors. In July 2015, anchors that were installed by Redstone in May 2015 pulled out of the grout zone while being tested by Redstone. (J.F. Allen Ex. 161; Tr. 284:1-10, Day 11.) This resulted in J.F. Allen having to excavate over twenty feet (20') of compacted fill and RSS wall to replace these anchors, thereby delaying the Project in excess of one month. (*Id.* 286:1-22.) Also in July 2015, Redstone began withholding its anchor test reports from AMEC's field QC personnel. (*Id.* 289:6-17.)

128. Further, the Court heard evidence regarding Redstone failing to pay its vendors, resulting in Project liens, which will be addressed below.

129. The Court also finds Redstone failed to adequately staff the Project and agrees with J.F. Allen's delay expert Mr. Willoughby's testimony establishing that this failure yielded gross inefficiencies and productivity issues that delayed the Project. (J.F. Allen Ex. 237.) The Court finds Mr. Willoughby's expert testimony to be credible that the level of productivity achieved by Redstone was less than half of the productivity contemplated by its bid and reflected in its Project schedule. (*Id.*) Redstone was basically behind from the start of the Project, and never caught up.

130. Therefore, for these reasons, the Court concludes by a preponderance of the evidence that Redstone breached the Redstone Subcontract with J.F. Allen.

131. In addition to breach of contract, the Court analyzes whether Redstone breached its warranty to J.F. Allen. The Redstone Subcontract contains express warranty terms. Specifically, pursuant to Article 6.18 of the Redstone Subcontract's General Conditions, Redstone provided a warranty and guarantee as follows: "Subcontractor warrants and guarantees to the Design/Builder that all Work will be in accordance with the Subcontract Documents and will not be defective." The Court finds that, based upon the testimony summarized above, Redstone provided some defective work that was not in accordance with the terms of the Redstone Subcontract and thereby breached its warranty.

Analysis of the J.F. Allen/AMEC Subcontracts

132. The Court next analyzes the two Subcontracts between J.F. Allen and AMEC. The QC Subcontract required AMEC to monitor and test fill placement, monitor installation and testing of grout and provide daily reporting of Project construction for conformance with Project plans and specifications. J.F. Allen has claimed that AMEC breached the AMEC QC Subcontract. However, J.F. Allen presented no evidence at trial, expert or otherwise, regarding any conduct of AMEC that constitutes a breach of the AMEC QC Subcontract. Rather, the evidence presented at trial demonstrates that J.F. Allen did not take issue with AMEC's observation services as it paid all AMEC invoices related to the observation services through November 19, 2015. (AMEC Ex. 35.) As such, the Court finds that J.F. Allen has failed to prove by a preponderance of the evidence that AMEC breached the AMEC QC Subcontract, and such claim is hereby **DISMISSED**.

133. The Design Subcontract required AMEC to provide the following deliverables: (1) Design Memorandum, summarizing the calculations of the permanent ground Anchor system

sealed by a professional engineer registered in the State of West Virginia; (2) Plan drawing of the retaining wall system; (3) Up to three drawing sheets illustrating soldier piles, precast concrete panels, anchors, tie-rods and walers as well as RSS wall construction details; and, (4) Construction and material specifications, including, earthwork, Wall construction items (including but not limited to soldier piles, anchors, tie-rods, structural steel, precast panels, anchor testing, RSS wall components), and installation and monitoring, including action levels for each parameter measured.

134. The Court finds the expert testimony of Mr. DiMaggio regarding Project design to be credible in that AMEC breached its contractual obligations to J.F. Allen when it changed its design concerning the lagging panel bearing to 1 ½" with a minimum bearing of 1", contrary to certain design standards (American Concrete Institute Building Code Requirements for Structural Concrete 318-11) and contrary to AMEC's original design of 3" lagging panel bearing, with a 2 ½" minimum lagging panel bearing, and without notifying J.F. Allen. The Project contains 1,340 concrete lagging panels. (Tr. 13:14-15, Day 7.) The AMEC final design specified only 1" minimum lagging panel bearing on the H-Pile flange, which constitutes only 3% of the panel width. (*Id.* 11:14-18.) AMEC's conceptual design drawings, prepared for Redstone in August 2014, specified minimum lagging panel bearing to be 2.5" on each side of the H-Pile. (Tr. 193:1-21, Day 16.) AMEC reduced the lagging panel width from 5'9" to 5'6". (Tr. 181:9-12, Day 4.)¹¹ Following this change, AMEC issued the construction drawings that specified 1" minimum lagging panel bearing. (Tr. 195:14-18, Day 16.)

¹¹ The Court notes AMEC made this design change at Redstone's request so that Redstone could "wiggle" the panels into place from the ground elevation rather than slot them in from the top of the piles utilizing a crane on the side of the mountain. (*Id.* 13-24.)

135. Conversely, AMEC's specification tolerance for the vertical installation of the H-piles was a +/- 4" (Tr. 186:10-16, Day 4), and the Court finds this tolerance was not changed to adjust for the reduced minimum lagging panel bearing. Accordingly, the Court finds the expert testimony explained that with these measurements, Redstone could install its adjacent piles up to 8" out of vertical alignment and be within specification for H-pile verticality but out of specification for minimal lagging bearing of 1". (*Id.* 189:1-14.) The Court finds that it was this discrepancy between the lagging panel minimum bearing tolerance of 1" and H-pile verticality tolerance of +/- 4" that ultimately caused many lagging panels to dislodge and some to lose all bearing on the H-pile web, thus requiring J.F. Allen's subcontractor, Wilson Works, to weld bearing plates on the H-pile web to provide support for panels that failed to meet the 1" minimal bearing specified by AMEC. (*Id.* 191:5-21.) During construction, these panels began dislodging and losing contact with the H-Pile flanges. (Tr. 11:14-18, Day 7.) AMEC did provide an engineered solution that directed J.F. Allen to weld flange plate extensions onto the H-Piles where panels had dislodged. (*Id.* 12:1-5.)

136. The Court finds that of the 1,340 lagging panels, 202 panels dislodged during construction and had to be restrained with the flange extension plates. (*Id.* 13:14-17.) Since that time, an additional 73 panels have dislodged. (*Id.* 17-21.) The Court agrees with Dr. Hunt's opinion that attributes the continued lagging panel movement to thermal expansion and contraction of the Wall during normal freezing and thawing cycles, resulting in the minimum 1" lagging bearing losing contact with the H-Pile flanges. (*Id.* 14:19-24.) Additionally, the Court agrees with Dr. Hunt's opinion that attributes lagging, cracking, and spalling at the edges was also due to the 1" minimum lagging bearing being subject to 4,500 pounds of force being exerted on such a small area to resist it. (*Id.* 16:21-24.) Also, panel spalling occurred at panels' edges, a condition

wherein the nominal bearing is subject to the greatest compressive stresses. (*Id.* 18:5-12.) Chapter 16 of the American Concrete Institute Building Code (“Concrete Code”) requires a minimum of 3" bearing for precast floor and roof members that are subject to the same type of forces that the lagging panels resist. (*Id.* 86:7-8.)

137. Further, the Court finds that AMEC breached its contractual obligations to J.F. Allen when it moved anchor testing from the slope/rock face to the Wall face without properly considering the detrimental effects of the issues with walers and soldier pile beams withstanding increased pressure from this decision (testing at 120% design load). The Court finds that although it was proper under the circumstances to move testing from the rock face to the Wall face, it was a significant event in the construction of the Wall, which was referred to by AMEC’s own engineer Don Dotson as a “game changer.” (Redstone Ex. 11 Dotson Depo. Tr. 25:12-14; read into the record at 25:18, Day 4.) The Court finds the resultant negative impact on the walers and soldier pile beams was not adequately considered by AMEC. The Court finds the reason for this move was the legitimate issue of failing to reach competent rock and the resultant issues Redstone encountered with its testing, causing it to request the change from AMEC. However, as the design professional, the Court finds AMEC should have considered the collateral effects in this significant decision. Further, the Court agrees with Mr. DiMaggio’s testimony that AMEC breached its contractual obligations to J.F. Allen by changing the location of the testing, for the reasons set forth herein, without considering the detrimental effects to the Wall.

138. The Court also finds the change in testing location had a detrimental effect on the lagging panels, causing them to be handled more and causing damage to the panels, and was more collateral damage from the decision to reduce the lagging panel minimum bearing to 1". For

instance, on December 3, 2014, due to reports of damaged panels, AMEC requested that J.F. Allen and Redstone use more caution when installing panels to limit damage to panels. (AMEC Ex. 62.)

139. The Court also finds that the change in testing location, without proper engineering analysis, led to the deformation of walers, shifting of some of the lagging panels, and deflection of some soldier pile beams. In conjunction with having already reduced the minimum bearing width from 3" to 1", this change in testing location caused the movement of the soldier piles and ultimately contributed to the shifting of the lagging panels. The Court finds this is a design flaw rather than a construction error.

140. The Court heard testimony from Tom Stack that the actual cause of lagging panel cracking has not been determined and the cracking could have been the result of handling onsite. (Tr. 156-157, Day 5.) The Court also heard testimony that due to moving the laydown areas caused by stockpiling of backfill, the lagging panels had to be handled more and transported further while onsite; however, the Court finds this was not proven at trial to be the cause of the concrete damage.

141. As to the alleged design failure of not spacing the anchors at least four feet (4') apart, the Court does not find that AMEC breached its contractual obligations to J.F. Allen by failing to adhere to engineering standards promulgated by the Federal Highway Administration pursuant to Geotechnical Engineering Circular No. 4, *Ground Anchors and Anchored Systems*, requiring anchor spacing to be 4' on center, instead designing anchors spaced at 2' on center. Regarding anchor spacing, the Court further finds that CEC approved of this design, and Exponent's graphic, which was presented at trial, actually indicated the closest spaced anchor pair tested were carrying the largest measured loads. (MarkWest Ex. 284; Tr. 81:2-81:13, Day 17.) The Court finds this evidence supports the contention that 4' was sufficient.

142. Further, with regard to the GEC publications, the Court finds that the anchor spacing in GEC 4 was developed in anchors in soil rather than rock, as are present in the Wall here. (Tr. 136-37, Day 4.) The Court heard evidence that AMEC's design specification for anchors to be spaced just two feet apart is a deviation from both the GEC 4 and PTI. However, the Court finds that for a unique wall built from the ground up like the Wall at issue in this case, many resources are used to develop the Wall design (*Id.* 136-139); the references referred to by AMEC were used as resources and references for the preparation of the Wall design (*Id.* 117-18); the GEC publications were intended to be guidance documents to provide information to assist designers in using the types of technologies that would be described in a given GEC (Tr. 65, Day 15; AMEC Ex. 273); and the GEC publications were not intended or developed to be specifications (Tr. 65, Day 15). The Court notes the testimony that the GEC publications were not intended or developed to be specifications was provided by Dr. Sabatini, who wrote the GEC publications.

143. Additionally, the Court finds that the design methodology and references referred to in the AMEC design¹² did not specifically address hybrid wall designs or bottom-up construction soldier pile wall designs. (Tr. 99, Day 16.) The Court finds this Wall required a unique hybrid wall design, with bottom-up construction of a soldier pile wall. Finally, the Court finds from the testimony at trial that it is appropriate for designers/engineers to use their experience and knowledge in the preparation of wall designs, along with other resources (Tr. 93-94, Day 10.)

144. With regard to the Factor of Safety of the Wall, the Design-Build Contract required the Wall to have a minimum Factor of Safety of 1.5 across all sections of the Wall. (MarkWest

¹² AMEC designed the Wall using certain industry design standards, including FHWA Geotechnical Engineering Circular No. 4 ("Circular 4"), Post-Tensioning Institute Recommendation for Prestress Rock and Soil Anchors ("PTI"), the American Institute of Steel Construction Manual on Steel Construction, 13th Edition ("Steel Manual"), and the American Concrete Institute "Building Code Requirements for Structural Concrete" ("ACI-318-11") (collectively the "Design Standards"). (Tr. 111:7 – 113:12, Day 4.)

Ex. 7.) However, the Court heard much evidence on whether or not MarkWest knew about and/or accepted a Factor of Safety of less than 1.5. The Court finds that, at the very least, MarkWest knew as early as January 2015 there was a Factor of Safety less than 1.5 due to the more dense soil, and permitted AMEC and J.F. Allen to proceed with construction as if it were acceptable (see discussions in Paragraph 58). Notwithstanding whether or not MarkWest accepted a Factor of Safety of less than 1.5 or not, the Court finds that based upon updated soil parameters from GZA¹³, AMEC prepared an Owner Requested Wall Stability Review dated September 15, 2016, using a revised friction angle of 34 degrees for processed fill and a unit weight of backfill of 145 pcf. (AMEC Ex. 254.) The Court finds AMEC's post-construction Wall stability analysis indicated that all Wall sections exhibit a Factor of Safety in excess of 1.5 except for Station 6+00 which had a Factor of Safety of 1.485. Based upon the expert testimony of Dr. Sabatini, the Court finds that by adding one anchor at Section 6+00, the Factor of Safety for that section would be increased to 1.547; thus, the entire Wall will have a Factor of Safety of over 1.5. (Tr. 239-240, Day 9; AMEC Ex. 254, p. 7; Tr. 183-84, Day 16.) Therefore, the Court concludes that AMEC did not breach the Contract concerning the Factor of Safety of 1.5. The Court concludes and orders one anchor shall be added at Section 6+00, as further detailed in the damages section of this Order.

145. Finally, the Court concludes AMEC breached its contractual obligations to J.F. Allen by failing to design for shear forces caused by rock fill settlement. The Court finds AMEC's design did not properly account for fill settlement, in contravention of design standards. The Court further finds that this, along with J.F. Allen placing frozen fill material, led to the anchors shearing when the fill settled and caused delay due to repair. This also led to souring the relationship

¹³ GZA was retained by Exponent to investigate the soil stability around the retaining wall. (See MW Ex. 285 at p. 62.)

between J.F. Allen and Redstone, as Redstone was initially blamed for this problem and was required by J.F. Allen to repair the sheared anchors at its cost.

146. With regard to AMEC's anchor design, the Court finds that subsequent to Exponent testing, anchor testing was performed by AMEC utilizing the industry standard and accepted proof and performance testing. The testing focused on the anchors reported by Exponent as being the anchors that are the furthest along with their load degradation. In other words, AMEC anchor testing focused on anchors tested by Exponent which showed the least amount of lift-off load. The AMEC testing confirmed that 16 of the 22 anchors previously tested by MarkWest did in fact possess full design load carrying capacity. The foregoing testing results, in conjunction with no lateral or vertical Wall movements of any significance, since completion of Wall construction, supports a conclusion that the Wall anchors are not losing load and are performing as designed. During AMEC testing, AMEC also confirmed that 4 of the 22 anchors tested were not capable of carrying load as Exponent had confirmed with its testing. Only one of the four anchors not capable of carrying load was located in Exponent's proposed repair zone (Station 4+00 to 9+60). Therefore, in order to restore the full anchor carrying capacity of the Wall, AMEC testing confirmed that only one anchor would require repair.

147. With regard to the other two anchors tested by AMEC, such were not loaded to full design load due to a localized Wall movement anomaly that occurred during testing. However, the testing completed reveals that the anchors were not ruptured and were trending toward carrying the full design load when testing was terminated. Dr. Bruce opined that Exponent's recommendation is to install 135 remedial anchors, and many of these are located between Piles 121 and 178 wherein no anchors had been tested by Exponent. (Redstone Ex. 45.)

148. Based upon the evidence of the anchor testing performed by AMEC, and the opinions of the defense experts, the Court finds there is no systematic evidence of pervasive, rapid and continuing load loss in the anchors on the Wall. As a result, the Court concludes there is no reliable evidence to support Exponent's conclusion, and thus MarkWest's requested remedy, that all anchors should be derated to zero capacity and that 135 new anchors should be installed.

149. The Court further considers that MarkWest has also claimed Wall remediation is necessary due to inadequate corrosion protection, and the Court finds that AMEC sufficiently specified corrosion protection per PTI requirements within the Wall design and in subsequent instructions provided to J.F. Allen and Redstone. (Tr. 85, Day 15.) Based on the evidence at trial, the Court finds that anchor bar, waler and soldier pile corrosion deficiencies are the result of deficient construction and a failure to provide post-construction maintenance, rather than deficient design. (Tr. 112-113, 148, Day 6.) In addition, panel bearing plate corrosion is also a construction deficiency rather than a design deficiency. (*Id.* 113; Tr. 95-96, Day 15.) According to Exponent, corrosion issues represent construction defects that independently warrant substantial repairs to the Wall. (Tr. 149-150, Day 6.) More specifically, according to trial testimony, documented corrosion of the anchor bars is a basis for Exponent's recommendation to abandon the anchors. (*Id.* 148.) Accordingly, to the extent that corrosion warrants any remedial work, such is the result of construction deficiencies and not design deficiencies. (Tr. 85, Day 15; Tr. 147-148, Day 6.)

150. Further, according to the evidence at trial, the anchor bars utilized in the AMEC design are Grade 75, ASTM A615 bars and are appropriate for the Wall design. Testing of the bars by Exponent post-construction confirms that the anchor bars meet the requirements of ASTM A615. (Tr. 147, Day 15.) Accordingly, the Court finds that the anchor bars specified in the AMEC Wall design are not deficient. (Tr. 153-54, Day 6.) According to the evidence, in July 2015,

several anchors installed by Redstone pulled out of the grouted rock socket during anchor testing. It was determined that the anchor pull-out or failure was due to the lack of proper grout curing in the bond zone due to unexpected, inferior or differing ground conditions. (Tr. 12, Day 5; Tr. 189, Day 13; Tr. 7, Day 2.) According to the evidence, all pull-out anchors were repaired. (Tr. 16, Day 12.) Accordingly, the Court finds that the anchor pull-outs were not the result of deficient design.

151. In summary, the Court concludes AMEC breached the Design Subcontract with J.F. Allen when it moved anchor testing from the slope/rock face to the Wall face without properly considering the detrimental effects of the issues with walers and soldier pile beams withstanding increased pressure, and by failing to design for shear forces caused by rock fill settlement, especially in light of having been warned by CEC about heavier fill density than anticipated.

J.F. Allen/AMEC Claims Limitation

152. To the extent J.F. Allen seeks to pass-through any MarkWest damages incurred by J.F. Allen, the Court finds such damages are barred by the J.F. Allen/AMEC contracts.

153. The J.F. Allen/AMEC Subcontracts are governed by Tennessee law. Specifically, the J.F. Allen/AMEC Subcontracts provide that the agreement “shall be governed and construed in accordance with the laws of the state of the AMEC office entering into this Agreement.” (AMEC Ex. 26, p. 3 of 6, ¶19) Because the AMEC office entering into the Agreement and performing all design work was located in Nashville, Tennessee, the law of Tennessee will apply.

154. Under Tennessee law, contract provisions are construed and enforced as written, and the parties’ rights are limited to those in the contract. *ARC LifeMed, Inc. v. AMC-Tennessee, Inc.*, 183 S.W.3d 1, 26 (Tenn. Ct. App. 2005); *see also Cookeville Gynecology & Obstetrics, P.C. v. Southeastern Data Sys., Inc.*, 884 S.W.2d 458, 461 (Tenn. Ct. App. 1994). Under Tennessee law, courts are not allowed to rewrite an agreement under the guise of construing it. *Marshall v.*

Jackson & Jones Oils, Inc., 20 S.W.3d 678, 681 (Tenn. Ct. App. 1999). One of the bedrocks of Tennessee contract law is that courts are without power to make another and different contract from the one executed by the parties themselves. *Eberbach v. Eberbach*, 535 S.W.3d 467, 478 (Tenn. 2017) (citations omitted).

155. Here, the AMEC Design Subcontract with J.F. Allen contained a waiver of consequential damages clause. Specifically, the clause provides that AMEC shall not be responsible “for any special, incidental, indirect, or consequential damages (including lost profits) incurred by” J.F. Allen or for which J.F. Allen “may be liable to any third party, which damages have been or are occasioned by services performed or reports prepared or other work performed hereunder.” (AMEC Ex. 26, p. 3 of 6, ¶12.A.5.)

156. According to applicable law, contract provisions that waive the right to recover consequential damages are fully enforceable. *See RCR Bldg. Corp. v. Pinnacle Hospitality Partners*, 2012 Tenn. App. LEXIS 787, *8-9 (Tenn. Ct. App. Nov. 15, 2012). Accordingly, to the extent that J.F. Allen seeks to recover from AMEC any damages awarded against J.F. Allen and in favor of MarkWest, the Court finds that J.F. Allen is barred from recovering against AMEC any MarkWest special, incidental, indirect, or consequential damages (including lost profits).

157. The AMEC Design Subcontract also contained a limitation of liability clause (see above, in Paragraph 34). Specifically, the clause provides that “the total liability of AMEC, its officers, directors, employees for liabilities, claims, judgments, demands and causes of action arising under or related to the Agreement, whether based in contract or tort, shall be limited to \$2,000,000.” (AMEC 26, p. 3 of 6, ¶12.A.5). According to Tennessee law, parties may agree to limit the remedies available to them under the contract and such agreements will be strictly enforced as a fundamental part of the bargain. *Baptist Mem’l Hosp. v. Argo Constr. Corp.*, 308

S.W.3d 337, 345 (Tenn. Ct. App. 2009). A court may not rewrite an allocation of risk in a contract because the terms appear to be too burdensome in hindsight. *Id.* at 345. Accordingly, the Court finds that AMEC's total liability to J.F. Allen, under the Contract, is limited to \$2,000,000.00.

CONCLUSIONS OF LAW REGARDING NEGLIGENCE

158. To prevail in a negligence suit "it is incumbent upon the plaintiff to establish, by a preponderance of the testimony, the following: (1) A duty which the defendant owes to plaintiff; (2) a negligent breach of that duty; and (3) injuries received thereby, resulting proximately from the breach of that duty." *Wheeling Park Comm'n v. Dattoli*, 237 W. Va. 275, 280, 787 S.E.2d 546, 551 (2016).

159. "The three elements of every tort action are the existence of a legal duty, the breach of that duty, and damage as a proximate result. In matters of negligence, liability attaches to a wrongdoer, not because of a breach of a contractual relationship, but because of a breach of duty that results in an injury to others." *Sewell v. Gregory*, 179 W. Va. 585, 587; 371 S.E.2d 82, 84 (1988) (internal citations omitted). "The ultimate test of the existence of a duty to use care is found in the foreseeability that harm may result if it is not exercised. The test is, would the ordinary man in the defendant's position, knowing what he knew or should have known, anticipate that harm of the general nature of that suffered was likely to result?" Syl. Pt. 3, *Sewell*. A party suffering "purely economic loss from an interruption in commerce caused by another's negligence may not recover damages in the absence of physical harm to that individual's person or property, a contractual relationship with the alleged tortfeasor, or some other special relationship." Syl. Pt. 9, *Aikens v. Debow*, 208 W. Va. 486, 489, 541 S.E.2d 576, 579 (2000).

160. “However, a negligence action requires a plaintiff to show that a defendant breached a duty of care. The gist-of-the-action doctrine is triggered when the asserted duty of care derives, in fact, from a contract:

If the action is not maintainable without pleading and proving the contract, where the gist of the action is the breach of the contract, either by malfeasance or nonfeasance, it is, in substance, an action on the contract, whatever may be the form of the pleading.

Dan Ryan v. Crystal Ridge, 803 S.E.2d 519, 528 (2017) (citing *Cochran v. Appalachian Power Co.*, 162 W.Va. 86, 92, 246 S.E.2d 624, 628 (1978)).

161. In West Virginia, under the gist of the action doctrine, “[a]n action in tort will not arise for breach of contract unless the action in tort would arise independent of the existence of the contract.” Syl. Pt. 9, *Lockhart v. Airco Heating & Cooling, Inc.*, 211 W.Va. 609, 597 S.E. 2d 619 (2002). In other words, “whether a tort claim can coexist with a contract claim is determined by examining whether the parties’ obligations are defined by the terms of the contract.” *Gaddy Engineering Co. v. Bowles Rice McDavid Graff & Love, LLP*, 231 W.Va. 577, 746 S.E. 2d 568 (2013) (citing *Goldstein v. Elk Lighting Inc*, No. 3:12-CV-168, 2013 WL 790765, at *3 (M.D.Pa. Mar. 4, 2013)).

162. “This doctrine will bar an action in tort, such as fraud, if a party establishes any of the following: (1) where liability arises solely from the contractual relationship between the parties; (2) when the alleged duties breached were grounded in the contract itself; (3) where any liability stems from the contract; and (4) when the tort claim essentially duplicates the breach of contract claim or where the success of the tort claim is dependent on the success of the breach of contract claim.” *Id.* (quoting *Star v. Rosenthal*, 884 F.Supp 2d. 319, 328-29 (E.D.Pa. 2012)).

163. West Virginia law allows a negligence claim for purely economic losses when there is evidence of a “special relationship” between the plaintiff and the defendant. *See Aikens v.*

Debow, 208 W.Va. at 500, 541 S.E.2d at 590 (“[W]here a special and narrowly defined relationship can be established between the tortfeasor and a plaintiff who was deprived of an economic benefit, the tortfeasor can be held liable.”). Whether a defendant has a special relationship with a plaintiff, such that the defendant owes a duty of care to the plaintiff, is a determination that must be rendered by a court as a matter of law. Syllabus Point 5, *Aikens*. “The existence of a special relationship between two parties ‘will differ depending upon the facts of each relationship[.]’” *White v. AAMG Const. Lending Ctr.*, 226 W. Va. 339, 347, 700 S.E.2d 791, 799 (2010) (quoting *Aikens*, 208 W.Va. at 500, 541 S.E.2d at 590). The existence of a special relationship will be determined largely by the extent to which the particular plaintiff is affected differently from society in general. It may be evident from the defendant’s knowledge or specific reason to know of the potential consequences of the wrongdoing, the persons likely to be injured, and the damages likely to be suffered. Such special relationship may be proven through evidence of foreseeability of the nature of the harm to be suffered by the particular plaintiff or an identifiable class and can arise from contractual privity or other close nexus. *White*, 226 W. Va. At 347, 700 S.E.2d at 799 (2010).

Analysis Regarding Redstone

164. The Court has analyzed the gist of the action doctrine as it applies to Redstone. As an initial matter, the Court notes MarkWest has not sued Redstone alleging fraud, constructive fraud, conspiracy, tortious interference or any similar tortious conduct. Rather, the primary allegation is that Redstone did not build its portion of the Wall in accordance with J.F. Allen’s contractual promises to MarkWest.

165. In short, the Court finds MarkWest’s claims against Redstone ultimately and solely arise from its interpretation of J.F. Allen’s contractual obligations to MarkWest, and the related

Subcontract of a portion of J.F. Allen's contractual obligations to Redstone with regard to the construction of the Wall.

166. The economic loss rule, as outlined above, prevents a plaintiff from recovering pure economic losses in tort actions that have no physical injury or damage to real property. Typically, this rule arises when a plaintiff alleges negligence in a case that is truly a breach of contract case in order to try to avoid certain procedural problems and damage limitations inherent in contract law. In its analysis of this rule, the Supreme Court of Appeals of West Virginia held that an individual who sustains purely economic loss from an interruption in commerce caused by another's negligence may not recover damages in the absence of (1) physical harm to that individual's person or property, (2) a contractual relationship with the alleged tortfeasor, or (3) some other special relationship between the alleged tortfeasor and the individual who sustains purely economic damages sufficient to compel the conclusion that the tortfeasor had a duty to the particular plaintiff and that the injury complained of was clearly foreseeable to the tortfeasor. *See Aikens v. Debow*, 208 W. Va. 486, 541 S.E.2d 576 (2000).

167. As noted above, one of the very limited exceptions to this overarching principle is the special relationship that exists with regard to a design professional. Here, the Court finds Redstone is not a design professional, and was the subcontractor hired to construct the Wall. While MarkWest may properly pursue a claim in negligence against AMEC for its deficient design issues, its "negligence" claim against Redstone clearly arises from its overarching contractual agreement with J.F. Allen. Therefore, the Court concludes a negligence claim against Redstone is barred by the gist of the action doctrine.

Analysis Regarding AMEC

168. The Court concludes that as the engineer-of-record for the Wall, Chris Ramsey and his employer, AMEC, were responsible for ensuring the structural integrity, soundness and safety of the Wall, as well as confirming the Wall's compliance with all applicable design standards, building codes, regulations and contractual requirements. West Virginia Code § 30-13-1 *et seq.*, "Engineers", the State's Code as to engineers is set forth. Section 16(c) of that Code, addressing "Certificates and seals" states as follows:

Every registrant shall obtain a seal for use in identifying his or her official professional work. The design of the seal shall be determined by the board and shall bear the registrant's name, registrant's registration number, the legend "registered professional engineer, state of West Virginia" and such other words or figures as the board may prescribe. The seal may be a rubber stamp. Whenever the seal is applied, the registrant's written signature shall be adjacent to or across the seal. No further words or wording are required. A facsimile signature is not acceptable. Whenever presented to a client or any public or governmental agency, the seal, signature and date shall be placed on all specifications, reports, drawings, plans, design information and calculations in accordance with rules promulgated by the board. The seal and signature shall be used by registrants only when the work being stamped was under the registrant's complete direction and control.

W.Va. Code § 30-13-16(c).

169. The significance of a professional engineer's seal and signature is immense. AMEC, and its West Virginia-licensed engineer Mr. Ramsey, are responsible for the design of the Project, and all of its revisions, to which Mr. Ramsey affixed his signature and seal. *Id.* No one else is responsible for the design. Contractors, such as Redstone, may ask an engineer a question or make a suggestion, but the engineer is responsible to review the safety and practicality of the design, and to ensure it is proper. As testified to by Mr. Kefover, the contractor then is required to follow that design:

Q. Okay. Did you -- did Redstone do any design work associated with any of this?

A. I have never designed anything in my life. I don't have a stamp to design anything. I don't have an education to design anything. I don't know how to run the calculations to design anything so my answer is no.

Q. Is it fair to say that you were dependent upon AMEC to do that work?

A. Yes. AMEC gives us the specifications and a picture. We make it look like the picture.

(Tr. 140:4-13, Day 12.)

170. In addition to the West Virginia Code, there is a set of state regulations called the West Virginia Rules of Professional Responsibility for Professional Engineers, 1A W.Va. C.S.R. § 7-1-1 *et seq.*, which state the following about an engineer placing his seal on a design document:

7-1-7.3, Seal on Documents. 7.3.a. A registrant's seal and signature and the date shall appear on the first or title page of all final and/or record documents of specifications, reports, drawings, plans, design information and calculations presented to a client or any public or government agency to certify that the work was done by the registrant or under the control of the registrant.

7.3.b. The registrant signing and sealing the first or title page of documents shall be the firm's PE in responsible charge as designated on the firm's COA application or the project engineer.

7.3.c. Revisions shall be numbered, dated, initialed, and sealed by the registrant responsible for the revision.

7.3.d. When copies are to be made, the registrant's seal and signature on all originals, tracings or other documents shall be reproducible.

7.3.e. Each registrant is solely responsible for the use of his or her seal.

7.3.f. When a registrant examines and verifies the engineering work of another, the registrant must take complete dominion and control of the design, which includes possession of the sealed and signed reproducible construction drawings with complete signed and sealed design calculations indicating all changes in design.

7-1-12 Professional Responsibility

12.2.a. All persons registered in West Virginia are required to be familiar with W. Va. Code §30-13-1 *et seq.*, this rule, and all applicable laws relating to the practice of engineering.

7-1-12.3 – Obligation to Society

12.3.b. Registrants shall approve and seal only those designs, plans or other documents that conform to accepted engineering standards and safeguard the life, health, property and welfare of the public.

7-1-12.4 - Registrant's Obligation to Employer and Clients.

12.4.b. Registrants shall not affix their signatures or seals to any plans or documents except in accordance with §30-13-1 et seq. and these rules.

171. Here, the Court finds and concludes that AMEC, by and through Mr. Ramsey, a registered professional engineer in the State of West Virginia, who affixed his seal to the Project design, and the many revisions thereto, is solely responsible for the design.

172. The Court has analyzed the gist of the action doctrine as it applies to AMEC, specifically, whether or not Defendant AMEC had the requisite duty to MarkWest. In determining if a special relationship has been proven through the foreseeability of the nature of the harm to be suffered by this particular plaintiff, the Court concludes that MarkWest established at trial by a preponderance of the evidence that a “special relationship” existed between it and AMEC. As the design engineer under the Design-Build Contract, AMEC was in a unique trust relationship with MarkWest. As the engineer-of-record for the Wall, Chris Ramsey and his employer, AMEC, were responsible for ensuring the structural integrity, soundness and safety of the wall, as well as confirming the Wall's compliance with all applicable design standards, building codes, regulations and contractual requirements. The Court has already made findings in the above sections regarding the importance placed on the engineer's professional seal by the West Virginia Code and West Virginia C.S.R. (see Paragraphs 168-170).

173. With the placement of Chris Ramsey's professional engineer's stamp on the designs, AMEC, as a professional, assumed responsibility for the structural soundness and safety

of the Wall and communicated to MarkWest that it could rely on AMEC's designs. Indeed, the Court detailed in Paragraph 20 that AMEC's membership on the J.F. Allen Team and its supposed technical expertise, was a particular source of reassurance and of value to MarkWest when it selected the J.F. Allen Team to design and construct the Wall. (Tr. 165:16-7, Day 1.) *See Eastern Steel Constructors, Inc. v. City of Salem*, 209 W.Va. 392, 399, 549 S.E.2d 266, 273 (2001) (noting as factor of "special relationship," foreseeability to negligent supplier of information that injured party would rely upon the information) (*quoting Guardian Construction Co. v. Tetra Tech Richardson, Inc.* 583 A.2d 1378, 1381 (Del. Super. Ct. 1990)). As a result, AMEC—unlike any other party—was uniquely positioned to know the risks of its failure to comply with the standard of care and the foreseeability of the consequences; in particular, the increased costs and resulting delays from rectifying design deficiencies. *See Eastern Steel*, 209 W.Va. at 400, 549 S.E.2d at 274 (2001) (noting it foreseeable that party relying upon "the plans and specifications prepared by the [design professional], would incur increased costs if those plans and specifications were in error.") (*quoting Donnelly Construction Co. v. Oberg/Hunt/Gilleland*, 139 Ariz 184, 677 P.2d 1292 (1984)). Furthermore, any changes to the Wall's design had to be approved by AMEC and, as the entity responsible for quality control on the Wall project, AMEC was responsible for exercising oversight of the Wall's construction. (MarkWest Ex. 1 at § 9.0; Tr. 195:6-15, Day 4.)

174. For these reasons, the Court finds a special relationship existed between AMEC and MarkWest, and MarkWest is entitled to recover those damages for purely economic losses suffered as a result of AMEC's negligent breach of its duty of care, in addition to those damages related to the physical damage of MarkWest's property.

175. With respect to the scope and contours of that duty, "one who undertakes to render services in the practice of a profession or trade is required to exercise the skill and knowledge

normally possessed by members of that profession or trade in good standing in similar communities.” *Capper v. Gates*, 193 W.Va. 9, 15, 454 S.E.2d 54, 60 (1994). A design professional, such as AMEC, owes a duty of care to a party with whom it has a special relationship “to render his or her professional services with the ordinary skill, care and diligence commensurate with that rendered by members of his or her profession in the same or similar circumstances.” *Eastern Steel Constructors, Inc. v. City of Salem*, 209 W.Va. 392, 401, 549 S.E.2d 266, 275 (2001). As the designer of the Wall and the party responsible for quality control under the Design-Build Contract, AMEC—primarily through the work of the engineer of record, Chris Ramsey—employed its skills and exercised its judgment as a professional civil engineering firm in the design and construction of the Wall. Therefore, as a professional civil engineering firm engaged in the design of a retaining wall and oversight of its construction, AMEC was subject to the standard of care that a reasonably prudent professional civil engineer would have applied in designing and overseeing construction of the Wall.

176. MarkWest established at trial by a preponderance of the evidence that AMEC breached its duty of care to MarkWest to complete its work consistent with generally accepted engineering and design practices and standards of its industry. Specifically, with respect to the shearing of the anchors, AMEC’s failure to consider the settlement of the Backfill Material and perform any settlement calculations in its design was inconsistent with industry standards and, as a result, a violation of the standard of care. As a direct and proximate result of this breach, the design of the Wall, and the anchors in particular, was inadequate to handle the downward force of the settling fill, causing some of the anchors to shear; provided, however, J.F. Allen contributed to some of the anchors shearing by placing improper or frozen fill. As MarkWest’s expert Dr. Wren testified, this shearing effect was a completely foreseeable result of failing to consider the effect

of fill settlement on the anchors. The repair of these sheared anchors, in turn, delayed completion of the Wall as the placement of fill had to be paused to accommodate the repair work.

177. The Court finds AMEC further breached the duty of care when it approved relocation of anchor testing to the face of the Wall without first undertaking any type of discernable analysis on the potential effects of such a move on the Wall and its components. As a result of this breach, which AMEC itself described as a “game changer,” numerous walers were deformed and left structurally unstable when the testing applied forces to the deficiently designed walers for which AMEC had performed no prior analysis. Once the Wall testing was transferred from the rock face to the Wall face, AMEC did not consider the waler bending capacity, shear capacity, and torsion and bending capacity, as the Court heard in Dr. Hunt’s testimony. The Court finds that while designing a change regarding the Wall testing being transferred from the rock face to the Wall face, AMEC did not adequately consider or account for these related considerations.

178. In attempting to “fix” the walers by directing that bearing plates be added to the walers, the Court finds AMEC again violated industry standards and breached its duty of care by failing to calculate the capacity of the bearing plates, which resulted in an inadequate remedy for the deformed walers, according to Dr. Hunt. In addition to the waler deformation, the Wall face testing also caused movement to the Wall that resulted in and caused further lagging panel dislodgement, cracking and spalling. To fix this dislodgement, AMEC approved the addition of steel tabs to hold the panels in, which has inadvertently led to corrosion of the piles to which the tabs were welded.

179. The Court concludes MarkWest also established by a preponderance of the evidence that AMEC breached its duty of care with respect to changing its design regarding the minimum bearing of the lagging panels of the Wall to one inch. Specifically, AMEC’s decision

to modify its design prior to construction by reducing the width of the concrete panels by 3 inches and, in turn, their bearing on the vertical soldier piles to 1 inch, deviated from AMEC's own chosen design standard (ACI 318-11) and the industry standard and, as a result, was a breach of the standard of care. This was discussed in a previous section (*see* Paragraphs 133-135) of this Order.) Furthermore, AMEC also breached its duty when it changed the testing location without taking into consideration the detrimental effects of the issues of the walers and soldier pile beams at this design load, and when it failed to consider the fill settlement in its design.

180. For these reasons, as a direct and proximate result of AMEC's breach of its duty of care to MarkWest, and by virtue of its "special relationship" with AMEC, the Court finds MarkWest is entitled to recover compensatory damages for economic loss and physical damages, and for repair of the Wall, caused by AMEC's negligence.

Analysis Regarding J.F. Allen

181. The Court finds and concludes that J.F. Allen is the entity that is in privity of contract with MarkWest via the Design-Build Contract. For this reason, the Court finds as a matter of law, that without doubt the gist of the action doctrine bars any negligence claim against J.F. Allen because any duty of care derives from the Contract.

CONCLUSIONS OF LAW REGARDING WALL DAMAGES

182. "In any action for damages, the liability of each defendant for compensatory damages shall be several only and may not be joint. Each defendant shall be liable only for the amount of compensatory damages allocated to that defendant in direct proportion to that defendant's percentage of fault, and a separate judgment shall be rendered against each defendant for his or her share of that amount" W.Va. Code § 55-17-13c. Compensatory damages mean "damages awarded to compensate a Plaintiff for economic and non-economic loss." W.Va. Code

§ 55-7-13b. As a result, liability is to be apportioned among the defendants irrespective of the type of action or theory of liability under which plaintiff proceeds. It is black letter law that “The proper measure of damages in cases involving building contracts is the cost of repairing the defects or completing the work and placing the construction in the condition it should have been if properly done under the agreement contained in the building contract.” Syl. Pt. 2, *Trenton Constr. Co. v. Straub*, 172 W. Va. 734, 737; 310 S.E.2d 496, 499 (1983) (citing *Steinbrecher v. Jones*, 151 W. Va. 462, 476; 153 S.E.2d 295, 304 (1967)).

Analysis Regarding MarkWest Damages

183. As an initial matter, the Court notes MarkWest has withdrawn its claim for lien related legal fees, which was outlined in Mr. Wolf’s report as \$87,532.00, and accordingly, this Court will not address those damages.

184. MarkWest claims damages of \$7,824,273.00 for the cost of Wall repairs. This includes a 10% markup administrative fee, 146 panel braces as Exponent recommended and MarkWest approved at a cost of \$4,073.00 per brace, and the cost of the Nicholson scope of repair of \$6,518,317.00 which includes \$320,632.00 for mobilization; \$439,966.00 for site preparation; \$1,735,098.00 for 426¹⁴ new panel braces (\$4,073.00 per panel brace); \$3,745,170.00 to install new anchors; \$199,293.00 for removal of 18 existing W24x84 walers; and \$78,158.00 for concrete repair.

185. Additionally, the Court finds the Nicholson Report included an allowance for preparing and restoring the base of the Wall, and asphalt paving, painting all steel with a zinc

¹⁴ The Court notes the transcript and the notes of the undersigned both reflect that Dr. Hunt testified that 416 were needed, but the Nicholson report and proposed orders discuss 426. The Court concludes that Dr. Hunt misspoke when he stated 416 instead of 426 and considers the request for 426 as contained in the proposed orders and Nicholson report. (See Tr. 43:19, Day 7.)

primer paint, anchor walers, epoxy crack repair, concrete spall repair, and corrosion protection. It also provided an allowance for 50 hours of delay.

186. As set forth above, J.F. Allen breached the Design-Build Contract with MarkWest in multiple respects by failing to construct the Wall in a timely fashion, resulting in late construction of the Wall in violation of the time is of the essence clause, by placing frozen/improper fill, and by failing to coordinate with its subcontractors, as well as failing to coordinate with Lane, who it was required to coordinate with via contract provision. In addition, AMEC breached an independent duty of care it owed to MarkWest by virtue of a “special relationship” it, as a professional design engineer, shared independently with MarkWest. Therefore, the Court finds that, as a direct and proximate result of those breaches, and to put MarkWest as close as possible to the position for which it bargained, MarkWest suffered and is entitled to recover from the Defendants those damages as hereinafter enumerated. The Court concludes MarkWest shall be awarded \$2,605,596.00 for implementation and rectifications costs for Wall repair. This figure is broken down from the following categories, as presented to the Court at trial.

187. In looking at the repair costs to the Wall, the Court reviewed the Nicholson 2017 estimate provided by Plaintiff, and would note that none of the three defendants proffered their own remediation plans or costs to make repairs to the Wall, choosing instead to take no individual responsibility for any of the defects evident on the Wall and to blame each other.

Corrosion

188. Regarding corrosion, the Court was left with only the Nicholson report in its contemplation of corrosion damages, and the Nicholson report did not address corrosion independently, instead relying on its position that all anchors needed replaced, and assuming the

corrosion protection would be added and included if and when these were all replaced. This position was also testified to by Dr. Wren on September 28, 2020. The Court also finds that MarkWest did no corrosion protection or maintenance on the Wall for years until the time of trial, doing nothing to mitigate corrosion damages or impede the acceleration of corrosion. Again, this was evidenced by Dr. Wren's testimony on September 28, 2020 regarding corrosion. Moving forward, it is the Plaintiff's responsibility for corrosion control and maintenance, as per the Contract, and the Court finds it should have done more to remediate its corrosion damages and its own projections of long-term damage and shorter lifespan of the Wall. Therefore, the Court finds no specific dollar amount has been awarded to repair/remediate corrosion, despite the fact that there is obvious corrosion to some components of the Wall, as evidenced by photographic and other evidence. As the Court cannot speculate in awarding damages, this paragraph serves to explain how it came to its conclusion, and what evidence it considered, regarding its conclusion about corrosion.

Anchor Repair

189. Regarding anchor repair, the Court finds Dr. Wren prepared a design he deemed necessary to repair the Wall, which included derating all original anchor loads to zero and adding new anchors in the Wall repair zone. (Tr. 186:1-4, Day 7.) Nicholson prepared a proposal for the Dr. Wren design totaling \$6,518,000.00. (MarkWest Ex. 285 at Ex. #71; Tr. 183:7-20, Day 7.) However, the Court finds Wall instrumentation and monitoring indicates that the Wall is stable and not demonstrating any indication of movement in any direction. In support of this finding, the Court finds Mr. DiMaggio authored his final report dated August 19, 2019, in which he encapsulated all of the information that had been provided to him since becoming involved with the litigation in September 2015. (J.F. Allen Ex. 233; Tr. 76:6-16, Day 10.) Mr. DiMaggio had

access to Wall monitoring data at the time he prepared this report. (*Id.*) This data was extracted from piezometers installed in the fill zone to measure water pressure therein. (Tr. 70:15-24, Day 10.) Monitoring data of the piezometer was provided by MarkWest for approximately two years in 2016 and 2017 and did not indicate any buildup of water pressure in the fill zone. (*Id.* 71:6-14.) Based on the monitoring data, the fill zone in the Wall is not retaining water. (*Id.* 72:12-24.) Mr. DiMaggio also reviewed and analyzed inclinometer monitoring data which measures horizontal deformation or outward movement of the Wall. (*Id.* 79:1-10.) The inclinometer data did not demonstrate any horizontal movement in the Wall. (*Id.* 11-14.) A third type of monitoring device that was installed was sonodex, a sensor that measures vertical deformation of the fill or settlement. (*Id.* 80:1-5.) The sonodex data did not identify any ongoing fill settlement. (*Id.* 6-13.) The sonodex readings indicate the fill has reached equilibrium. (*Id.*) Mr. DiMaggio opined that the Wall is stable and not demonstrating any indication of movement in any direction. (*Id.* 11-13.) The Court agrees with Mr. DiMaggio's opinions.

190. Based upon updated soil parameters from GZA, AMEC prepared an Owner Requested Wall Stability Review using a revised friction angle of 34 degrees for processed fill and a unit weight of backfill of 145 pcf. (AMEC Ex. 254.) This post-construction Wall stability analysis indicated that all Wall sections exhibit a Factor of Safety in excess of 1.5 except for Station 6+00 which had a Factor of Safety of 1.485. (Tr. 239-240, Day 9; AMEC Ex. 254, p. 7; Tr. 183-84, Day 16.) The Factor of Safety at Section 6+00 could be increased above a Factor of Safety of 1.5 with the addition of one anchor at the bottom of the Wall. (Tr. 184, Day 16.)

191. In Paragraphs 60-61 of this Order, the Court discussed that it considered evidence regarding MarkWest being informed in January 2015 by AMEC that due to the heavier unit weight of backfill, that the Wall Factor of Safety would be decreased from around 1.5 to 1.4. In these

paragraphs, the Court discussed evidence it heard regarding this issue around the January 2015 timeframe.

192. From this evidence, the Court concludes that all of this conduct by MarkWest, at the very least, permitted AMEC to proceed with construction of the Wall under the current design with full knowledge that a FS of 1.4 would be the end result. A Change Order should have been prepared and accepted by MarkWest regarding this change, and this was not done. In any event, based upon the post-construction FS analysis by GZA and the opinions of MarkWest's own expert Dr. Wren, as well as Mr. DiMaggio and Dr. Sabatini, the Court finds that multiple experts agree the Wall is stable. Based upon the expert testimony of Dr. Sabatini, with the addition of one anchor at the bottom of the Wall, all stations will exceed an FS of 1.5. Therefore, although technically, at the completion of the Project, the Wall did not reach a total FS of 1.5 at every station, because the Wall is stable and is substantially at 1.5, and in light of all the evidence concerning MarkWest's acceptance of, or at the very least knowledge of, without stopping construction, the lower FS as set forth in prior paragraphs, the Court does not conclude this is a material breach of contract. However, MarkWest shall receive repair costs and be put in a position where they have a Wall that exceeds an FS of 1.5.

193. For this reason, the Court agrees with AMEC in determining an award of damages to repair one anchor in the repair zone is appropriate. The Court finds this will put MarkWest in a position where they have a Wall that has a FS of at least 1.5 at every station. Specifically, AMEC confirmed that 4 of the 22 anchors tested were not capable of carrying load as Exponent had confirmed with its testing. Only one of the four anchors not capable of carrying load was located in Exponent's proposed repair zone (Station 4+00 to 9+60). Therefore, in order to restore the full

anchor carrying capacity of the Wall, AMEC testing confirmed, and the Court agrees, that only one anchor requires repair.

194. With regard to the above conclusion, the Court notes it does not find MarkWest proved by a preponderance of the evidence that all the anchors would need replaced. MarkWest's Wall repair plan completely neglects the contribution of solid anchors that are in the Wall already. (Tr. 267, Day 13.) The Court does not find there was a preponderance of the evidence showing pervasive, rapid, and continuing load loss in the Wall anchors. (*Id.* 185, 190.) The Court finds there is no basis to conclude that all of the anchors supporting the Wall are not capable of carrying load. (Tr. 104-105, Day 10.) The Court finds persuasive the evidence presented at trial by Dr. Sabatini that based upon all available information, there is no support for de-rating all of the in-service anchors to zero capacity. (Tr. 146, Day 15.) For these reasons, the Court finds more persuasive and credible the evidence offered by AMEC, rather than the evidence offered by MarkWest with regard to needed anchor repairs.

195. The Court was presented evidence in MarkWest Exhibit 71, the Nicholson Report of December 2017, that the cost for anchor repair is \$27,742.00 per anchor. Accordingly, the Court concludes MarkWest shall be awarded \$27,742.00¹⁵ in damages for anchor repair.

WT Braces

196. The Court next considers braces, also referred to as WT braces, by the witnesses at trial. Exponent originally recommended, and MarkWest approved, the addition of 426 new WT panel braces (at \$4,073.00 per panel brace) as proffered to the Court in the form of evidence of the proposal from Nicholson Construction in December of 2017 to repair the Wall. Further, the Court

¹⁵ However, the Court declines to award MarkWest its 10% markup which is claimed without a specific description of exactly what effort was expended to justify an administrative cost markup. As such, the Court finds that the damages claimed are speculative, have not been proven to a reasonable degree of certainty and are not recoverable.

finds that following a site visit that occurred on or about June 2020, Exponent recommended an additional 146 panel braces, which MarkWest approved, at a cost of \$4,073.00 per brace. The Court finds this shall not be awarded and is not considered by the Court, as this June 2020 visit occurred after the close of discovery, and which the Court precluded as inadmissible in its Order of September 2, 2020. (*See* Ord., Sept. 2, 2020, finding inadmissible the evidence of Nicholson's Construction's 2020 work.)

197. The Court has reviewed the report and testimony of Dr. Sabatini, the testimony of Dr. Bruce and Dr. Hunt with regard to braces, and the Nicholson 2017 report, and finds that 426 new panel braces (at \$4,073.00 per panel brace) shall be awarded for necessary repair of the Wall, for a total of \$1,739,098.00¹⁶. Although the 2020 report is not dispositive to the rulings herein, the Court has considered Dr. Sabatini's observations and photos, including Dr. Sabatini's observations that more panels have shifted. In addition, the Court also considers the testimony of Dr. Hunt, when he opined and testified that the bearing width of the concrete panels was so small, that when the Wall undergoes even normal freezing and thawing cycles, that is enough over time to shift the panels. (Tr. 14:14-15:2, Day 7.) In sum, the Court finds that the addition of the 426 new WT braces are a necessary repair.

Concrete Repair

198. Next, the Court considers concrete repair. The Court finds that Dr. Hunt testified epoxy injected into the concrete panels is performed to repair cracking and spalling. The Court awards MarkWest \$78,158.00.00¹⁷ in damages for concrete repair, as proffered to the Court and

¹⁶ However, the Court declines to award MarkWest its 10% markup which is claimed without a specific description of exactly what effort was expended to justify an administrative cost markup. As such, the Court finds that the damages claimed are speculative, have not been proven to a reasonable degree of certainty and are not recoverable.

¹⁷ However, the Court declines to award MarkWest its 10% markup which is claimed without a specific description of exactly what effort was expended to justify an administrative cost markup. As such, the Court finds that the damages claimed are speculative, have not been proven to a reasonable degree of certainty and are not recoverable.

supported by evidence of the proposal from Nicholson Construction in December of 2017 to repair the Wall based on the recommendations of Exponent.

Removal of W24x84 Walers

199. The Court next examines MarkWest's requested damages of \$199,293.00 for removal of 18 existing W24x84 walers. In support of this cost, the Court finds Dr. Wren testified at trial that this cost was due to the walers obstructing the 136 new anchors proposed to be installed based upon the recommendations of Exponent, and that it was a logistical issue. (Tr. 123, Day 6.) The Court has already found that the preponderance of the evidence does not support the installation of 136 new anchors, and instead concludes that the installation of one new anchor at Station 6+00 will cause the Wall to achieve a FS of 1.5 and thus put MarkWest in the position it bargained for. Therefore, the Court concludes that removal of the 18 existing W24x84 walers is not necessary. In sum, the Court does not find by a preponderance of the evidence that the removal of any of the 18 existing W24x84 walers is necessary, and the Court concludes MarkWest shall be awarded \$0.00 in damages for the cost of the removal of these walers.

Mobilization and Site Preparation

200. With regard to requested repair damages, the Court finds that MarkWest, via the Nicholson 2017 report, requested damages of \$320,632.00 for mobilization and \$439,966.00 for site preparation. The Court finds that this amount was based on an award of 426 braces. In support of this finding, Dr. Bruce testified as follows with regard to the Nicholson report: "Yeah. We talked about the unit prices and the estimated quantities of those so, you know, one mobilization, I don't think that will change. But this is based on 426 WT braces. If it ends up being 417, it will go down. If there ends up being 430, it goes up. It's just math." (Tr. 184:18-23, Day 7.) With the Court's

awarding of damages of 426 braces, the Court finds MarkWest shall be awarded \$320,632.00 for mobilization and \$439,966.00 for site preparation.

Instrumentation and Monitoring of the Wall

201. The Court finds MarkWest shall be awarded \$701,942.00 for costs incurred for instrumentation and monitoring of the Wall. The Court finds that the Contract with J.F. Allen called for \$30,000.00 in monitoring. However, the Court finds that had the Wall been built with no deficiencies or legitimate concerns, MarkWest would not have had to perform extended monitoring. In other words, this is another cost due to the design and construction deficiencies. The Court finds this figure represents the amount MarkWest paid GZA \$678,567.00 for instrumentation and monitoring services, and \$23,375.00 to Thrasher Engineering for assisting in continued monitoring of the Wall. (MarkWest Ex. 68 & 69 to Ex. 285.) However, the Court declines to award MarkWest its 10% markup which is claimed without a specific description of exactly what effort was expended to justify an administrative cost markup. As such, the Court finds that the 10% administrative damages claimed are speculative, have not been proven to a reasonable degree of certainty and are not recoverable.

Exploratory Testing, Oversight, Inspection and Monitoring

202. The Court finds MarkWest shall be awarded \$242,152.00 for costs incurred with exploratory testing, oversight, inspection and monitoring in order to assess the condition of the Wall after construction was completed. These costs are broken down as follows: (1) Exponent hired Test Boring Services, Inc. ("TBS") to perform bore testing services, at a cost of \$34,738.00 to MarkWest. (Tr. 180:2-7, Day 7; MarkWest Ex. 64 to Ex. 285); and (2) Exponent hired Dewberry Engineers, Inc. to survey and scan the Wall, at a cost of \$21,459.00 to MarkWest. (Tr. 180:8-16, Day 7; MarkWest Ex. 65 to Ex. 285.) Exponent hired Nicholson Construction to perform tie-back

anchor inspections, lift-off testing of 119 anchors, and excavation work to determine the depth of the embedded piles, which was not adequately reflected in the project records, at a cost of \$185,955.00 to MarkWest. (*Id.* 180:17-181:11; MarkWest Ex. 66 to Ex. 285 at 59.) The above-referenced amounts paid by MarkWest for the exploratory testing included an Exponent markup of 15%. (MarkWest Ex. 285 at 59.) The Court notes this 15% markup was billed to MarkWest by Exponent, and is not a MarkWest-issued administrative markup like the markups the Court has declined to award as speculative. The Court finds that MarkWest had to pay this markup expense to Exponent. These costs were incurred due to legitimate concerns raised about the Wall during construction, and were not simply incurred as litigation costs by MarkWest, as argued by the Defendants.

203. However, with regard to the oversight and supervision costs, the Court does not award MarkWest's requested costs in the amount of \$99,528.00 for CEC's oversight services to the exploratory and rectification efforts. The Court concludes the costs claimed are speculative and include costs incurred for CEC's QA services related to services performed on as many as three different projects at the Mobley site. In claiming the costs, MarkWest did not evaluate the CEC invoices to determine the actual number of hours worked on each project. As such, the Court concludes that the damages claimed are speculative, have not been proven to a reasonable degree of certainty and are not recoverable.

204. MarkWest also claims costs of \$550,000.00 associated with MarkWest full-time employees, such as the senior project manager and the project manager for time performing supervision to oversee exploratory services. However, the Court finds employees were salaried employees and did not record hours dedicated to any particular activity and such costs were not based on an actual allocation of time dedicated to the Wall Project. As such, the Court finds that

the damages claimed are speculative, have not been proven to a reasonable degree of certainty and are not recoverable. MarkWest also claims a blanket 10% administrative cost markup on all damages claimed without a specific description of exactly what effort was expended to justify an administrative cost markup. Therefore, the Court finds that the damages claimed are speculative, have not been proven to a reasonable degree of certainty and are not recoverable. For these reasons, the Court concludes MarkWest shall be awarded \$242,152.00 for costs incurred with exploratory testing, oversight, inspection and monitoring.

Incomplete Scope of Work

205. The Court next considers MarkWest's request for \$225,651.00 to complete J.F. Allen's incomplete scope of work. The Court finds this is maintenance costs and is the responsibility of MarkWest. In support of this finding, the Court finds the testimony of J.F. Allen's Project Manager Bryan Leatherman established that J.F. Allen completed its punch list work, including final grading at the bench and slope at the bottom of the Wall, in the spring of 2016. At the time, permanent erosion and sedimentation ("E&S") controls were in place. The testimony establishes that MarkWest failed to maintain the J.F. Allen-installed E&S controls and thereby incurred additional maintenance costs, spurred by its own failures, through its agreement with Nicholson. MarkWest cannot recover costs related to the maintenance of the Project site in excess of two years beyond Project completion. J.F. Allen completed its final grading and permanent E&S controls in accordance with the Prime Contract. As such, MarkWest cannot recover these damages from J.F. Allen.

206. For these reasons, the Court concludes MarkWest shall be awarded \$0.00 to complete J.F. Allen's incomplete scope of work.

FINDINGS OF FACT: THE EXPERTS ON DELAY DAMAGES

Bradley Wolf

207. Bradley Wolf of Berkeley Research Group testified on behalf of MarkWest. Mr. Wolf graduated from Lehigh University with a degree in metallurgy and material science, and has years of experience in the steel industry. (Tr. 92:18-93:19, Day 7.) Mr. Wolf is the managing director in BRG's construction practice who was retained by MarkWest to review the damages MarkWest incurred as a result of the Project, and to allocate the delay that was incurred on the Project and come up with a "fair apportion" of the damages incurred, including being retained to perform a schedule analysis to support the damage/quantification of damages. (*Id.* 91:19-92:3, 102:12-102:21.) The Court admitted Mr. Wolf as an expert in heavy industrial and construction scheduling and damages analysis. (*Id.* 105:17-106:5.)

208. Mr. Wolf utilized the Baseline Schedule as the basis for his critical path analysis with a Plant V in-service date of June 30, 2015, and a July 14, 2015, finish date. Mr. Wolf concluded that as a result of late, defective and unfinished work on the retaining Wall, the Project was severely impacted and experienced 9.5 months of critical path delay directly attributable to J.F. Allen. (MarkWest Ex. 285.) He also concluded that MarkWest must expend more money to completely rectify the defective work and in total, has damages of \$29,238,379.00 as a result of the defective retaining Wall work performed by J.F. Allen and its subcontractors. (*Id.*)

209. With regard to the Baseline Schedule, Mr. Wolf's opinion as to delays in Plant V construction is entirely based on the Persimmons Group ("Persimmons") schedule for Plant V and is the basis for his critical path analysis. Persimmons is a scheduling consultant retained by MarkWest to prepare integrated schedules for the development of the Plant V projects. (Tr. 92:19-

22, Day 2 a.m.) Persimmons prepared its original Baseline Schedule for Plant V on October 8, 2014. (J.F. Allen Ex. 15; Tr. 92-93:6-24, Day 2 a.m.)

210. Mr. Wolf testified on cross examination by counsel for J.F. Allen that he used the critical path method of scheduling analysis, and the method he chose was the as-planned, rather than the as-built method. (*Id.* 195:23-196:4.) Mr. Wolf also testified that “I think the whole theory behind critical path methodology is there is a single critical path.” (*Id.* 195:21-195:22.) Contrary to Mr. Wolf’s testimony, the Court notes evidence was presented that Mr. Wolf has presented papers to the American Society of Civil Engineers (“ASCE”) and considers it a very respectable organization, and the ASCE defines “critical path” as “the series of logically connected tasks that define the minimum overall duration for completion of the Project also known as the longest path. There can be more than one critical path in the schedule.” (Tr. 197:11-23, 198:1-9 Day 7.)

211. With regard to the issue of a single critical path versus the existence of multiple critical paths, the Court finds that despite the ASCE definition permitting the existence of multiple critical paths on a project schedule, Mr. Wolf insists that Plant V has only one critical path, i.e. that which ran through the electrical substation. (*Id.* 10-17.) The ASCE defines “critical delay” as “a delay that causes an impact to the Project completion date.” (*Id.* 199:15-18.) The ASCE defines “concurrent delay” as “a delay to the project critical path caused concurrently by multiple events, not exclusively within the control of one party.” (*Id.* 21-24.) Mr. Wolf testified regarding ASCE’s definition of “concurrent delay” as follows: “No, I don’t agree with that definition to be honest with you because you just described the concurrent delay or the delays that I said I testified earlier today that happened at the same time.” (*Id.* 200: 1-4.)

212. Mr. Wolf concluded that J.F. Allen’s delay to the completion of the Project caused the Plant V start-up to be delayed from the Baseline Schedule finish date of July 14, 2015, until

the actual in-service date of April 8, 2016. (Tr. 203:2-5, Day 7.) Mr. Wolf used a critical path method of scheduling analysis that utilized an as-planned vs. as-built schedule. (*Id.* 194:23-24; 195:1-4.) Mr. Wolf was adamant that a project could only have one critical path. (*Id.* 196:2-8.) Mr. Wolf acknowledged (1) that the flare study for Plant V did not run through the electrical substation (2) that Plant V start-up could not occur without the flare study and (3) that remedial insulation work was required. (*Id.* 9-24.) This insulation work was not completed until April 8, 2016. (*Id.* 14-20.)

Bryon Willoughby

213. Bryon Willoughby, P.E. testified on behalf of J.F. Allen; he was retained to perform a damage analysis of the various claims, counterclaims and cross-claims in this matter. (Tr. 191:8-191:20, Day 10.) Mr. Willoughby is the principal in Willoughby 2000 PLLC and has a civil engineering degree from The Ohio State University. (J.F. Allen Ex. 236, Attachment 2). The Court admitted Mr. Willoughby as an expert in the areas of scheduling analysis, impact of damages claims, CPM methodology, and general contractor claims. (Tr. 200:5-208:15, Day 10.)

214. Mr. Willoughby testified that the level of productivity for Redstone was less than half of what was contemplated by the bid and reflected in the project schedule, Redstone “failed to pay vendors for the terms of the subcontract,” J.F. Allen has paid to Redstone or on behalf of Redstone \$904,438.00 more than Redstone is entitled under the subcontract, and that J.F. Allen and Redstone incurred significant repair costs due to alleged design deficiencies and significant costs with regard to extended project duration (*Id.* 216:6-217:14.)

215. Mr. Willoughby prepared an expert report as it relates to the schedule analysis and delay claims by MarkWest and J.F. Allen’s Counterclaims against MarkWest. (J.F. Allen Ex. 236 and 237; Tr. 77:12-77:18, Day 11.) Mr. Willoughby performed a critical path analysis of the as-

built condition for the Wall and Plant V. (*Id.* 22-24.) Mr. Willoughby testified that he was unable to utilize the MarkWest/Persimmons schedules as a delay analysis tool because the logic was not tied to actual progress of the work being performed. (*Id.* 78: 8-19.) He testified that the MarkWest/Persimmons schedules were not a usable management tool for making decisions relative to Plant V, as they relied on flawed, inaccurate logic and were not updated properly. (*Id.* 79:17-24.)

216. The testimony of Mr. Willoughby was that MarkWest's scheduling practices were grossly deficient, inaccurate and unreliable. (*Id.* 80:1-8.) Instead, Mr. Willoughby testified that he prepared his own as-built schedule, generated using meeting minutes, emails, construction contracts and various daily reports. (*Id.* 81:19-24.) J.F. Allen's Change Order (CO) 1 increased the height of the Wall, which formed the integration point between J.F. Allen's RSS wall and Lane's RSS wall. (*Id.* 88:1-24.) J.F. Allen's work had to be complete before Lane could start its RSS wall. (*Id.*)

217. Mr. Willoughby testified that in performing his as-built critical path analysis, his objective was to determine what path controlled when Plant V went on-line. (*Id.* 89:8-14.) The analysis looked not only at the electrical path, but also at the Plant V piping path. (*Id.* 90:1-15.) He testified that the piping path as-built analysis determined that completion of piping was the longest path to Plant V start-up. (*Id.*) The delivery of the UOP prefabricated pipe racks was completed in September 2015. (*Id.* 91:17-24.) Pipefitting up and connecting the pipe was follow-on work to pipe rack delivery, which was still being performed in the spring of 2016. (*Id.*) On March 15, 2016, the Plant V commissioning update noted that electrical work scope was in the punch list phase. (*Id.* 96:15-17.) Evidence in the form of the daily logs showed that that same day, MarkWest's daily logs identified 16 pipefitters and four insulators, indicating significant

mechanical and piping issues remaining. (*Id.* 97:1-6.) Based on this, Mr. Willoughby concluded that the piping path ultimately controlled completion of the Plant V project and that the delays associated with the Project did not delay the piping path. (*Id.* 7-13.)

218. The Court notes Mr. Willoughby acknowledged that electrical path and flare study/air permit were near critical path. He ultimately concluded that “the opinion of this report based on the documents reviewed and the deposition testimony of Mr. Rowlands is that the schedule for installing the pipe rack modules was driven by the fabrication of the modules and not the construction of the related foundations. Despite not having reliable project schedules, MarkWest did have knowledge as to where the Project stood with respect to piping rack modules and the UOP delays to their design, fabrication and delivery. Based on this, the late completion of the Wall did not delay the installation of the pipe rack modules.” (*Id.* 100:16-23.) Mr. Willoughby also concluded with the following opinion as to his critical path analysis:

[T]he opinion of this report is that there were five parallel and independent paths which individually would have pushed the start-up of the plant into the spring of 2016. Of these, the piping path was the critical path during the time frame of the J.F. Allen work. This path was not impacted by the J.F. Allen wall delay. Only the electrical path was impacted by the J.F. Allen wall delays. The equipment path, flare path, and inlet compression paths were not impacted by the J.F. Allen wall delay. While the J.F. Allen wall delay may have delayed certain components of the work as explained herein, it did not delay project start-up. (*Id.* 101:3-16.)

219. However, as to Wall construction delay itself, Mr. Willoughby opined that the two major issues that delayed work in his opinion, were failed rock anchors and sheared tendons; therefore, he allocated 4.8 months of delay based on a two-thirds/one-third allocation. (Tr. 258:10-259:7, Day 10). Specifically, Mr. Willoughby allocated 3.2 months to the rock anchor issue and allocated that to Redstone based on the ARA Report, and Mr. Willoughby allocated 1.6 months to AMEC for the shear tendon issue based on the ARA Report. (Tr. 258:23-259:7, Day 10). The

Court finds that based off of this testimony, Mr. Willoughby acknowledged some construction delay while not coming to the same critical path conclusions as the other experts in this matter.

Charles Bolyard, Jr.

220. Charles Bolyard, Jr., of McDonough Bolyard Peck, Inc., testified on behalf of Redstone. The Court admitted Mr. Bolyard as an expert in CPM Scheduling, Schedule Delay and impact analysis, cost estimating, claims damage cost, and impact analysis. (Tr. 77:3-86:2, Day 14.) Mr. Bolyard has a bachelor of science degree in civil engineering from West Virginia Institute of Technology and took subsequent coursework at Catholic University of America. (Tr. 78:3-78:7, Day 14.) As an initial matter, the Court notes Mr. Bolyard had the same conclusion as Mr. Willoughby that the MarkWest/Persimmons scheduling were not updated properly, and were incorrect and inaccurate. (*Id.* 111:21-112:21.) Further, the Court notes Mr. Bolyard applied as-planned versus as-built schedule delay analysis methodology¹⁸. (*Id.* 88:13- 88:16; Redstone Ex. 46.)

221. Mr. Bolyard opined that J.F. Allen's production was focused on the RSS wall portion of the Project, with less emphasis on the pile wall portion of the Project, and this circumstance critically delayed the completion of Redstone's work on the pile wall to include the remaining piles, concrete lagging, anchors, and walers. (Redstone Ex. 46.) He opined that both J.F. Allen and MarkWest's scheduling efforts were failed attempts at scheduling, as neither had viable planned schedule and neither performed periodic updates of their schedules. (*Id.*)

¹⁸ Mr. Bolyard represented that he identified the as-planned schedules for the wall project and summarized the as-built performance information, and he placed both the as-planned and as-built summaries into the time-scaled Schedulgraph and compared what was initially planned with what actually occurred on the project. (Redstone Ex. 46).

222. Mr. Bolyard opined that Redstone was entitled to 186 calendar days of excusable and compensable time extension. (Tr. 139:20-139:24, Day 14; Redstone Ex. 46.) Comprising this, he opined that a portion of those 186 calendar days delay was attributed specifically to:

- a. Impact to progress on the Wall came from issues with moisture content in the backfill produced by Lane, including delay and impact arising from backfill unit weight;
- b. Fill settlement;
- c. Broken anchor issues from October 23, 2014 to August 20, 2015;
- d. Material procurement delays, in that Redstone's purchase of materials for the pile wall was impacted by MarkWest's issuing the Notice to Proceed to J.F. Allen later than was anticipated in the RFP documents;
- e. Site access delays, attributed to J.F. Allen's failure to coordinate and maintain clear and uninterrupted access for Redstone to work all areas;
- f. Relocation of the laydown area by J.F. Allen;
- g. Non-conforming backfill delays, attributed to J.F. Allen failing to place conforming backfill behind the Wall;
- h. Constrained site delays, in that J.F. Allen damaged installed anchors and a pile and failed to coordinate its work with that of Redstone, Lane and MarkWest;
- i. J.F. Allen's surveying of anchor location delays wherein J.F. Allen committed errors in surveying to establish locations for Redstone to drill for anchors;
- j. Additional excavation by J.F. Allen to get to competent soil;
- k. Redstone having to construct more square footage of wall than anticipated in its Subcontract;
- l. Delays due to anchor repairs caused by J.F. Allen's placement of non-conforming backfill materials and unanticipated settlement of fill;
- m. J.F. Allen/AMEC's redesign of the sequence of anchor system installation and testing as backfill was being placed;
- n. Pull-out anchor failures/washout of the grout which occurred during anchor testing resulting in additional work to install declined replacement anchors with micropiles;

- o. Revised anchor testing, including field trials of the redesigned anchor installation and testing sequence;
- p. Moving testing position from the face of the mountain slope to the face of the Wall; and
- q. Weather delays, including rain delays. (Redstone Ex. 46.)

Further, Mr. Bolyard testified as to Redstone's additional home office costs as additional time-related costs. (*Id.*)

William Burton

223. William Burton testified on behalf of AMEC. Mr. Burton is employed by Gleeds USA as Vice-president for Energy, and he testified that the majority of work involves scheduling and scheduling analysis (Tr. 5:12-6:13, Day 16). Professionally, he has experience in schedule recovery and critical path analysis. (Tr. 7:14-16:21, Day 16). Mr. Burton has a masters in engineering from Leeds University in the UK. (Tr. 7:2-7:13, Day 16). The Court admitted Mr. Burton as an expert in construction scheduling and schedule impact analysis. (Tr. 18:9-18:8, Day 16.) Mr. Burton provided many rebuttal opinions to those of Mr. Bolyard. Mr. Burton testified as follows:

- a. The MarkWest delay expert did not identify a specific delay that was attributable to AMEC;
- b. The baseline schedules created for the Project by Redstone and J.F. Allen were not reliable;
- c. There were no references in the Project documents to a specific delay caused by or contributed to by AMEC;
- d. There was no evidence in the Project documents that identified an AMEC related issue as the root cause of a work delay;
- e. There were no schedule updates in the Project record that reflected any of the AMEC related delays alleged by the parties;

- f. There was no critical path impact analysis that supported the conclusions of J.F. Allen's expert and opinion that AMEC is responsible for a 1.6 month delay;
- g. There was no documentation in the Project record that supported the alleged 1.6 month AMEC delay claimed by J.F. Allen;
- h. There was no indication in the Daily Reports that anchor repair issues or waler deflection issues delayed or impacted the critical path of the Project;
- i. Anchor repair work did not prevent productive work from occurring on a day to day basis;
- j. The delays alleged by Redstone against AMEC were not supported with a critical path impact analysis;
- k. The delays claimed by Redstone against AMEC were not backed by any supporting documentation that proved the durations of delay claimed were accurate or well founded;
- l. There is no proof that Redstone's claimed delays against AMEC were actually the sole cause of any delay to the progress of Redstone's work;
- m. There was no evidence in the Project record that repairs performed by Redstone were critical items based upon project documentation and Daily Reports;
- n. Redstone and J.F. Allen were able to continue productive work while anchor repairs were being made;
- o. There is no evidence that repairing sheared anchors caused Redstone a 45-day critical path delay;
- p. There is no evidence that repairing sheared anchors interrupted the flow of Redstone productive work necessary for the completion of the Project;
- q. None of the changes or issues raised by Redstone or J.F. Allen were ever shown to affect the critical path of the Project;
- r. There is no evidence in the Project record of a 14-day Project delay related to waler deflection issues;
- s. There is no evidence in the Project record demonstrating a 24-day delay related to increased Wall square footage;
- t. There is no evidence in the Project record that the anchor testing activity actually delayed the completion of the Project;

- u. The testing of anchors was not a critical path schedule item;
- v. Moving testing from the rock face to the Wall face did not add more time for the testing activity;
- w. During testing activities, the contractors were still able to perform productive work on the Project; and
- x. The home office overhead claim is not justified because Redstone was never on standby and because Redstone caused concurrent delays to the Project completion.

(Tr. 22:1-41:12, Day 16; AMEC Ex. 264.)

CONCLUSIONS OF LAW REGARDING DELAY

224. Although West Virginia authority on the subject of delay damages is sparse, persuasive authority from other jurisdictions delineate the standards necessary for proving and recovering delay damages. Authority on the subject can be found in the well-developed federal court of claims system inclusive of the boards of contract appeals. Indeed, according to well-developed authority, a party seeking to prove liability for delay has the burden of proving the extent of the alleged delay, the causal link between the wrongful acts and the delayed performance, and the alleged harm stemming from the delay. *Kinetic Builder's Inc., v. Peters*, 226 F.3d 1307, 1316 (Fed. Cir. 2000); *Essex Electro Eng'rs, Inc. v. Danzig*, 224 F.3d 1283, 1295 (Fed. Cir. 2000).

225. The Court of Federal Claims has more clearly and precisely defined the standard that parties must meet in order to recover delay damages. According to such standard, a plaintiff is required to show (1) that an unreasonable delay to the work was caused by the defendant; (2) that the defendant is the sole proximate cause of the work delay; and (3) the amount of damages to which the plaintiff is entitled. *See TB Penick & Sons, Inc. v. United States*, 2009 U.S. Claims LEXIS 434, *8-9 (Ct. Cl. Dec. 7, 2009) (citing *Merritt-Chapman & Scott Corp. v. United States*, 528 F.2d 1392, 1397-98 (Ct. Cl. 1976)). Perhaps most importantly, in showing that the defendant was the sole proximate cause of the delay, the plaintiff is also required to show that "it was not

responsible for any concurrent delay that would have equally delayed the contract, regardless of the [defendant's] action or inaction.” *Id.* (citing *Merritt-Chapman & Scott Corp.*, 528 F.2d at 1397-98). Similar to the above, the Court of Federal Claims has further elaborated on the standard of proof by holding that the extent of a claimed delay must be proven to a reasonable degree of accuracy. *PCL Constr. Servs., Inc. v. United States*, 47 Fed. Cl. 745, 801 (Ct. Cl. 2000) (citing *Servidone Constr. Corp. v. United States*, 931 F.2d 860, 861 (Fed. Cir. 1991)). Moreover, in proving a delay claim, it has been noted that the plaintiff bears the “heavy burden” of demonstrating each element of standard of proof by “substantial evidence.” *William F. Klingensmith, Inc. v. United States*, 731 F.2d 805, 808-09 (Fed. Cir. 1984); *Blinderman Constr. Co., v. United States*, 695 F.2d 552, 559 (Fed. Cir. 1982); *L&A Jackson Enterprises v. United States*, 38 Fed. Cl. 22, 37 (Ct. Cl. 1997).

226. Considering the foregoing proof requirements, “broad generalities” that one must have caused some delay or damage because the other took longer than anticipated to complete the contract are insufficient to meet the basic burden of proof requirements. *Commerce Int’l Co., v. United States*, 167 Ct. Cl. 529, 542-43 (Ct. Cl. 1964). Instead, in order for a contractor to recover delay damages, there must be “specific evidence” showing that activities on the project’s critical path were delayed solely by a party’s action with no concurrent delay. *See Hoffman Constr. Co. of Oregon v. United States*, 40 Fed. Cl. 184, 198-99 (Ct. Cl. 1998). In establishing the causal link for extended term delay damages, the aggrieved party must show that the other’s action affected activities on the critical path during performance of the contract; only delay on the critical path that affects a project’s completion date is compensable. *Kinetic Builder’s Inc., v. Peters*, 226 F.3d 1307, 1317 (Fed. Cir. 2000). In analyzing whether a project delay is the responsibility of one party or the other, or whether the subject delay was concurrently caused, the Critical Path Method

(“CPM”) is the prevailing universally accepted method used to analyze and allocate responsibility for delay. *Hoffman Constr. Co. of Oregon*, 40 Fed. Cl. at 198; Michael R. Finke, *The Burden of Proof in Government Contract Schedule Delay Claims*, 22 Pub Contr. L.J. at 135-37. Indeed, because of its universal acceptance, construction contracts often require that the CPM schedule be regularly updated in order to provide an accurate representation of the status of the project and any delays that are in effect. *Hoffman*, 40 Fed. Cl. at 197-98; *MACTEC, Inc. v. Bechtel Jacobs Co., LLC*, 346 Fed. Appx. 59, 62 (6th Cir. 2009); *Wayne Knorr, Inc. v. DOT*, 973 A.2d 1061, 1067 (Penn. 2009). CPM schedules are so important from a proof standpoint that many courts require that the contractor utilize the contract required CPM scheduling to “prove that the critical path of work was prolonged in order to prove a delay in project completion.” *Hoffman*, 40 Fed. Cl. at 197-98.

227. Consistent with the general acceptance of the CPM analysis, the Court of Federal Claims requires that a CPM schedule not only be utilized but updated throughout project progress in order to accurately reflect delay impact. As the Court of Federal Claims has held, “accurate, informed assessments of the effect of delays upon critical path activities are possible only if up-to-date CPM schedules are faithfully maintained throughout the course of construction.” *Sollitt Constr. Co. v. United States*, 64 Fed. Cl. 229, 241 (Ct. Cl. 2005) (quoting *Blinderman Constr. Co.*, 39 Fed. Cl. at 585). As further explained by the Court of Federal Claims:

The reason that the determination of the critical path is crucial to the calculation of delay damages is that only construction work on the critical path ha[s] an impact upon the time in which the project [i]s completed. If work on the critical path [i]s delayed, then the eventual completion date of the project [i]s delayed. Delay involving work not on the critical path generally ha[s] no impact on the eventual completion date of the project. . . . [The] critical path periods provide the court with the foundation necessary to reach delay damage conclusions.

Mega Const. Co., Inc. v. United States, 29 Fed. Cl. 396, 425 (Ct. Cl. 1993) (quoting *G.M. Shupe, Inc. v. United States*, 5 Cl. Ct. 662, 728-30 (Ct. Cl. 1984)).

228. As can be gleaned from the CPM discussion above, the principle of concurrent delay is highly relevant to the delay claim discussion. Succinctly stated, a concurrent delay occurs when the party claiming delay contributes to the delayed completion of the project. In other words, where both parties contribute to a period of delay, neither can recover damages unless the record establishes a clear apportionment of the delay and the expense attributable to each party. *T. Brown Constructors, Inc. v. Pena*, 132 F.3d 724, 734-35 (Fed. Cir. 1997); *William F. Klingensmith, Inc.*, 731 F.2d at 809; *Blinderman Constr. Co.*, 695 F.2d at 559. Stated differently, in order to recover damages for any particular period of delay, the plaintiff must show that the defendant was the “sole proximate cause” of the delay, and that there are no concurrent delays, which absent a “clear apportionment” will defeat any delay recovery. *PCL Constr. Servs., Inc. v. United States*, 47 Fed. Cl. 745, 801 (Ct. Cl. 2000); *Cleveland Constr., Inc. v. Ellis-Don Constr., Inc.*, 210 N.C. App. 522, 539-40 (N.C. Ct. App. 2011).

229. Further, to the issue of concurrent delay, most courts have followed the rule that neither party can recover from the other where each has contributed to the delays. See *CCM Corp. v. United States*, 20 Cl. Ct. 649 (Ct. Cl. 1990); *Spirit Leveling Contractors v. United States*, 19 Cl. Ct. 84, 96 (Ct. Cl. 1989); *Seubert Excavators, Inc. v. Eucon Corp.*, 125 Idaho 409, 414-415 (Idaho 1994); *Kelso v. Kirk Bros. Mech. Contrs*, 16 F.3d 1173, 1176 (Fed. Cir. 1994). However, courts have allowed parties to recover delay damages due to concurrent delay, but only if the delays caused by the parties can be apportioned to that party. See *George Sollitt Constr. Co.*, 64 Fed. Cl. at 240 (Ct. Cl. 2005). The court in *George Sollitt* stated, “To recover for the delayed completion of the project, not only must the plaintiff disentangle its delays from those allegedly caused by [the

defendant], but the delays must have affected activities on the critical path.” *Id.* at 241. Furthermore, courts have similarly held that the burden is upon the party seeking damages to separate its delays from those chargeable to the other party. *City of Westminster v. Centric-Jones Constructors*, 100 P.3d 472 (Colo. Ct. App. 2003); *T. Brown Constructors, Inc.*, 132 F.3d at 734.

230. Consistent with the foregoing law, Pennsylvania courts have also held that delay claims require certain proof and that concurrent delay can invalidate a plaintiff’s claim for delay damages. In *Wayne Knorr, Inc.*, the Commonwealth Court of Pennsylvania held that the plaintiff must prove: “(1) the extent of the delay with a reasonable degree of accuracy; (2) the delay was caused solely by the government’s actions; and (3) the delay caused specific, quantifiable injury to the contractor.” 973 A.2d at 1081 (citing *Servidone Constr. Corp.*, 931 F.2d 860). Following other jurisdictions holdings discussed above, the court also noted that a plaintiff, “. . . must show the [defendant] was the ‘sole proximate cause’ of the delay and no concurrent cause would have equally delayed the contract, regardless of the [defendant’s] action or inaction.” *Id.* (citing *Merritt-Chapman & Scott Corp.*, 208 Ct. Cl. at 650). Therefore, concurrent delay with no clear apportionment of fault between parties who caused such delay can defeat claims for delay damages.

231. Recognizing the tough hurdles that must be navigated in order to recover delay damages, the Commonwealth Court of Pennsylvania affirmed a judgment from the Board of Claims denying delay damages asserted by the plaintiff. *A.G. Cullen Constr., Inc. v. State Sys. of Higher Educ.*, 898 A.2d 1145 (Penn. 2006). With regard to the plaintiff’s attempt to claim delay damages, the Court cited the same authority (*Servidone* and *Merritt-Chapman*) that was cited in *Wayne Knorr, Inc.* as described above. *See Id.* at 1160. The Court further held that “[i]t is incumbent on a contractor not only to quantify the damages but also to connect the alleged losses

to the particular incident of delay. Thus, where each party bears responsibility for a portion of the total project delay, the plaintiff must prove how the lump sum of extra cost can be broken down and assigned to the responsible party.” *Id.* at 1161 (citing *Lichter v. Mellon-Stuart Co.*, 305 F.2d 216 (3rd Cir. 1962); *Wunderlich Contr. Co., v. United States*, 173 Ct. Cl. 180 (Ct. Cl. 1965)). The Board ultimately found that, despite a short period of suspended work, the record did not provide sufficient evidence to attribute specific periods of delay to the defendant. *Id.* As such, the delay claim did not meet the standard of proof required for recovery.

232. [A]ssessing "reliability" is a shorthand term of art for assessing whether the testimony is to a reasonable degree based on the use of knowledge and procedures that have been arrived at using the methods of science — rather than being based on irrational and intuitive feelings, guesses, or speculation. *In re Flood Litigation*, 222 W.Va. 574, 582 n. 5, 668 S.E.2d 203, 211 n. 5.

Analysis Regarding Delay

233. Here, the Court concludes that J.F. Allen was required to complete work under the Design-Build Contract by March 31, 2015. The Court finds there was never any Change Order by J.F. Allen to delay or change the completion date of March 31, 2015. The Court finds the evidence conclusively established that the Design-Build Contract provided that “time is of the essence.” Where time is of the essence in the performance of a contract, a delay in performance beyond the period specified in the contract, unless caused by the other party or waived by such party, will constitute a breach of the contract. *See Elkins Manor Associates v. Eleanor Concrete Works, Inc.* 183 W. Va. 501, 396 S.E.2d 463 (1990).

234. The Court finds and concludes that J.F. Allen failed to meet the completion date requirement under the Design-Build Contract. However, the Court finds persuasive J.F. Allen's arguments that MarkWest is also partially at fault for or was the cause of some of the delays.

235. The Court concludes that J.F. Allen was contractually obligated to coordinate with other site contractors, including Lane. The Court notes that J.F. Allen was not in privity of contract with Lane; rather, MarkWest contracted with Lane via the Excavation Contract. The Court further finds from the evidence presented at the bench trial that J.F. Allen went to MarkWest and asked them to no avail to slow Lane down when the backfill stockpile was backing up. However, the Court finds that J.F. Allen still had the contractual obligation to coordinate with Lane. Therefore, the Court concludes that J.F. Allen was responsible for some delay, in breach of the Design-Build Contract with MarkWest.

236. The Court also finds that MarkWest was responsible for some concurrent delay that delayed Project completion, regardless of any of the Defendants' actions or inactions and that those activities on the Plant's critical path were not delayed or affected by J.F. Allen's work on the Project. For instance, at the beginning of the project, MarkWest caused a delay in Contract execution, which delayed the ordering of materials. (Tr. 270-271, Day 12.) The commencement of Wall construction was delayed by steel procurement (Tr. 185, Day 3; AMEC Ex. 36.) The Project started late due to the late issuance of the Notice to Proceed by MarkWest, which caused the late order of steel and delivery of steel to the Project. (Tr. 193, Day 9.) Also, MarkWest did not coordinate with Lane, and the backfill stockpiles ultimately had to be moved. The Court finds if the Project had maintained its original schedule, winter weather would have had less effect on the construction of the Project. However, the Court heard testimony that in projects such as this, almost always there is some delay and the Court, in considering MarkWest's own impacts to

startup and lack of coordinating the timing of the work of Lane with J.F. Allen, finds it is not unreasonable to account for some winter weather impact.

237. The Baseline Schedule had the Plant V start-up date as June 30, 2015. (*Id.*) However, the Court finds this date was impossible or unrealistic because it required and contemplated the Plant V pad being ready for construction on November 15, 2014. (*Id.* 94:15-24, 95:1.) MarkWest Project Manager Dan Rowlands acknowledged that this completion date for pad construction was an “impossibility.” (*Id.* 95:3-4.) On cross-examination, Mr. Wolf was asked if he agreed that the Baseline Schedule was impossible and lacked logic, as testified to by Mr. Rowlands. He responded, “I can’t get too critical about a schedule that is really put in for procurement purposes...” (Tr. 207:14-24, Day 7.)

238. Furthermore, the Court finds MarkWest never advised J.F. Allen that the Baseline Schedule had a Plant V finish date of July 14, 2015, nor was J.F. Allen provided a copy of the Baseline Schedule. Similarly, J.F. Allen was not advised as to Westcon Bilfinger, Inc.’s (“Westcon”) notice to proceed on July 1, 2015, when they began mobilizing as to plant construction. Furthermore, Lane was not contractually obligated to complete its pad preparation until April 30, 2015. (*Id.* 89:14-23.)

239. Regarding the critical path, Westcon commenced performance of its mechanical work shortly after mobilization and continued beyond Plant V’s start-up date of April 8, 2016, providing evidence that Westcon’s ultimate duration on the Plant V project had nothing to do with the Wall completion. (*Id.* 201:1-16.) More so, the Court heard testimony that the electrical substation did not require any mechanical work once the buildings were set. Therefore, the Court finds that the mechanical completion of Plant V constituted one critical path to the start-up of Plant V.

240. The Court further finds electrical completion of Plant V constituted another critical path to the start-up of Plant V. The flare study and resultant mechanical rework of vessel insulation constituted a third critical path to the startup of Plant V. Plant V could not start-up without being mechanically complete, electrically complete and without the flare study work performed. Accordingly, the Court finds mechanical completion, electrical completion, and flare study rework all caused critical delay to the completion of Plant V. Similarly, all three items constituted concurrent delays to Plant V start-up. In other words, the Court finds that regardless of any work, or delays in the work on the Project, Plant V would have been delayed. MarkWest, by and through Mr. Wolf, its only witness for the delay claim, made no effort to consider the collateral delays that occurred during Plant V construction regardless of any activities on the Project.

241. With regard to concurrent delays, the Court finds that UOP was hired by MarkWest as the engineering firm for Plant V. The UOP mechanical/electrical bid package was anticipated to be received in December 2014 but was extended until January 15, 2015. Per the October status report, Mr. Rowlands reported that its target milestone was to have all mechanical construction bids received on or before January 15, 2015. (Tr. 98:18-24; 99:1-4, Day 2 a.m.) UOP failed to meet this milestone. *Id.* In fact, UOP did not achieve this milestone until April 15, 2015. *Id.* Additionally, the milestone of achieving an air permit for the addition of Plant V was initially targeted for submittal on or before November 15, 2014. *Id.* Yet MarkWest's air permit application was not submitted to the West Virginia Department of Environmental Protection until April 2015. *Id.* UOP was also responsible for issuing a flare study, as Plant V was adding new ignition sources to the Facility. (J.F. Allen Ex. 19; Tr. 103:19-24; 104:121, Day 2 a.m.) UOP was late with all of its deliverable designs, studies and equipment supply to MarkWest. (*Id.* 104:9-21.)

242. UOP's design for Plant V continued to be delayed, with UOP projecting a complete mechanical package to be submitted by the second week of February 2015. (See J.F. Allen Ex. 24; Tr. 112:22-24; 113:1-9, Day 2 a.m.) Mr. Rowlands responded that this was unacceptable; MarkWest expected a complete mechanical and electrical bid package by January 31, 2015. (*Id.* 113:10-24.) Mr. Rowlands justified this demand to UOP by advising "our full bid package release date slides with every day UOP missed the January 31, 2015 date." (*Id.* 114:1-9.) UOP did not achieve the January 31, 2015 bid package deadline, which was already an extended date. (*Id.* 9-20.) Ultimately, the UOP bid package was not received until April 15, 2015 – nine weeks beyond its extended deadline. (*Id.* 16-20.). The Court finds Mr. Wolf's analysis does not account for this delay at all; instead, he assumes that Plant V would have already been under construction, if not for the Wall Project.

243. The Court finds that the Plant V project could not be out for bid for any work to be done until the UOP bid package and design documents were available, which did not occur until April 15, 2015. (*Id.* 101; 1-20.) The Court notes that under the Baseline Schedule, these bid packages would have had to have been done, at the latest, in the summer of 2014 to keep the Baseline Schedule. In December 2014, Mr. Rowlands advised his team that UOP continued to be late with engineering services and products, thereby putting MarkWest in a tough spot on bidding and construction. (J.F. Allen Ex. 23; Tr. 110:15-24, Day 2, a.m.) At this time, the Plant V construction bid was split into civil foundations and mechanical/electrical packages. (*Id.*) Further, Mr. Rowlands was projecting the mechanical completion date for Plant V to be October 22, 2015, rather than the July 2015 date set forth in the Baseline Schedule. (*Id.* 111:4-10.) Mr. Rowlands' supervisor John Paul Elder advised that MarkWest would need to accelerate its contractor to achieve a July 2015 start-up and that this would be "extraordinarily costly and potentially

impractical.” (*Id.* 111:11-18.) In response to Mr. Elder’s suggestion to accelerate the Plant V contract schedule, MarkWest’s Chief Operating Officer Gregory Floerke wrote Mr. Elder and Mr. Rowlands, “based on EQT 2015 volume update that Paul Kress sent in this week, does not appear that there will be justification to spend more money to accelerate Plant V.” (*Id.* 112:1-21.)

244. Following the issuance of the UOP bid package, bids for Plant V were due on or before May 4, 2015. (J.F. Allen Ex. 41; Tr. 16:8-15, Day 2 p.m.) By this time, the Wall had not delayed the Plant V mechanical and electrical bid award. (*Id.* 16-23.) By letter of May 14, 2015, Westcon submitted four proposed lump sum bid options with different start and completion dates. The longer the proposed project duration was, the lower priced the bid. (J.F. Allen Ex. 41A; Tr. 18:15-24, Day 2 p.m.) MarkWest selected the Westcon proposal with a start date of July 1, 2015, and completion date of October 15, 2015, which was the most expensive proposal because its duration was the shortest. (*Id.*) The most expensive proposal was chosen because Mr. Rowlands wanted to accelerate the Project to a three-and-a-half month duration, despite Mr. Floerke’s admonishment that there was no justification for acceleration. (J.F. Allen Ex. 17; *Id.* 19:1-4, 23-24.) The Westcon proposal was based on MarkWest awarding the Project on or before May 18, 2015, with a day-to-day extension of mechanical completion beyond the award date. (J.F. Allen Ex. 41A; Tr. 19:8-21, Day 2 p.m.) Accordingly, Westcon’s Project duration would be extended for each day that MarkWest failed to issue an award to Westcon beyond May 18, 2015. (*Id.*)

245. Ultimately, MarkWest waited until June 2, 2015, to award Westcon the Plant V contract. (*Id.* 20:10-12.) MarkWest’s delay in awarding Westcon the Plant V contract extended the Westcon completion date by 14 days to October 31, 2015. (*Id.* 21:1-4.) The Court notes that MarkWest asked Westcon for this acceleration time, negotiated for it, paid Westcon for this

acceleration time and then failed to take advantage of it and utilize it, and it is now attempting to seek this acceleration time cost in damages from the Defendants in this civil action. (*Id.* 2-7.)

246. As of June 2, 2015, the date of the MarkWest/Westcon contract, to accept the Baseline Schedule's finish date of July 14, 2015, Westcon had 44 days to build Plant V, which the Court notes is another impossibility. As Mr. Rowlands testified, the Wall Project did not delay the design or award of the Plant V contract that wasn't scheduled to start until July 1, 2015. (Tr. 15:16-23, Day 2 p.m.) The Court finds that as of the date of the Westcon contract, June 2, 2015, the Project had not caused any delay to UOP's design and bid package, yet Mr. Wolf assumes under his Baseline Schedule that the foundations for Plant V would have been done in 2014. The Court further finds these are foundations that were not even designed until April 2015, let alone awarded to a contractor for work to begin.

247. As of August 25, 2015, Chapman Corporation, MarkWest's foundations contractor for Plant V, had completed all of its foundations except for the electrical substation. (J.F. Allen Ex. 47; Tr. 28:4-9, Day 2 p.m.) All mechanical work was available for Westcon to perform at that time. (*Id.*) Westcon did not have any piping work to perform in Plant V's substation. (*Id.* 29:21-22.) The only mechanical work within the electrical substation was structural steel for the setting of buildings. (*Id.* 30:1-4.) As of September 17, 2015, Westcon was not on schedule to meet its in-service date of October 31, 2015. (J.F. Allen Ex. 63; Tr. 42:1-3, Day 2 p.m.) As of October 15, 2015, J.F. Allen had completed its fill operation for the Project and the electrical substation pad was available for foundations. (J.F. Allen Ex. 49; Tr. 30:5-15, Day 2.) In addition to electrical substation availability, Westcon delayed mechanical completion due to welding issues, crane tip over, and employee misconduct. (Tr. 41:7-24; 42:1-7, Day 2 p.m.) These events caused Westcon to shut down for a safety review. (*Id.* 43:8-11.)

248. As of February 11, 2016, Westcon was still installing its original scope of piping work; work not considered punch list work by MarkWest, as testified to by Mr. Rowlands. (J.F. Allen Ex. 66; Tr. 45:14-24, Day 2 p.m.) Plant V could not operate without the remaining mechanical work being performed by Westcon. (*Id.* 46:1-4.) By this time, Plant V was very close to being electrically complete. (*Id.* 5-13.) In fact, Mr. Rowlands reported to David Fitch, MarkWest's Vice-President of Engineering, that he anticipated electrical completion to occur on February 19, 2016, with mechanical completion to be achieved by February 26, 2016. (J.F. Allen Ex. 67; Tr. 48:7-22, Day 2 p.m.)

249. On or about February 26, 2016, MarkWest began commissioning of Plant V. (J.F. Allen Ex. 68; Tr. 52:14-18, Day 2 p.m.) At the time of the first commissioning update on February 26, 2016, Westcon was still performing mechanical, original scope piping work. (*Id.* 54:9-21.) MarkWest reported electrical work scope to be 99% complete. (*Id.* 55:2-7.) Mechanical instrumentation installation was a predecessor activity to energization of the instrument. (*Id.* 55:22-24; 56:5-8.) Commissioning Update No. 23 was issued by MarkWest on March 22, 2016, and identified ongoing mechanical work as the continued installation of instrumentation and tubing. (*Id.* 56:12-22; 57:1-11.) Ongoing electrical work involved wiring instruments as they were installed. (*Id.*)

250. Also noteworthy is that repairing insulation required by the late delivery of the flare study commenced on March 22, 2016, under mechanical commissioning, and remained an item on the commissioning updates through April 8, 2016. (J.F. Allen Ex. 68.) Plant V could not start-up until these insulation repairs were complete. (Tr. 59:20-24; 60:1-20, Day 2 p.m.) Accordingly, Plant V's in-service date commenced on the day insulation repairs were completed. (*Id.* 60:5-20.)

Mr. Rowlands testified that the late flare study and resultant vessel insulation re-work were on their own critical path, independent of the electrical substation of Plant V. (*Id.* 6-7.)

251. Commissioning and start-up of Plant V were complete and in-service as of April 8, 2016, a week shy of the one-year anniversary of the UOP design and bid package submittal. (*Id.* 36:15-22.) Following Plant V's start-up, MarkWest Project Engineers Mr. Adams and Mr. Rowlands were tasked with compiling a "UOP deficiency list." (J.F. Allen Ex. 69; Tr. 69:17-24; 70:1-15, Day 2 p.m.) In transmitting this UOP deficiency list to MarkWest contract specialist, Michael Fisher, Mr. Rowlands wrote:

Attached is the Plant V (J-362/D) UOP deficiency list. Each of these items to some degree was caused by UOP deficient engineering.

Special note on line one – this was the true up with Westcon relating to missing drawings in the bid package that UOP supplied three days into the bid process (months late). This work would have been priced into the lump sum proposal from Westcon, but at a more competitive rate than COR amount.

Special note on flare study COR's – UOP completed the flare study over one year late. Original design work was installed, paid for, and demolished to make the changes. If UOP had performed the work on time, COR's wouldn't have occurred. We are working on putting a price on the items at the end of the list. It will be six figures. I continue to hold their invoice for \$950k.

(*Id.*)

252. As indicated by Mr. Rowlands, the flare study necessitated modification to the vessels as it related to their installation. (*Id.*) This work was being performed in February 2016 because of the late flare study. (*Id.*) In fact, Mr. Rowlands noted in the commissioning updates that the insulation repairs were being performed up to the last day of commissioning when Plant V started up on April 8, 2016. (J.F. Allen Ex. 68.) Plant V could not have come on-line without those changes to the insulation of the vessels. (Tr. 59:20-24; 60:1-4, Day 2 p.m.) Mr. Rowlands

acknowledged that the flare study and the modifications were on their own critical path to the start-up of Plant V. (*Id.* 60:5-8.) Mr. Rowlands specifically acknowledged that the flare study and plant modifications were not dependent upon electrical substation completion. (*Id.* 5-8.)

253. Mr. Rowlands also testified that the entire Plant V project could not have been constructed without the flare study and resultant changes to vessel insulation. (*Id.* 9-17.) Although Mr. Rowlands attempted to discount the magnitude of the vessel insulation modifications, he did acknowledge that Plant V could not have operated without those changes being made. (*Id.* 18-20.) Mr. Rowlands testified that the electrical work on Plant V was complete in March 2016. (*Id.* 73:8-10.) Mr. Rowlands further acknowledged that Plant V was not mechanically complete by the time electrical had reached completion in February 2016. (*Id.* 11-12.) Mr. Rowlands testified that mechanical completion was on a separate critical path from electrical completion. (*Id.* 13-15.) Mr. Rowlands further acknowledged that not only did UOP design deficiencies delay the flare study, but the missing mechanical drawings from the UOP bid package also delayed the Project's mechanical work. (*Id.* 58:19-24.) MarkWest back charged UOP approximately \$2 million in costs it incurred due to UOP's design deficiencies. (J.F. Allen Ex. 69.) Of that, \$1.7 million was allocated to the flare study and missing drawing delays. (*Id.*)

254. MarkWest argued J.F. Allen was 8.8 months behind/responsible for delay, and it proffered it seeks \$6,681,981.00 for profits lost under the EQT contracts in damages based on that amount of time, as well as an additional \$10,967,232.00 for costs incurred as a result of Project delay. The Court notes that according to the Design-Build Contract, the contract deadline for mechanical completion of the Wall was February 28, 2015, and the deadline for final completion of the Wall was March 31, 2015. (AMEC Ex. 23, p. 1.) The Plant actually came online on April 8, 2016. (J.F. Allen Ex. 55.)

255. In contrast, the Court finds that Mr. Willoughby, J.F. Allen's delay expert, opined that based upon the added work as reflected in J.F. Allen Change Order requests, MarkWest should have extended the date for mechanical completion by 21 workdays to April 21, 2015, and because J.F. Allen completed its fill on October 21, 2015, there was an extended Project duration of 5.82 months. The Court finds Mr. Willoughby further opined that of the 5.82 months of additional duration, J.F. Allen was accountable for one month, Redstone was accountable for 3.2 months for its rock anchor issues, and AMEC was accountable for 1.6 months for tieback, anchor, and waler design issues.

256. With regard to MarkWest's expert, Bradley Wolf, the Court finds his analysis unreliable for multiple reasons. First, the Court finds Mr. Wolf's expert opinion that the Plant V project had one, sole critical path to be not credible and not reliable. To the contrary, the testimony of MarkWest's Daniel Rowlands clearly establishes that multiple critical paths on a project are possible. Specifically, Mr. Rowlands' testimony establishes that there were three critical paths to the start-up of Plant V: (1) mechanical completion (2) electrical completion and (3) the flare study and resultant vessel insulation repair. Rather than acknowledge that the flare study was on a separate critical path than electrical completion, as testified to by Mr. Rowlands, Mr. Wolf refused to acknowledge the flare study. Contrary to Mr. Wolf's testimony, the Court finds that Mr. Wolf has presented papers to the American Society of Civil Engineers ("ASCE") and considers it a very respectable organization, and the ASCE defines "critical path" as "the series of logically connected tasks that define the minimum overall duration for completion of the Project also known as the longest path. There can be more than one critical path in the schedule." (Tr. 197:11-23, Day 7.) Second, the Court finds Mr. Wolf's analysis unreliable because he ignored the concurrent delays wholly unrelated to the project or J.F. Allen, as the testimony clearly established that the Plant

could never have been completed by July 14, 2015, due to the concurrent delays attributable to MarkWest and others. Third, the Court deems Mr. Wolf's critical path methodology (hereinafter "CPM") analysis of the as-planned versus as-built methodology to be flawed and not credible because it is reliant upon the Plant V completion date of July 14, 2015, as established by a Baseline Schedule that testimony of MarkWest's own witness Dan Rowlands revealed to be unrealistic, impossible and illogical. Mr. Wolf's expert opinion not only fails to comport with the testimony of MarkWest's own witness, Mr. Rowlands, but actually contradicts it.

257. The Court further concludes this was a unique, multifaceted project, and for MarkWest's expert to turn a blind eye to concurrent delay was unreasonable. MarkWest failed to disentangle its own concurrent delays from those it attributes to J.F. Allen and the other Defendants. Plaintiff's expert witness, Mr. Wolf, did not have a sufficient factual basis for the delay claim that he provided an opinion on because he used schedules that were "impossible" and "lacked logic" according to MarkWest's own witness Mr. Rowlands. The Court concludes MarkWest failed to establish by a preponderance of the evidence that all delays with Plant V construction were associated with the Wall Project, and instead would find that while some delays with the Wall Project did occur, others were overlapped by concurrent delays with Plant V's mechanical construction.

MarkWest's Claim for Delay Damages

258. Notwithstanding MarkWest's own conduct impacting delay, the Court concludes there is some delay, but not the full 8.8 months that Mr. Wolf concluded based upon an unreasonable baseline schedule. Moreover, the Court finds some categories of delay damages were not proven by a preponderance of the evidence. The Court notes Mr. Wolf did not calculate his amount of time by which MarkWest claims it was delayed (8.8 months) at a daily rate of an

amount of money per day; instead, Mr. Wolf separated the damages into categories. (MarkWest Ex. 285B.) Therefore, the Court examines each of MarkWest's delay categories and awards damages as follows:

Impacts to Lane

259. The first category of damages in MarkWest's claimed costs incurred as a result of Project delay is impacts to Lane in the amount of \$3,060,225.00. (MarkWest Ex. 285B.) The total is broken down as follows: \$520,417.00 for constructing Soil Nail #1 out of sequence in two parts, and \$2,261,606.00 for Lane's rehandling of material and additional crushing. The Court notes, along with these costs for Lane's work, MarkWest requests administrative costs at 10%. However, the Court declines to award MarkWest its 10% markup, which is claimed without a specific description of exactly what effort was expended to justify an administrative cost markup. As such, the Court finds that the 10% administrative damages claimed are speculative, have not been proven to a reasonable degree of certainty and are not recoverable.

260. The Court finds MarkWest has proven at trial by a preponderance of the evidence delay damages in the amount of \$520,417.00 for constructing SN #1 in two parts due to the growing stockpile from J.F. Allen delays. This finding was supported by evidence in the form of COR No. 21 Daily Crushing Log and Invoices 1676858 and 1056297002RET. The Court finds the need for additional handling and recrushing was due to unplanned stockpiles of unplaced fill, which led to more moisture and in turn led to having to rehandle and recrush to spec in order to be usable. The Court has found, above, that it heard evidence at trial of J.F. Allen's actions with regard to fill, the improper placement of fill, the accumulation of fill that was being stockpiled faster than J.F. Allen was placing it, and the failure of J.F. Allen to coordinate with Lane or provide moisture control instruction.

261. The Court also has considered MarkWest's own conduct with regard to the issues with the fill. MarkWest, in its capacity as overall project manager of all contracts, failed to coordinate Lane's crushing efforts to coincide with J.F. Allen's filling/placing progress. The Court has found, above, that it recognizes that J.F. Allen had a contractual duty to coordinate with other site contractors, including Lane, who was not in privity of contract with J.F. Allen, and has concluded that J.F. Allen was thus responsible for some delay in breach of the Design-Build Contract. Specifically, with MarkWest, the Court finds that MarkWest was in a unique position with Lane and could have slowed their pace to coincide with the pace of the J.F. Allen Wall Project. Instead, MarkWest exhibited an attitude of hurriedness and lack of compromise by turning a blind eye to J.F. Allen's requests. The Court finds evidence in the form of emails from November 2014 between Barry Loren and Tyler Adams with MarkWest showed MarkWest was asked to slow Lane down for a month in order to straighten out the stockpile issue when it began to be problematic, and MarkWest, as the party in privity in contract with Lane, apparently declined to do so. (J.F. Allen Ex. 20.)

262. The Court finds that as early as October 21, 2014, evidence in the form of Daily Logs showed that Lane was stating it was running out of room for product. (J.F. Allen Ex. 18.) In support of this finding, the Court reviewed the exhibits containing MarkWest's Instructions to Bidders for the tear down of the mountain and MarkWest's contract with Lane. (J.F. Allen Ex. 9, 11.) MarkWest knew that the Project did not start timely, in part because of their late release of the Contract, which caused Redstone to be delayed in receiving necessary materials. Likewise, MarkWest was aware that less fill would be needed at the beginning of the Wall Project than at the end, by the very design of the Wall. The site congestion and inconvenience caused by not only

having to maneuver around the stockpiled fill, but also having to travel further to and from the material laydown sites contributed greatly to the overall Project delay.

263. Had MarkWest, as the Owner and Project Manager of the entire Project, taken steps early on, much of these damages could have been alleviated and mitigated. Instead, the Court concludes that MarkWest was more intent on finishing the Project as quickly as possible at all costs than it was in coordinating this very complicated hybrid Wall project. The Court would also find that the EQT take-or-pay contract motivated MarkWest to push for Project completion, sometimes seemingly at all costs, and ignored the coordination of its Excavation Contract, Design-Build Contract, and the Plant V Mechanical Construction Contract.

264. That being said, in further assessing J.F. Allen's contributions to the delay damages caused by the late completion date, the Court finds that during the November 2014 meeting held in Bridgeport, MarkWest suggested that because of the J.F. Allen Team's slow pace, it was considering cancelling the Contract and having the fill material hauled off-site rather than place it behind the Wall. J.F. Allen responded that cancelling the Contract was unnecessary and recommitted to making the original Mechanical Completion Date of February 28, 2015, by which placement of all 220,000 cubic yards of fill material behind the Wall would be complete. (Tr. 197:17-200:14, Day 1.) The Court finds that shortly after the meeting, J.F. Allen circulated a revised schedule, recovery plan and fill material volume projections that still had J.F. Allen meeting the February 28th date. (*Id.* 199:6-21; Tr. 288:13-289:6, Day 8.)

265. The Court also heard evidence that, by the end of January 2015, J.F. Allen had only placed approximately 30,000 cubic yards of fill, despite Lane having crushed approximately 144,000 cubic yards to that point, resulting in growing stockpiles. (Tr. 133:10-15, Day 7.) By February 5, 2015, with the J.F. Allen Team 35 days behind schedule, MarkWest requested another

revised schedule from J.F. Allen. (Tr. 135:3-137:3, Day 7.) In response, J.F. Allen reached out to Redstone to help pull together another recovery schedule that yet again projected a February 28, 2015, Mechanical Completion Date. (MarkWest Ex. 52.)

266. J.F. Allen also argued at trial that Lane's re-handling of fill was only necessary because Lane did not properly control moisture levels in the fill. (Tr. 107:22-109:2, Day 11.) However, this contention is also unsupported. While Lane, as the excavation contractor, was responsible for delivering backfill that met the proper moisture specifications, under the Excavation Contract, it was the Wall Contractor, namely J.F. Allen, that was responsible for establishing proper moisture control practices. J.F. Allen bid on the Excavation Contract; however, there was no evidence at trial that it communicated to Lane what moisture control specifications Lane should employ. (Tr. 201:21-202:7, Day 3; Tr. 270:3-12, Day 14.)

267. Despite J.F. Allen not providing it the required moisture control instruction, Lane did utilize two means of moisture control. The first was the re-crushing of wet fill with dry fill. The second was employing the crusting method, whereby the exterior of stockpiled material would be allowed to crust over, leaving the inside material protected from the elements. (Tr. 233:24-234:16, Day 1; Tr. 201:3-20, Day 3.)

268. The Court finds that the above-described evidence supports, by a preponderance of the evidence, an allocation of damages in this category as follows: J.F. Allen shall be responsible for 60% of the costs associated with the impacts to Lane's work, and the Court awards MarkWest \$1,669,213.80 in damages from J.F. Allen; MarkWest is responsible for the other 40% and shall be awarded \$0.00 for its 40% responsibility.

Impacts to Chapman

269. The Court next examines MarkWest's requested delay damages for impacts to Chapman. MarkWest seeks damages in the amount of \$609,990.00 in extension of site overheads, and \$35,000.00 in costs associated with the suspension of work in the residue area. (MarkWest Ex. 285B). Initially, the Court finds from J.F. Allen's expert testimony of Mr. Willoughby that the Chapman Delay Claim for extension of site overheads must be reduced to reflect credit in the amount of \$77,738.00 for reduced overtime, for an amount of \$532,252.00. The Court notes along with these damages, MarkWest requests administrative costs at 10%. However, the Court declines to award MarkWest its 10% markup which is claimed without a specific description of exactly what effort was expended to justify an administrative cost markup. As such, the Court finds that the 10% administrative damages claimed are speculative, have not been proven to a reasonable degree of certainty and are not recoverable.

270. Like Lane, who it followed in the construction sequence, Chapman's work constructing the Plant foundation also was delayed because of J.F. Allen's failure to take fill consistent with its own schedules. (Tr. 217:7-218:1, Day 3.) According to Chapman's original schedule, work on the foundations pad was to begin November 17, 2014. (Tr. 118:19-119:1, Day 7.) However, as J.F. Allen had failed to take enough fill to clear those work areas, MarkWest, in an attempt to mitigate the damages caused by J.F. Allen's delays to the Project, held back Chapman from mobilizing for just over four months, until March 23, 2015. (Tr. 284:18-21, Day 3; Tr. 144:12-24, Day 7.) Once it was able to begin work, Chapman had to work around the stockpiles, hopscotching from one available work front to another, impacting its productivity and amount of time on site. (Tr. 224:7 - 225:2, Day 3; Tr. 41:22 - 47:10, Day 2.) By mid-June of 2015, the

substation area was completely covered with stockpiled fill material and the site had run out of room to take excavated material. (MarkWest Ex. 29 to Ex. 285.)

271. MarkWest's claim for delays also includes Chapman's submittal of a second claim in the amount of \$35,000.00 to MarkWest associated with its five-day suspension of work in the residue area of Plant V ("Chapman Suspension Claim"). (Tr. 114:16-17, Day 11.) The Court finds with the suspension of work claim of \$35,000.00, it was proven by a preponderance of the evidence that a credit 5 of days is appropriate. The Chapman Suspension Claim forms part of MarkWest's claims against J.F. Allen. This suspension was due to Lane's stockpiles interfering with Chapman's access to the building pad in the residue area. (*Id.* 117:16-20.) Based on the Chapman Delay Claim, its extended overhead charge was \$5,785.35 per day. (*Id.* 118:16-18.) The Court concludes, based on the evidence presented, that Chapman's five-day suspension of work in the residue area shall be reduced to \$28,926.75. (J.F. Allen Ex. 236.) The Court notes it further finds that J.F. Allen did not prove by a preponderance of the evidence Chapman's contractual waiver of the first 14 days of delay because it was not proven by a preponderance of the evidence what amount per day was claimed and why.

272. Therefore, the Court finds the total damages for this category are \$561,178.75, which is calculated by adding \$532,252.00 for extension of site overheads, and \$28,926.75 for its five-day suspension of work in the residue area of Plant V. The Court finds that the above-described evidence supports, by a preponderance of the evidence, an allocation of damages in this category as follows: J.F. Allen shall be responsible for 60% of the costs associated with the impacts to Chapman's work, and the Court awards MarkWest \$336,707.25 in damages from J.F. Allen; also, for reasons set forth in prior paragraphs, MarkWest is responsible for the other 40% and shall be awarded \$0.00 for its 40% responsibility.

Impacts to Westcon

273. The Court next examines MarkWest's requested delay damages for impacts to Westcon. MarkWest seeks damages in the amount of \$477,655.00 for an amount MarkWest paid to Wetscon for a premium to shorten Westcon's construction duration to mitigate the delays, \$586,049.00 for contract extension for Westcon, and \$550,000.00 in acceleration costs to Westcon and costs with Westcon's electrical sub's work extended in the winter months. (MarkWest Ex. 285B). The Court notes along with these damages, MarkWest requests administrative costs at 10%. However, the Court declines to award MarkWest its 10% markup which is claimed without a specific description of exactly what effort was expended to justify an administrative cost markup. As such, the Court finds that the 10% administrative damages claimed are speculative, have not been proven to a reasonable degree of certainty and are not recoverable.

274. The Court heard evidence presented by J.F. Allen that the Westcon proposal was based on MarkWest awarding the Project on or before May 18, 2015, with a day-to-day extension of mechanical completion beyond the award date. (J.F. Allen Ex. 41A; Tr. 19:8-21, Day 2 p.m.) Accordingly, Westcon's Project duration would be extended for each day that MarkWest failed to issue an award to Westcon beyond May 18, 2015. (*Id.*) Ultimately, MarkWest waited until June 2, 2015 to award Westcon the Plant V contract. (*Id.* 20:10-12.) MarkWest's delay in awarding Westcon the Plant V contract extended the Westcon completion date by 14 days to October 31, 2015. (*Id.* 21:1-4.) The Court finds that MarkWest squandered half of the acceleration time it paid to Westcon and for which it seeks now from J.F. Allen. (*Id.* 2-7.) The Court finds the testimony at trial established that MarkWest chose to accelerate the Westcon project completion due to the delay in the issuance of the UOP design and bid package. Mr. Rowlands' testimony

established that this decision was made despite no economic justification to do so. The Project had no effect on UOP's design. As such, MarkWest cannot recover these damages from J.F. Allen.

275. Next, the Court considers the claimed \$586,049.00 for contract extension, wherein Westcon issued a Change Order for extended site costs resulting from delays. (MarkWest Ex. 285B.) The Court accepts Mr. Willoughby's expert conclusion that J.F. Allen is not responsible for MarkWest's decision to approve this Change Order due to extended costs of onsite labor, equipment and subcontractors beyond the amended Plant V completion date of October 30, 2015. The Court finds that Westcon's contract extension was wholly unrelated to the Wall Project. As a result of MarkWest-caused concurrent delays to the critical path of the Plant V Project, MarkWest cannot recover these damages from J.F. Allen.

276. Finally, the Court considers MarkWest's claim for \$550,000.00, wherein it claimed Westcon electrical subcontractor's work extended into winter months and were then forced to accelerate their work due to delays. (*Id.*) The Court accepts and deems credible Mr. Willoughby's expert testimony that the ERB Change Order was MarkWest's attempt to shift costs from its inlet compression project to J.F. Allen, based on the following testimony: The Westcon/MarkWest inlet compression contract was not entered into until October 5, 2015. J.F. Allen's contractual obligation to MarkWest never contemplated any role on inlet compression on either the Project or the Plant V project. MarkWest chose to have power available to inlet compression on January 15, 2015. To accomplish this, they accelerated the Plant V substation work of ERB. This acceleration was done exclusively for the benefit of the inlet compression project. This acceleration was not directed by MarkWest for the benefit of Plant V completion. As such, MarkWest cannot recover these damages from J.F. Allen.

277. In sum, the Court concludes MarkWest shall not recover its requested delay damages for impacts to Westcon, including the amount of \$477,655.00 for an amount MarkWest paid to Wetscon for a premium to shorten Westcon's construction duration to mitigate the delays, \$586,049.00 for contract extension for Westcon, and \$550,000.00 in acceleration costs to Westcon and costs with Westcon's electrical sub's work extended in the winter months. MarkWest shall be awarded \$0.00 for damages associated with this category.

CEC Oversight Extensions and Third-Party Inspectors

278. The Court next examines MarkWest's requested delay damages for CEC oversight extensions and third-party inspectors. MarkWest seeks a total of \$894,452.00 for damages in CEC oversight extensions and \$727,851.00 in third-party inspection costs. (*Id.*) The Court concludes MarkWest has not proven these damages by a preponderance of the evidence, because testimony established that MarkWest unilaterally and voluntarily incurred these costs. Further, the Court finds that MarkWest's exploratory testing, oversight and inspection costs are mischaracterized litigation fees associated with the retention of Exponent's Drs. Wren and Hunt, and their preparation of the Exponent Expert Report. The entities that performed testing, oversight and inspection of the Project were retained by Exponent. West Virginia adheres to the "American Rule" which requires each party to bear its own litigation costs absent a contrary rule of court or express statutory or contractual authority for reimbursement. *Smith v. First Cmty. Bancshares, Inc.*, 212 W. Va. 809, 824, 575 S.E.2d 419, 434 (2002). Accordingly, MarkWest cannot recover from J.F. Allen its litigation costs relative to the preparation of the Exponent Expert Report, including costs related to underlying inspections, the results of which Dr. Wren and Dr. Hunt relied on while forming their expert opinions. For these reasons, the Court concludes MarkWest shall be awarded \$0.00 for damages associated with this category.

Equipment Storage Fees

279. The Court next examines MarkWest's requested delay damages for unforeseen equipment storage fees. MarkWest seeks \$13,080.00 for refrigeration compressors, \$83,195.00 for power transformers, \$24,150.00 for electrical switchgear building, \$16,000.00 for residue compressors and \$196,619.00 for VFD buildings. (MarkWest Ex. 285B.) The Court notes along with these damages, MarkWest requests administrative costs at 10%. However, the Court declines to award MarkWest its 10% markup which is claimed without a specific description of exactly what effort was expended to justify an administrative cost markup. As such, the Court finds that the 10% administrative damages claimed are speculative, have not been proven to a reasonable degree of certainty and are not recoverable.

280. The Court considers concurrent delays and the credibility of the testimony with regard to establishing these damages by a preponderance of the evidence. The Court, when weighing the credibility of the evidence of damages in this category, finds testimony at trial established that although it is undisputed that the UOP mechanical/electrical bid package was not submitted to MarkWest until April 15, 2015, which resulted in MarkWest projecting the Plant would come in-service in or around November 2015, Mr. Wolf refused to acknowledge or allocate any equipment storage fees to the UOP design delay. (*Id.* 41:9-22;42:8-24.) Moreover, Mr. Wolf did not attribute any of the equipment storage to the late delivery of the UOP mechanical/electrical design bid package. (*Id.* 42:22-24;43:1-6.) All of the equipment storage costs were allocated to J.F. Allen despite the concurrent delays associated with the MarkWest design delays, late delivery of mechanical completion and late delivery of the UOP flare study resulting in follow on work.

281. Further, the Court finds that MarkWest commenced procurement of long-lead time equipment with the intention of having Plant V in-service on June 30, 2015 and finished by July

14, 2015. The equipment procurement was based upon UOP having the Plant V design electrical/mechanical bid package out for bid in December 2014. In fact, UOP did not complete its mechanical/electrical bid package design until April 15, 2015. The delay of the UOP design resulted in MarkWest projecting Plant V to be in-service in November 2015. In fact, mechanical completion was not achieved until April 8, 2016, after Plant V was electrically complete. MarkWest issued a purchase order to Delta Star on September 22, 2014, for power transformers for Plant V with a scheduled delivery of January 2015, and this was not associated with the Wall delay. (J.F. Allen Ex. 236; Tr. 127:16-19, Day 11.)

282. Mr. Willoughby concluded that the storage costs for the transformers associated with the Wall delay period yields a maximum cost of \$47,280.00. The Variable Frequency Drive (VFD) Buildings were scheduled for delivery and nearing completion in May of 2015 and would require storage until delivery and installation. (J.F. Allen Ex. 236.) MarkWest took the option of taking delivery and storing the four VFD Buildings at or near Mobley. (*Id.*) Without consulting J.F. Allen, MarkWest elected to store the buildings at the manufacturing site and ultimately incurred a cost of \$196,619.00.¹⁹ (*Id.*) Mr. Willoughby determined that MarkWest “could have found a far less costly alternative.” (*Id.*) For instance, Mr. Willoughby determined that MarkWest could have utilized a J.F. Allen-controlled suitable secure site (existing asphalt plant) less than 40 miles from the Facility. (*Id.*) The cost to use this site is estimated to have been \$18,400.00 (*Id.*) Mr. Willoughby concluded that the necessary and reasonable storage and transportation fees emanating from the Wall delay is no more than \$93,260.00 of the total \$366,348.00 claim sought

¹⁹ Relatedly, it was determined that adjustment could be made to the Motor Control Center (“MCC”) building production schedule which permitted production to remain on an early August 2015 schedule, thereby foregoing any storage fees for the MCC buildings. (J.F. Allen Ex. 236.)

by MarkWest, based on when the orders were placed, when the materials were available and what a reasonable storage charge should have been. (Tr. 127: 20-24, Day 11.)

283. For all of these reasons, the Court agrees with Mr. Willoughby's opinions, and the Court concludes that damages for equipment storage fees of \$93,260.00 have been proven by a preponderance of the evidence. The Court finds damages in this amount shall be awarded to MarkWest.

Extended Supervision Costs

284. For the reasons set forth in prior paragraphs, the Court concludes that extended supervision costs will not be awarded.

Capitalized Interest

285. The Court next examines MarkWest's damage category wherein it seeks \$3,176,365.00 for capitalized interest. MarkWest avers it incurred additional capitalized interest on its borrowings associated with the Plant construction due to delays. (MarkWest Ex. 285B). MarkWest asserts it capitalized its monthly interest payments for the borrowings associated with the construction of the Plant over the course of the Plant's construction. The incremental monthly capitalized interest expense was added monthly to the Project and only ceased when the Plant was put in operation. Because the Plant's operation was delayed a claimed 8.8 months, so was its capitalized interest expense accrual period by an equal amount. This caused MarkWest to accrue its claimed \$3,176,365.00 in increased capitalized interest costs associated with the construction of the Plant.

286. MarkWest claims that the delay to the Plant V in-service date from the as-planned Baseline Schedule of July 14, 2015 until actual in-service date of April 8, 2016, entitles it to claim interest on the purported time value of the capital used to fund Plant V. (MarkWest Ex. 228A; Tr.

158:5-23, Day 8.) In calculating the capitalized interest time period, Mr. Wolf ignored the fact that Plant V was not under contract for construction until June 2, 2015 with a Westcon mobilization date of July 1, 2015. (*Id.*) Once Plant V was in-service, the capitalized interest was added to the capital cost of the Plant that was then entered in MarkWest's accounting system for purposes of depreciating the asset over time, presumably to lower MarkWest's tax liability. (Tr. 158:5-23, Day 8.) Mr. Wolf utilized the Baseline Schedule finish date of July 14, 2015 to calculate extended capitalized interest. Again, this was based on a schedule that was "not possible and lacked logic." (Tr. 95:1-7, Day 2 a.m.)

287. The Court concludes the evidence presented was speculative. MarkWest has not proven by a preponderance of the evidence that it is entitled to these damages. Capitalized interest is tied to actual start-up of Plant V. Like with the preceding categories of delay damages, the calculation of capitalized interest was premised on a Baseline Schedule that was impossible and illogical, per MarkWest's own testimony. Also, Mr. Wolf's calculation of capitalized interest failed to account for concurrent delays that indicate Plant V could never legally have been able to be commissioned prior to April 8, 2016, at the earliest. The Court finds the in-service date for Plant V was delayed by concurrent critical path activities, which included: delayed mechanical completion, delayed flare study and associated work of demolishing and reinstalling of vessel insulation and delayed receipt of the Plant V air permit. The Court concludes that the Project completion was not the only cause of the delay to Plant V start-up and, therefore, MarkWest shall be awarded \$0.00 for damages associated with capitalized interest.

Lost Profits

288. The Court next examines MarkWest's claim for lost profits. Regarding delay, MarkWest argued J.F. Allen was responsible for 8.8 months of delay, and it proffered it seeks

\$6,681,981.00 for profits lost under the EQT contracts in damages based on that amount of time. The Court explained the EQT contracts, above, and notes the contracts between MarkWest and EQT were referred to, during trial, as “take or pay” contracts, which is to say that, upon EQT’s nomination of a processing plant and MarkWest’s construction of the nominated processing plant, EQT agreed to produce a minimum amount of natural gas for processing, or alternatively, pay a minimum amount of processing fees regardless of whether EQT produced the minimum amount of natural gas for processing. (Tr. 101:7-102:1, Day 1.)

289. The Court has already ruled, as a matter of law, MarkWest is entitled to recover its lost profits resulting from any delay in completion of the Wall for which J.F. Allen is responsible. (*See Order Denying Defendant’s Motion to Strike Plaintiff’s Expert’s New and Alternative Theory of Damages* at ¶ 22.) Accordingly, this Court having found that J.F. Allen breached its Contract, the result of which was some delay in the Project, caused by added duration beyond the contracted completion date, the Court finds that MarkWest is entitled to recover its profits lost under the EQT Contracts to the extent of the delay caused by J.F. Allen.

290. MarkWest seeks the lost profits, categorized as follows: (1) The combined lost revenue associated with the lack of NGL fractionation services to EQT and processing fees over the 8.8 month period between the planned Plant startup of July 14, 2015; and (2) the actual startup of April 8, 2016, is \$8,338,046.00. Subtracting \$1,656,065.00 in anticipated operating costs taken from MarkWest’s accounting records, the lost profit associated with the delay amounts is \$6,681,981.00. (MarkWest Ex. 285 at 57; MarkWest Ex. 285B.)

291. The Court finds J.F. Allen was responsible for some delay which resulted in lost profits, but does not find Mr. Wolf’s testimony and opinion of an 8.8 month delay to be credible because he used schedules that were “impossible” and “lacked logic” according to MarkWest’s

own witness, Mr. Rowlands. The Court considers Mr. Willoughby's expert testimony to be credible, wherein he opined after considering Daily Reports, quality control reports, conversations with Mr. Hadjis and Mr. Leatherman, that there were 5.82 months of delay to allocate, attributing one month to J.F. Allen for weather and concurrent delays, 3.2 months to Redstone for the failed rock anchor issues, and 1.6 months to AMEC for tie back and waler issues. (Tr. 257:11-259:7, Day 10). The Court finds that J.F. Allen is responsible for its part in the delay, subject to the evidence presented of MarkWest's own concurrent delays (as discussed in prior paragraphs) for which MarkWest cannot recover. The Court has taken the total amount claimed by MarkWest for 8.8 months of \$8,338,046.00, then subtracted anticipated operating costs of \$1,656,065.00 for a total lost profit claim of \$6,681,981.00. Then, the Court divided that number by 8.8 months, to reach \$759,316.02 per month of lost profits.

292. The Court finds, based upon the evidence presented, that 8.8 months of delay has not been proven by a preponderance of the evidence, and that 5.82 months of delay has been proven by a preponderance of the evidence. Therefore, the Court finds that based upon a monthly profit loss of \$759,316.02, multiplied by 5.82 months, equals \$4,419,219.24 for total lost profits. Of this amount, the Court finds that MarkWest is responsible for 40% due to concurrent delays associated with the remainder of the Plant V Project, and that the J.F. Allen Design-Build Team is responsible for 60% in the amount of \$2,651,531.54.

293. The Court would further find that of this \$2,651,531.54, that Redstone is responsible for 3.2 months of the delay due to the rock anchor issues, grouting, lack of productivity and manpower, and other reasons as previously addressed in this Order. As to the remaining 2.62 months, the Court also agrees with Mr. Willoughby's findings that J.F. Allen is responsible for one (1) month due to delay caused by weather and concurrent delay. The Court finds this would

encompass not only weather and concurrent delay, but also J.F. Allen's inability to properly manage the worksite and Design-Build Team. As to the remaining 1.62 months, the Court does not agree with Mr. Willoughby's assessment that this would be AMEC's sole responsibility. The Court has previously ruled that as to the issues concerning the shearing of the anchors, AMEC and J.F. Allen both had blame, as AMEC did not properly consider the backfill settlement in its design, and as J.F. Allen at times placed frozen and nonconforming backfill material, and for the other reasons as set forth in prior paragraphs. Therefore, the Court finds that J.F. Allen is responsible for 60% of the remaining 1.62 months and AMEC is responsible for 40% of the remaining 1.62 months.

294. Therefore, in summation, of the \$2,651,531.54 that J.F. Allen owes to MarkWest for lost profits due to delay, Redstone is responsible for 55% (for 3.2 months), or \$1,458,342.35. J.F. Allen is responsible for 34% (for 1.972 months), which equals \$901,520.72. AMEC is responsible for 11% (for 0.648 months), which equals \$291,668.47.

295. The Court finds that MarkWest is responsible for the other 40% due to its own concurrent delays as set forth in previous paragraphs, and shall be awarded \$0.00 for its 40% responsibility.

Prejudgment Interest

296. The Court next addresses MarkWest's claim for prejudgment interest. Pursuant to W. Va. Code Ann. § 56-6-31, "if an obligation is based upon a written agreement, the obligation bears prejudgment interest at the rate and terms set forth in the written agreement until the date the judgment or decree is entered ..." Here, it is not disputed that a valid, written agreement relative to the Project exists between MarkWest and J.F. Allen. However, the Court finds that the Design-Build Contract does not contain any language or provision allowing MarkWest to collect

prejudgment interest. Therefore, the Court concludes MarkWest's claim for prejudgment interest is not based upon the Design-Build Contract.

297. Further, West Virginia Code Ann. § 56-6-31, which controls awards of prejudgment interest in tort matters, permits the collection of prejudgment interest on liquidated or special damages, which include lost wages and income, medical expenses, damages to tangible personal property and similar out-of-pocket expenditures, as determined by the court. To qualify for an award of prejudgment interest, such damages must be an ascertainable pecuniary loss, that is, they must be "certain or capable of being rendered certain by reasonable calculation." *Tri-State Petroleum Corp. v. Coyne*, 240 W. Va. 542, 567, 814 S.E.2d 205, 230 (2018).

298. Here, the Court determines that MarkWest's damages are not liquidated or special and therefore, are not subject to West Virginia Code §56-6-31. Accordingly, the Court concludes MarkWest is not entitled to statutory or contractual prejudgment interest on any damages awarded herein.

J.F. Allen's Claim for Damages from MarkWest

299. The Court also considers J.F. Allen has claimed breach of contract damages against MarkWest. Pursuant to the Design-Build or Prime Contract, MarkWest agreed to compensate J.F. Allen for work performed on the Wall project. The testimony established that pursuant to the Contract, MarkWest was obligated to compensate J.F. Allen in the amount of \$12,350,000.00 for its work on the Project, which was then adjusted to a contract amount of \$13,002,830.54, which included J.F. Allen Change Orders 1, 2 , and 3. The Court finds that any additional work without Change Orders shall not be recoverable by J.F. Allen. Mr. Willoughby's expert testimony establishes that J.F. Allen was paid \$11,421,425.00 by MarkWest, leaving an unpaid Amended Prime Contract balance of \$1,581,405.10. The Court finds that MarkWest breached the Contract

by failing to completely compensate J.F. Allen for work performed on the Wall. Therefore, the Court concludes that judgment shall be entered against MarkWest and for J.F. Allen in the total amount of \$1,581,405.10.

J.F. Allen's Claim for Damages Against Redstone

300. The Court next considers J.F. Allen's breach of contract claim against Redstone. The Court found, above, the reasons why it determined Redstone breached its Subcontract with J.F. Allen. Further, the Court finds that pursuant to Article 6.19 of the General Conditions, Redstone agreed to indemnify J.F. Allen as follows:

A. To the fullest extent permitted by Laws and Regulations, Subcontractor shall indemnify and hold harmless Owner, Owner's Consultants, Design/Builder, Design/Builder's Consultants and the officers, directors, members, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) to the extent caused by Subcontractor's performance of the Work, provided that any such claim, cost, loss or damage is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Subcontractor, or any subcontractor, Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work.

B. In any and all claims against Owner, Design/Builder, Design/Builder's Consultants or any of their respective consultants, agents, officers, directors, members, partners, or employees by any employee (or the survivor or personal representative of such employee) of Subcontractor, any subcontractor, any Supplier, any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.19.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Subcontractor or any such subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts or other employee benefit acts.

B (*sic*). The indemnification obligations of Subcontractor under Paragraph 6.19.A shall not extend to the liability of Design/Builder's Consultant or to

the officers, directors, members, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

1. The preparation or approval of or the failure to prepare or approve, maps, drawings, opinions, reports, surveys, designs, or specifications; or
2. Giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

301. Pursuant to the testimony and evidence described herein, the Court finds that J.F. Allen is entitled to contractual indemnification from Redstone.

302. The Court further finds and concludes that J.F. Allen shall be awarded damages. First, J.F. Allen shall be awarded \$981,673.00 in repair costs for the five failed anchors in the bond zone with no resistance due to grout washout. In support of this finding, the Court relied upon Mr. Willoughby's expert report and testimony and the testimony of Mr. Hadjis and Mr. Leatherman. (J.F. Allen Ex. 237.) The Court further finds the AMEC field report of July 9, 2015, indicates that five anchors failed in the bond zone with no resistance due to grout washout. (J.F. Allen Ex. 161; Tr. 43:1-14, Day 9.) The anchors had been installed by Redstone in or around May 27, 2015. (*Id.* 47:17-23.) These anchors were to be proof tested at 75% of the design strength with 5' of fill on them and performance tested at 120% of design load with 15' of fill on top of them to resist testing forces. (*Id.* 44:2-23.)

303. Upon failure, the pull-out of these anchors required J.F. Allen to remove over 15 feet of compacted fill and RSS wall baskets. (*Id.*) When the failed anchors were extracted from the Wall, the grout had been washed away. (*Id.* 45:10-19.) In order to rectify the grout washout issue, AMEC issued a design modification for the declined anchors to avoid the groundwater. (J.F. Allen Ex. 170; *Id.* 46:6-22.) Redstone's failure to identify the grout washout for anchors that were installed in May 2015 in the presence of ground water constituted a breach of the Redstone Subcontract that resulted in J.F. Allen sustaining \$981,673.00 in repair costs. (J.F. Allen Ex. 237.)

304. Second, the Court concludes J.F. Allen shall be awarded \$0.00 in extended duration costs based upon Mr. Willoughby's expert report and testimony. (J.F. Allen Ex. 237.) The Court finds delay attributed to Redstone by J.F. Allen, as evidenced by Mr. Willoughby's analysis of four aspects of Redstone's work. On the other hand, the Court finds J.F. Allen, AMEC, and MarkWest also contributed to the delays in varying degrees; therefore, the Court cannot find by a preponderance of the evidence that J.F. Allen shall be entitled to its requested extended duration costs of \$615,047.00.

305. Third, the Court concludes J.F. Allen shall be awarded \$904,438.00 in damages by Redstone for its overpayment to the Redstone Subcontract, which evidence showed was the difference in the amount of Mr. Willoughby's amended contract value and payments made to or on behalf of Redstone and costs to complete Redstone's work.²⁰ In support, the Court considered the evidence presented by Redstone regarding its claim for damages from J.F. Allen. The Court considered the testimony from Mr. Bolyard and the evidence, or lack thereof, with regard to unpaid Change Orders through which Redstone was seeking damages for additional work. The additional work, described by Redstone as its unpaid Change Orders created by Mr. Waggett for Redstone, and testified about by Mr. Cunningham, were not supported by any documentation. No testimony was proffered on behalf of Redstone to substantiate or support the additional work. Therefore, the Court finds Mr. Bolyard's reliance on the Change Orders values lacked foundation.

306. The Court also heard the testimony of Terry Cunningham, who was hired by Redstone in January 2015 for the position of controller and became Chief Financial Officer in the spring of 2017. (Tr. 7: 5-18, Day 14.) Mr. Cunningham testified on behalf of Redstone to

²⁰ Mr. Willoughby concluded Redstone's amended contract value to be \$7,338,982.70, and the Court considered evidence that payments made to or on behalf of Redstone totaled \$7,335,834.51 and costs to complete Redstone's work totaled \$907,587.07, creating an overpayment in the amount of \$904,438.00 by J.F. Allen. (J.F. Allen Ex. 237).

authenticate records supplied to Mr. Bolyard. (*Id.* 10: 5-15.) Mr. Bolyard calculated Redstone's claims for Redstone Change Order 1 and Redstone Change Order 2 to be \$410,000.00. Redstone Change Order 1 to J.F. Allen is attached to Mr. Bolyard's report as Exhibit 8. (*Id.* 37: 2-17.) Redstone Change Order 1 was for beam splices and grout plant mobilization. Redstone's Change Order Work claim includes Redstone Change Order No. 2 for anchor repair, additional anchors in the North end, cased length of anchors, beam splices due to slip and change in waler design. (J.F. Allen Ex. 237.) Mr. Cunningham testified that Change Orders submitted by Redstone were prepared by Redstone's Project Engineer, Mr. Waggett. (*Id.*) Change Order 3 was for additional Wall square footage. Mr. Cunningham testified he was not aware of any back-up documentation that was provided by Mr. Waggett to support Change Order 1 and Change Order 2, both of which were analyzed by Mr. Bolyard in connection with Redstone's claim against J.F. Allen. (*Id.* 38: 11-24.) Furthermore, Mr. Cunningham had no knowledge as to how Mr. Waggett calculated any Change Orders reviewed by Mr. Bolyard. (*Id.* 37: 2-14.)

307. In sum, the Court finds Redstone's Change Orders to J.F. Allen are unsupported by Redstone testimony and/or documentation. (*Id.*) Further, the Court finds Mr. Bolyard's testimony with regard to the calculation of increased Wall area to be unreliable because the square footage of additional Wall as contained in his expert report was unsupported by his analysis and calculations proffered in his testimony. He refused to acknowledge the error in his conclusions based upon his supporting calculations. For these reasons, the Court finds Redstone failed to meet its evidentiary burden necessary to establish that it is entitled to any damages against J.F. Allen.

308. In response to Mr. Bolyard's calculations, Mr. Willoughby used Redstone's labor and equipment rates to estimate the value of this undisputed additional work. In arriving at his calculated values, Mr. Willoughby looked at the scope of the work claimed and applied Redstone's

contractual labor and equipment rates which resulted in a calculated value as opposed to a random deduction. (Tr. 237: 3-21, Day 10.) For example, beam splices were reduced from the MBP amount of \$26,000.00 to \$15,470.00. The same process was utilized for anchor repair utilizing the core and coupled repair detail from AMEC. (*Id.* 238: 4-24.) This methodology was also applied to Redstone's claim for additional anchors. (*Id.* 239: 1-12.) Redstone's claims for casing anchors during grouting was not accepted as this constituted the means and methods of Redstone's construction of the anchors. (*Id.* 239: 13-24.) Mr. Willoughby calculated the total changed work to be valued at \$302,389.00, as opposed to \$410,000.00, as calculated by Mr. Bolyard, as reflected in his report. (*Id.*; J.F. Allen Ex. 237.)

309. Mr. Bolyard also accounts for the increase in the Wall's square footage, characterized by Redstone as Redstone Change Order 3, also referred to herein as the "additional wall scope claim." Mr. Bolyard estimated this to be \$975,960.25. In calculating the value of the additional Wall scope, Mr. Willoughby priced unanchored Wall at \$50/SF per the Redstone proposal and anchored Wall at \$189/SF per the Redstone Subcontract. (Tr. 246: 1-5, Day 10.) Mr. Willoughby calculated the value of the additional Wall scope claim to be \$451,906.00, as reflected in his report. (J.F. Allen Ex. 237.)

310. In sum, the Court finds that the Willoughby 2000 Report, J.F. Allen Ex. 237, is credible, and the Court finds the values and calculations performed by Mr. Willoughby are reasonable. Therefore, the Court concludes judgment shall be entered against Redstone, and for J.F. Allen, on Redstone's breach of contract Cross-Claim.

J.F. Allen's Claim for Damages Against AMEC

311. The Court next considers the breach of contract claim between J.F. Allen and AMEC regarding AMEC's design Subcontract with J.F. Allen. The Court found, above, the

reasons why it determined AMEC breached its Subcontract with J.F. Allen. J.F. Allen shall be awarded repair costs in the amount of \$695,527.00, based upon Mr. Willoughby's expert report and testimony. (J.F. Allen Ex. 237). The costs are as follows:

Description	Cost	Assigned to
Thrasher monitoring costs	\$50,571.00	AMEC
J.F. Allen's costs to repair deformed walers	\$136,898.00	AMEC
J.F. Allen's cost to weld panel plate	\$484,824.00	AMEC
J.F. Allen's cost to repair concrete lagging	\$23,234.00	AMEC
TOTAL:	\$695,527.00	

(J.F. Allen Ex. 237.)

312. AMEC's failure to design for shear forces caused by rock fill settlement resulted in anchor shears that called into question the stability of the Wall and required J.F. Allen to spend \$50,571.00 for Thrasher Engineering to confirm that the Wall was not moving due to the anchor shears. AMEC redesigning anchor testing to be performed at the Wall face as opposed to the slope face caused waler deformation when performance testing was applied to these anchors. Due to AMEC's design error, J.F. Allen incurred \$136,898.00 for repair of the deformed walers. AMEC's redesign of the Wall from a 2.5-inch lagging panel minimal bearing to 1-inch lagging panel minimum bearing resulted in lagging panel displacement. Due to AMEC's design error, J.F. Allen was required to weld panel plates to extend the H-Pile web to cover dislodged lagging. The cost of this repair was \$484,824.00 and is allocated to AMEC. Similarly, J.F. Allen incurred \$23,234.00 in the cost of repairs to concrete lagging panels necessitated by stresses and forces to the panels when performance testing of the anchors was moved from the slope face to the Wall face. Therefore, the Court concludes that judgment shall be entered in favor of J.F. Allen and

against AMEC in the amount of \$695,527.00 for design errors that resulted in repair costs being expended by J.F. Allen.

313. Additionally, J.F. Allen proffered at trial that it seeks \$313,115.00 in costs incurred due to J.F. Allen's extended duration on the Project caused by AMEC's conduct and omissions. The Court concludes it cannot find by a preponderance of evidence that these damages should be incurred against AMEC. In support, the Court considered Mr. Willoughby's expert report and testimony (J.F. Allen Ex. 237), as well as that of Mr. Burton and MarkWest's own expert. The Court also considered evidence proffered of J.F. Allen's own actions causing its extended delay on the Project, especially with its issues regarding fill, the improper placement of fill, and the accumulating stockpile of fill that was being stockpiled faster than J.F. Allen was placing it. The Court concludes J.F. Allen did not prove by a preponderance of the evidence that J.F. Allen is entitled to its requested costs that it attributes to AMEC's conduct and omissions. For all of these reasons, the Court concludes J.F. Allen shall be awarded \$0.00 for its extended duration on the Project.

314. Finally, J.F. Allen proffered at trial that it seeks \$127,442.00 due to the initial Wall planning error that resulted in MarkWest's rejection of the Change Order for the additional lagging panels, necessitated by AMEC's breach of contract. The Court finds this was not proven by a preponderance of the evidence at trial and J.F. Allen shall be awarded \$0.00.

Redstone's Claim for Tortious Interference Against J.F. Allen

315. The Court next considers Redstone's claim of tortious interference with business relationships and/or reputational value. To prove a prima facie case for tortious interference, a plaintiff must prove: (1) existence of a contractual or business relationship or expectancy (2) an intentional act of interference by a party outside that relationship or expectancy (3) proof that the

interference caused the harm sustained; and (4) damages. *Torbett v. Wheeling Dollar Sav. & Tr. Co.*, 173 W. Va. 210, 217, 314 S.E.2d 166, 173 (1983). If a plaintiff makes a *prima facie* case, a defendant may prove justification or privilege, affirmative defenses. Defendants are not liable for interference that is negligent rather than intentional, or if they show defenses of legitimate competition between plaintiff and themselves, their financial interest in the induced party's business, their responsibility for another's welfare, their intention to influence another's business policies in which they have an interest, their giving of honest, truthful requested advice, or other factors that show the interference was proper. *Id.* at 167.

316. Here, to prevail on its tortious interference claims, Redstone would *first* have to establish that they had an expectancy of receiving some type of business benefit pursuant to a potential or actual business contract or relationship. The Court finds the record is devoid of any testimony that Redstone forfeited a business or contractual relationship at any point during the Project. Redstone failed to offer any fact or expert testimony or documents in support of its claim that J.F. Allen tortiously interfered with business (vendor) relationships. Redstone failed to prove any acts or conduct by J.F. Allen that would constitute intentional interference with its business relationships, and therefore cannot recover for tortious interference against J.F. Allen. To make out a claim for tortious interference with reputational value, Redstone would have to, at the very least, present evidence regarding its baseline reputational value pre-Project and the specific, intentional acts taken by J.F. Allen that interfered and affected its value. Redstone failed to offer any fact or expert testimony or documents in support of its claim that J.F. Allen tortiously interfered with its reputational value. Redstone has failed to prove that it enjoyed an advantageous contractual and business relationship with MarkWest, and with its various vendors and suppliers on the Project, as well as its labor force, prior to enduring the initial performance of the Redstone

Subcontract. As Redstone has not proven by a preponderance of the evidence the elements of tortious interference, Judgment is entered in favor of J.F. Allen. Accordingly, the Court finds that Judgment is entered against Redstone, and for J.F. Allen, on Redstone's tortious interference Cross-Claim.

AMEC's Counterclaim for Contractual Indemnification Against J.F. Allen

317. The Court next considers AMEC's Counterclaim against J.F. Allen, which alleges that AMEC is entitled to receive contractual indemnification from J.F. Allen relative to MarkWest's claims against AMEC.

318. The Court finds that pursuant to Article 12(A)(2) of the Design Subcontract executed between AMEC and J.F. Allen, J.F. Allen is not obligated to indemnify and hold harmless AMEC for AMEC's *own* negligent acts or omissions. More so, J.F. Allen is not contractually obligated to indemnify and hold harmless AMEC for claims, costs, losses or damages related to the loss of use of tangible property. The Design Subcontract also specifies, per Article 12(A)(2), that the indemnification obligation does not apply to the Project work *itself*. Pursuant to Article 12(A)(5) of the Design Subcontract, J.F. Allen shall not be liable to AMEC "for any special, incidental, indirect, or consequential damages (including lost profits) incurred by either AMEC or CLIENT [J.F. Allen] or for which either party may be liable to any third party, which damages have been or are occasioned by Services performed for reports prepared or other work performed hereunder."

319. The Court finds that pursuant to Article 12(A)(2) of the QC Subcontract executed between AMEC and J.F. Allen, J.F. Allen is not obligated to indemnify and hold harmless AMEC for AMEC's *own* negligent acts or omissions. More so, J.F. Allen is not contractually obligated to indemnify and hold harmless AMEC for claims, costs, loss or damages related to the loss of use

of tangible property. The QC Subcontract also specifies, in Article 12(A)(2), that indemnification does not apply to the Project work *itself*. Pursuant to Article 12(A)(5) of the QC Subcontract, J.F. Allen shall not be liable to AMEC “for any special, incidental, indirect, or consequential damages (including lost profits) incurred by either AMEC or CLIENT [J.F. Allen] or for which either party may be liable to any third party, which damages have been or are occasioned by Services performed for reports prepared or other work performed hereunder.” Therefore, the Court finds Judgment is entered against AMEC as to this Counterclaim.

Redstone’s Claim for Damages Against J.F. Allen

320. The Court considered that Redstone sought damages against J.F. Allen related to three proposed Change Orders for additional work and costs and an unpaid base contract amount as set forth above. The Court finds that Redstone was entitled to recover \$302,389.00 for Change Orders 1 and 2, and \$451,906.00 for Change Order 3; however, the Court finds credit for these amounts was already given to Redstone in Mr. Willoughby’s calculations by increasing the original Subcontract price from \$6,584,687.77 to \$7,338,982.70, from which figure Mr. Willoughby then calculated the remaining claims between J.F. Allen and Redstone. In accepting Mr. Willoughby’s opinions, the Court finds Redstone failed to meet its evidentiary burden necessary to establish that it is entitled to any additional damages against J.F. Allen, as the Court finds that Redstone was overpaid on the Subcontract. As the Court heretofore concluded, J.F. Allen shall be awarded \$904,438.00 from Redstone for overpayment on the Subcontract, that amount being the difference in the amount of Mr. Willoughby’s amended contract value, the payments made to satisfy mechanic’s liens, and J.F. Allen’s costs to complete Redstone’s work. (*See footnote 20*).

321. As to Redstone's claim for negligence against AMEC, the Court finds AMEC has no duty to Redstone. Therefore, Redstone failed to meet its evidentiary burden necessary to establish that it is entitled to any damages against AMEC.

322. The Court notes Redstone seeks the costs for fixing the anchors that sheared, and the Court finds that this was taken into account when Mr. Willoughby analyzed the overpayment on the Redstone contract. Therefore, the Court finds the credits for work performed by Redstone have been taken into consideration.

JUDGMENT

Repair

323. The damages in this case were broken down into two major categories, the first being related to the construction and repair of the Wall, and the second being delay damages. With regard to the repair damages to MarkWest, the Court found that MarkWest shall be awarded \$27,742.00 in damages for the installation of one additional anchor at Station 6+00, \$1,739,098.00 in damages for the installation of new panel braces, \$78,158.00 in damages for concrete repair on the lagging panels, \$320,632.00 for mobilization, and \$439,966.00 for site preparation, for total repair damages of \$2,605,596.00. The Court considered the conduct of both AMEC and J.F. Allen as to the design flaws, with regard to the failure to account for fill settlement and the bearing width as it relates to the size of the lagging panels on the part of AMEC, and the fill issues, including placing some improper fill, on the part of J.F. Allen. Therefore, the Court finds AMEC and J.F. Allen are both responsible for these repair damages of \$2,605,596.00, with 60% of damages being allocated to AMEC, and 40% being allocated to J.F. Allen. Thus, \$1,563,357.60 is allocated to AMEC, and \$1,042,238.40 is allocated to J.F. Allen.

324. WHEREFORE, it is hereby ADJUDGED and ORDERED that MarkWest is awarded a total of \$2,605,596.00 for repair damages, as detailed above. The Court, finding and concluding that AMEC shall be responsible for 60% of this, judgment is awarded against AMEC and for MarkWest in the amount of \$1,563,357.60. The Court, finding and concluding that J.F. Allen shall be responsible for 40% of this, judgment is awarded against J.F. Allen and for MarkWest in the amount of \$1,042,238.40.

Instrumentation and Monitoring

325. WHEREFORE, it is hereby ADJUDGED and ORDERED that MarkWest is awarded a total of \$701,942.00 for costs incurred for instrumentation and monitoring of the Wall, as detailed above. The Court, finding and concluding that AMEC shall be responsible for 60% of this, judgment is awarded against AMEC and for MarkWest in the amount of \$421,165.20. The Court, finding and concluding that J.F. Allen shall be responsible for 40% of this, judgment is awarded against J.F. Allen and for MarkWest in the amount of \$280,776.80.

Exploratory Testing, Oversight, Inspection Costs

326. WHEREFORE, it is hereby ADJUDGED and ORDERED that MarkWest is awarded a total of \$242,152.00 for costs incurred with exploratory testing, oversight, inspection and monitoring in order to assess the condition of the Wall after construction was completed, as detailed above. The Court, finding and concluding that AMEC shall be responsible for 60% of this, judgment is awarded against AMEC and for MarkWest in the amount of \$145,291.20. The Court, finding and concluding that J.F. Allen shall be responsible for 40% of this, judgment is awarded against J.F. Allen and for MarkWest in the amount of \$96,860.80.

J.F. Allen Unpaid Contract Balance from MarkWest

327. WHEREFORE, it is hereby ADJUDGED and ORDERED that J.F. Allen is awarded a total of \$1,581,405.10 for unpaid contract balance from MarkWest. It is hereby ADJUDGED and ORDERED that judgment is awarded for J.F. Allen, and against MarkWest, in the amount of \$1,581,405.10.

Repair Costs to J.F. Allen from Redstone

328. WHEREFORE, it is hereby ADJUDGED and ORDERED that J.F. Allen is awarded a total of \$981,673.00 in repair costs from Redstone. It is hereby ADJUDGED and ORDERED that judgment is awarded for J.F. Allen, and against Redstone, in the amount of \$981,673.00.

J.F. Allen Overpayment on Redstone Contract

329. WHEREFORE, it is hereby ADJUDGED and ORDERED that J.F. Allen is awarded a total of \$904,438.00 in damages for its overpayment to the Redstone Subcontract from Redstone. It is hereby ADJUDGED and ORDERED that judgment is awarded for J.F. Allen, and against Redstone, in the amount of \$904,438.00.

Repairs for Design Errors to J.F. Allen from AMEC

330. WHEREFORE, it is hereby ADJUDGED and ORDERED that J.F. Allen is awarded a total of \$695,527.00 for design errors that resulted in repair costs being expended by J.F. Allen. It is hereby ADJUDGED and ORDERED that judgment is awarded for J.F. Allen, and against AMEC, in the amount of \$695,527.00.

Delay

Delay – Lost Profits

331. WHEREFORE, it is hereby ADJUDGED and ORDERED that with regard to delay damages associated with lost profits, judgment is awarded to MarkWest and against J.F. Allen in the total amount of \$2,651,531.54. As to this amount, the Court has previously ruled that J.F. Allen is directly responsible for \$901,520.72. As to the remaining balance, the Court has previously ruled that Redstone is responsible for \$1,458,342.35, and therefore it is ADJUDGED and ORDERED that J.F. Allen is awarded indemnification from Redstone in the amount of \$1,458,342.35. As to this amount of \$2,651,531.54, the Court has previously ruled that AMEC is responsible for \$291,668.47, and therefore it is ADJUDGED and ORDERED that J.F. Allen is awarded indemnification from AMEC in the amount of \$291,668.47.

Delay – Impacts to Lane

332. WHEREFORE, it is hereby ADJUDGED and ORDERED that with regard to delay damages associated with impacts to Lane, judgment is awarded to MarkWest and solely against J.F. Allen in the amount of \$1,669,213.80.

Delay – Impacts to Chapman

333. WHEREFORE, it is hereby ADJUDGED and ORDERED that with regard to delay damages associated with impacts to Chapman, judgment is awarded to MarkWest and solely against J.F. Allen in the amount of \$336,707.25.

Delay – Equipment Storage

334. WHEREFORE, it is hereby ADJUDGED and ORDERED that with regard to delay damages associated with equipment storage fees, judgment is awarded to MarkWest and solely against J.F. Allen in the amount of \$93,260.00.

Delay – Total

335. WHEREFORE, it is hereby ADJUDGED and ORDERED that with regard to the total damages described in the delay categories above, namely delay damages associated with total lost profits, impacts to Lane, impacts to Chapman, equipment storage fees, judgment is awarded to MarkWest and against J.F Allen, in sum, in the amount of \$4,750,712.59.

336. It is further hereby ADJUDGED and ORDERED that with regard to the total damages described in the delay categories above, J.F. Allen is awarded indemnification from Redstone in the amount of \$1,458,342.35.

337. It is further ADJUDGED and ORDERED that with regard to the total damages described in the delay categories above, the Court has previously found AMEC is responsible for an allocation in the amount of \$291,668.47. Therefore, as the Court has found there is a special relationship between MarkWest and AMEC, Judgment is awarded to MarkWest and against AMEC in the amount of \$291,668.47.

J.F. Allen Limit of Liability/Indemnification from AMEC

338. The Court finds that of the total amount of damages awarded unto MarkWest against J.F. Allen for repair costs and delay damages, a total of \$2,421,482.47 (repair costs of \$1,563,357.60; instrumentation and monitoring costs of \$421,165.20; exploratory testing, oversight, and inspection costs of \$145,291.20; delay damages of \$291,668.47) was directly attributed and apportioned to AMEC. In addition, J.F. Allen was awarded judgment against AMEC in the amount of \$695,527.00 for repairs for design errors. The total judgment against AMEC is \$3,117,009.47. The Court has heretofore found, pursuant to paragraph 12.A.5 of the Design Subcontract between J.F. Allen and AMEC, that AMEC's total Contractual liability to J.F. Allen is limited to \$2,000,000.00 in both contract and tort. Further, there was a waiver for any

special, incidental, indirect, or consequential damages (including lost profits) incurred by either AMEC or J.F. Allen, or for which either may be liable to any third party. Therefore, the Court orders that the compensatory judgment amounts apportioned and owed to MarkWest by AMEC in favor of MarkWest (which total \$2,129,814.10) be paid up to \$2,000,000.00, by AMEC paying \$2,000,000.00 to J.F. Allen. As to the delay damages apportioned and owed by AMEC to MarkWest, that although AMEC and JF Allen had a waiver of consequential damages (including lost profits) this Court has previously found that AMEC and MarkWest have a “special relationship” existing outside of the Design Subcontract, as it relates to MarkWest’s negligence claim for which the Court has found AMEC liable. Therefore, judgment shall be against AMEC in favor of MarkWest for the delay damages in the amount of \$291,668.47. In addition, MarkWest shall be awarded judgment against AMEC for the remaining \$129,814.10 owed on the compensatory damages above the \$2,000,000.00 liability limit. As to the remaining \$695,527.00 owed by AMEC directly to J.F. Allen, which is in excess of the two-million-dollar Contractual liability limit, as agreed to by J.F. Allen in the Design Subcontract, this amount would be waived and not recoverable.

Post Judgment Interest

339. WHEREFORE, it is hereby ADJUDGED and ORDERED that post-judgment interest is awarded as to each judgment awarded herein at the legal rate of 4% from the date of entry of this Order. The Administrative Office of the Supreme Court of Appeals of West Virginia has set the interest rate at 4% for judgments and decrees entered during the 2021 calendar year, pursuant to West Virginia Code §56-6-31.

It is further ORDERED:

- ❖ The objection of the parties to any and all adverse rulings is noted.

❖ This is a Final Order from which any party may appeal to the Supreme Court of Appeals of West Virginia under applicable rules.

❖ Nothing further remaining to be done in this matter, the Circuit Clerk shall remove this action from the docket and place it among the matters ended.

The Clerk shall enter the foregoing and forward attested copies hereof to all counsel, and to the Business Court Central Office at Business Court Division, 380 West South Street, Suite 2100, Martinsburg, West Virginia, 25401.

ENTERED this 15th day of October 2021.

A handwritten signature in black ink, appearing to read "H. Charles Carl, III", written over a horizontal line.

JUDGE H. CHARLES CARL, III
West Virginia Business Court Division