UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7

Tony L. Brown and	)	
Joshua A. Brown	)	Docket No. CWA-07-2016-0053
d/b/a Riverview Cattle	)	
Armstrong, Iowa	)	
	)	COMPLAINANT'S POST-HEARING BRIEF
Respondents	)	
	)	
	)	

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INTRODUCTION

Pursuant to 40 C.F.R. § 22.26, the U.S. Environmental Protection Agency Region 7 ("EPA") submits the following Post-Hearing Brief. For the reasons set out below, Respondent should be held liable for unauthorized discharges of pollutants into waters of the United States. EPA proposes a $96,000 penalty be assessed.

SUMMARY OF ARGUMENT

Respondents Tony and Josh Brown are liable under Clean Water Act ("CWA" or "the Act") Section 301 for discharging pollutants to the East Fork of the Des Moines River without a permit. The key issue in this case is whether what went into a tile line came out during the 2014 inspection and other days with sufficient rainfall. EPA has met its burden to show that runoff carried pollutants from Respondents' facility through the tile line and into the East Fork of the Des Moines River on forty-two days between May 20, 2011 and June 18, 2014. Applying the CWA statutory factors for determining a penalty, EPA's $96,000 proposed penalty is both reasonable and justified. Respondents frequently discharged feedlot-related pollutants to the East Fork of the Des Moines River, an already impaired waterway. The pollutants significantly contributed to the impairment of the stream environment and threatened human health for those recreating in the river. Moreover, Respondents enjoyed an economic benefit resulting from their failure to implement adequate controls at their facility and are culpable for these violations.

STATEMENT OF CASE

Respondents are Tony and Josh Brown who own an animal feeding operation in Armstrong, Iowa under the name Riverview Cattle (the "facility"). During all times relevant to this case, Respondents did not have a National Pollutant Discharge Elimination System Permit ("NPDES permit") authorizing pollutant discharges and the facility lacked adequate controls to prevent process wastewater runoff from flowing outside the facility's production area. Runoff containing pollutants from the facility flowed to an adjacent swale, a depression area east of the facility, accumulated in the swale, entered an inlet to a tile drain line and discharged through the tile outlet to the East Fork of the Des Moines River.

On June 17, 2014, EPA conducted a compliance inspection of Respondents' facility ("2014 inspection"), and EPA inspectors observed and sampled manure pit overflow and process wastewater from Respondents' facility entering the tile inlet. CX-1 at 7. It is undisputed that following the inspection, on June 18, 2014, Respondents blocked the inlet by installing a sleeve over it as shown in CX-2 at 3. Although Respondents deny that pollutants reached the river, they admit that their manure pit was overflowing on June 17, 2014 and that the EPA inspectors observed and sampled process wastewater at the inlet. Answer ¶¶ 23, 28. On March 29 and 30, 2016, EPA conducted a second compliance inspection ("2016 inspection") and EPA's observations and sampling documented that the manure pit was not the only source of pollutants from the facility. CX-8 at 8, 12. Inspectors also observed the tile line outlet to the East Fork of the Des Moines River. CX-8 at 9. These observations and sampling results from the 2016 inspection relate back to the period of violations in this case. On many occasions between May 10, 2011 and June 18, 2014, rainfall generated sufficient runoff to carry pollutants from Respondents' facility into and through the tile line and into the East Fork of the Des Moines River.

On May 10, 2016, EPA filed an administrative Complaint against Respondents alleging the unauthorized discharge of pollutants to waters of the United States, and Respondents filed an Answer on June 13, 2016. EPA filed a Motion for Accelerated Decision as to Liability on May 1, 2017, Respondents filed a Response on May 30, 2017, and EPA submitted a Rebuttal on June 15, 2017. The Presiding Officer denied Complainant's Motion for Accelerated Decision as to

Liability on March 13, 2018. Pursuant to the Presiding Officer's Second Notice of Hearing Order, the parties submitted Second Joint Prehearing Stipulations on November 16, 2018. JX-1. The hearing in this case was held in Des Moines, Iowa, between December 12 and 18, 2018. On March 7, 2019, the parties' filed a Joint Motion to Conform the Transcript.

STATUTORY AND REGULATORY FRAMEWORK

I. CLEAN WATER ACT

The CWA is a comprehensive statute designed to "restore, and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). To achieve that goal, the CWA prohibits the discharge of pollutants from point sources to the navigable waters of the United States, unless authorized in accordance with the Act. 33 U.S.C. § 1311(a). *see also Nat. Res. Def. Council v. U.S. Envtl. Prot. Agency*, 822 F.2d 104, 109 (D.C. Cir. 1987) (the prohibition of unauthorized discharges is the "fundamental premise" of the Act). The CWA is a strict liability statute. *Kelly v. U.S. Envtl. Prot. Agency*, 203 F.3d 519, 522 (7th Cir. 2000). Therefore, neither good faith efforts to comply nor a lack of knowledge are sufficient to shield a defendant from liability. *Id.* Violators of the Act are subject to civil penalties under CWA § 309. 33 U.S.C. § 1319.

Generally, point source discharges may be authorized under the CWA in compliance with a NPDES permit issued pursuant to CWA Section 402, 33 U.S.C. § 1342. Recognizing the environmental threat posed by concentrated animal feeding operations ("CAFOs"), Congress specifically included CAFOs within the definition of a point source. 33 U.S.C. § 1362(14). The regulations implementing the CAFO program provide that "[a] CAFO must not discharge unless the discharge is authorized by an NPDES permit." 40 C.F.R. § 122.23(d)(1).

The regulations define an animal feeding operation as a lot or facility where animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and where crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility. 40 C.F.R. § 122.23(b)(1). A medium cattle CAFO is an animal feeding operation, 40 C.F.R. § 122.23(b)(2), that stables or confines 300 to 999 cattle other than mature dairy cows or veal calves, 40 C.F.R. § 122.23(b)(6)(i)(C), and either: pollutants are discharged into waters of the United States through a man-made ditch, flushing system, or other similar man-made device; or pollutants are discharged directly into waters of the United States which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation, 40 C.F.R. § 122.23(b)(6)(ii).

The discharge of pollutants is defined in the CWA to mean "any addition of any pollutant to navigable waters from any point source." 33 U.S.C. § 1362(12). The term "pollutant" is defined by the CWA to include, among other things, "…solid waste, …biological materials, …and agricultural waste discharged into water." *Id.* § 1362(6). In a CAFO facility, sources of pollutants are within the production area, defined as "that part of an [animal feeding operation] that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas." 40 C.F.R. § 122.23(b)(8). Process wastewater contains pollutants in the form of solid waste, biological materials and agricultural waste, including "spillage or overflow from… washing, cleaning, or flushing pens, barns, manure pits, or other [animal feeding operation] facilities," as well as "any water which comes into contact with any raw materials, products, or byproducts including manure, litter, feed, milk, eggs or bedding." *Id.* § 122.23(b)(7).

II. BURDEN OF PROOF

Under the Consolidated Rules of Practice set forth in 40 C.F.R. Part 22, the complainant has the burden of establishing that the violation occurred as set forth in the complaint and that the relief sought is appropriate. 40 C.F.R. § 22.24(a). Once complainant establishes a prima facie case, the burden shifts to respondent to present affirmative defenses or additional evidence with respect to the appropriate relief. *Id*. Each matter of controversy shall be decided by the Presiding Officer based upon a preponderance of the evidence. 40 C.F.R. § 22.24(b).

Under a preponderance of the evidence standard, the evidence is evaluated to determine its weight and persuasiveness. The Environmental Appeals Board has noted that "the preponderance of the evidence standard means that a fact finder should believe that his factual conclusion is more likely than not," *In re City of Marshall*, 10 E.A.D. 173, 180 (EAB 2001) (quoting *In re Ocean State Asbestos Removal, Inc*., 7 E.A.D. 522, 530 (EAB 1998) (quotation marks omitted)), or that "a reasonable person would find a 'contested fact more probably true than untrue.'" *In re Great Lakes Div. of Nat'l Steel Corp.,* 5 E.A.D. 355, 363 n.20 (EAB 1994) (quoting *Sanders v. U.S. Postal Service*, 801 F.2d 1328, 1330 (Fed. Cir. 1986)).

Relevant evidence may include direct evidence or circumstantial evidence. Under the Consolidated Rules of Practice, "the Presiding Officer shall admit all evidence which is not irrelevant, unduly repetitious, unreliable, or of little probative value," and then decide each issue based on the weight of that evidence. 40 C.F.R. §§ 22.22(a), 22.24(b). Circumstantial evidence may be relied upon as evidence of a material fact. *See In re BWX Techs., Inc*., 9 E.A.D. 61, 78 (EAB 2000). Specifically, within the CWA, discharges may be inferred from circumstantial evidence. *See, e.g., Concerned Area Residents for the Env't v. Southview Farm*, 34 F.3d 114, 120 (2d Cir. 1994); *In re Lowell Vos Feedlot*, 15 E.A.D. 314, 322 (EAB 2011). Thus, the evidentiary standard in an administrative proceeding regarding CWA violations is a preponderance of the evidence based on any admissible evidence, either direct or circumstantial.

To establish a prima facie violation of Section 301(a) of the CWA, 33 U.S.C. § 1311(a), EPA must demonstrate by a preponderance of the evidence that Respondents are: (1) a person; (2) that discharged a pollutant; (3) to navigable waters; (4) from a point source; (5) without a permit. *Headwaters, Inc. v. Talent Irr. Dist.*, 243 F.3d 526, 532 (9th Cir. 2001). After establishing liability, EPA must show that the relief sought is appropriate, which here is determined by reference to the factors listed in CWA Section 309(g)(3), 33 U.S.C. § 1319(g)(3). Based upon the evidence provided, EPA has established the prima facie elements of Respondents' unauthorized discharge of pollutants to navigable waters in violation of the CWA and that the relief sought is appropriate.

ARGUMENT

I. RESPONDENTS ARE A PERSON THAT DISCHARGED A POLLUTANT TO NAVIGABLE WATERS FROM A POINT SOURCE WITHOUT A PERMIT

Respondents admit that they are a "person" as defined by CWA Section 502(5), 33 U.S.C. § 1362(5). Answer ¶ 4. Respondents admit that they did not have a NPDES permit. Answer ¶ 37. Navigable waters are defined by CWA Section 502(7), 33 U.S.C. § 1362(7), to include waters of the United States and Respondents admit that the East Fork of the Des Moines River is a water of the United States. Answer ¶ 32. Further, Respondents stipulated that "[t]he East Fork of the Des Moines River located to the south of Respondents' facility is a water of the United States." JX-1 at ¶ 2. Therefore, remaining at issue is whether Respondents discharged pollutants to the East Fork of the Des Moines River from a point source.

A. Respondents discharged pollutants to the East Fork of the Des Moines River

1. Runoff and overflow from Respondents' production area flowed to the swale

The court *In the Matter of Leed Foundry*, Docket Nos. RCRA 03-2004-0061, CWA 03-2004-0061, 2007 WL 2192945, at *11-*13 (ALJ Moran, April 24, 2007)("*Leed Foundry*") found that where "[t]here really is no dispute regarding the subject of Leed's topography, nor that storm water would exit the property given a sufficient rainfall," circumstantial evidence that there were "sources of pollutants available for transport off its site via the storm water outfalls" can be used to show unauthorized discharges.

Between May 10, 2011 and June 18, 2014, runoff from uncontrolled and inadequately controlled areas within the facility's production area flowed to the swale before discharging to the East Fork of the Des Moines River.[1] It is undisputed that the Riverview Cattle facility's production area primarily consists of six cattle confinement pens, several manure storage areas, and several feed and bedding storage areas, as labeled in CX-1.6 at 4 and CX-46 at 7, and is constructed entirely of concrete, with the exception of a clay base to the north of the confinement pens underlying a portion of the cornstalk bale or hay bale storage area ("bale storage area").[2] It is also undisputed that the facility structures did not change between May 10, 2011 and June 17, 2014 in any way except for the construction of the manure pit in the fall of 2011.[3] Significantly,

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[1] As discussed in detail herein, observations and EPA sampling documented that runoff from the facility had come into contact with manure, feed and bedding materials in the facility's production area and, therefore, meets the definition of process wastewater. As a result, the terms process wastewater and runoff are used interchangeably throughout except when identified as runoff from areas without the production area.

[2] Draper Test. 351:24-352:2, 367:12-14. Pens 1-4: T. Brown Test., TR 798:14-16. Central manure alley: T. Brown Test., TR 816:16-18. Pens 5 and 6, northern manure alley: T. Brown Test., TR 845:22-846:4, TR 876:7-9, TR 935:1-22. Feed alley: T. Brown Test., TR 851:5-7. Manure pit: RX-1, T. Brown Testimony, TR 832:3-6, TR 844:6-21. Bale storage area: T. Brown Test., TR 829:18-830:3, TR 884:2-4. Feed alley: J. Brown Test., TR 1007:20.

[3] Mr. Tony Brown testified that the gradual construction of the facility was completed in 2010, with the exception of a manure pit that was completed in the fall of 2011. T. Brown Test., TR 798:8-9, TR 801:15-16, TR 806:3-7, TR 833:13-14. Although more gradual, this comports with EPA's understanding. Draper Test., TR 352:4-6, 17-23.

it is undisputed that the walls of the facility remained the same as they were originally poured pre-2011, except a few changes to allow runoff from the pens to flow into the pit,[4] and, therefore, ground level openings in the walls existed throughout the period of violations in this case in the walls separating the pens from the central manure alley,[5] the north wall of the northern manure alley or south wall of the manure pit,[6] and the eastern wall of the feed alley.[7]

The court in *Leed Foundry,* 2007 WL 2192945, at *16*,* found that not only can circumstantial evidence be sufficient to establish unauthorized discharges, but also that, "[a]bsent evidence that this was a new phenomena," observations made outside the period of violations can reasonably relate back, particularly where "[t]here is nothing in the record that dispels the logical conclusion" that the event would have occurred during that time just as when it was observed. In this case, it is also undisputed that between the 2014 and 2016 inspections, there was no additional construction except minor changes that did not affect runoff pathways;[8]

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[4] The 4-foot wall on the northern end of the central manure alley was changed when the manure pit was constructed to allow flow into the pit. Draper Test., 370:2-17; T. Brown Test., TR 844:4-10; J. Brown Test., TR 1028:6-13. In addition, "sometime after" the manure pit was constructed in the fall of 2011, a portion of the northern manure alley wall including its westernmost opening was removed, and a gate was installed to allow flow from the central manure alley into the pit. J. Brown Test., TR 1025:22-1026:12, TR 1027:22-1028:7; *see also* Draper Test., TR 371:1-14. Aerial photographs show that this occurred after the 2014 inspection. *Compare* CX-12.18 (September 7, 2014), *with* CX-12.19 (February 13, 2015); *see also* CX-28.6 (March 22, 2016, showing later configuration).

[5] Draper Test., TR 424:1-425:1; T. Brown Test., TR 821:6-9, TR 935:1-11.

[6] Draper Test., TR 366:11-17; T. Brown Test., TR 822:17-19, TR 825:22-826:16, TR 955:14-19; J. Brown Test., TR 1001:1-13. It should be noted that the north wall of the northern manure alley was its exterior wall until the manure pit was constructed, when it became the south wall of the manure pit and the openings in the north wall of the northern manure alley, seen in CX-28.1 and CX-28.4, continued to exist when it became the manure pit's south wall. Draper Test., TR 370:10-12; T. Brown Test., TR 822:5-9, TR 844:11-845:4. Overflow from one of these openings on the manure pit's south wall was seen during EPA's 2014 inspection, Urban Test., TR 99:11-25; T. Brown Test., TR 877:19-24, TR 954:22-956:8; CX-1.5 at 31; CX-29.1, and, as noted above, *supra* n.4, although the portion of this wall including its westernmost opening was removed between the 2014 and 2016 inspections, its easternmost opening remained during the 2016 inspection, as seen in CX-8.6 at 12. Draper Test., TR 445:12-25.

[7] Urban Test., TR 147:8-14; J. Brown Testimony, TR 1006:14-1007:7.

[8] Facility construction was complete following construction of the manure pit in the fall of 2011 until expansion following EPA's 2016 inspection, with the exception of adding a roofed feed bunker in August of 2014. T. Brown Test., TR 939:1-9; J. Brown Test., TR 1004:10-22. Mr. Draper testified that the aerial images do not show that any facility structures changed between 2011, except the manure pit, and 2016, except the addition of a shop and roofed feed bunker: TR 351:17-353:1, TR 354:9-10, TR 356:3-9, TR 357:12-15, TR 357:22-358:13, TR 369:10-20, TR 370:2-3, TR 372:21-373:4, TR 375:18-376:9, TR 378:5-16. The minor changes noted during the 2016 inspection include a larger hole cut in the feed alley wall and a culvert installed under the extended turn-around area. Urban Test. TR 160:19-162:16.

therefore, because facility structures and practices did not change, EPA's 2016 observations and sampling results "relate back" to the period of violations in this case.

In summary, although the biggest change to the facility during the period of violations was the installation of the manure pit, Draper Test., TR 369:19-20, Mr. Draper testified that "even though they installed a manure pit, that they still had uncontrolled areas of runoff, that those areas never went to the manure pit… there is a pathway that never gets captured." TR 390:6-11. The evidence gathered during EPA's 2014 and 2016 inspections show that runoff exited the facility's production area and this process wastewater flowed to the swale and, similar to *Leed Foundry*, it is reasonable to assume that similar precipitation events throughout the period of violations also resulted in process wastewater runoff to the swale.

a. Before and after construction of the manure pit, facility runoff and overflow flowed to the swale

Mr. Urban testified that "directly east [of the facility] is a depression area," TR 96:7-12, referred to as the swale, and that the swale slopes from north to south where it is bordered by a road that "acts as its dam," TR 99:1-4. Mr. Draper testified that based on his review of detailed elevation data collected by LIDAR,[9] he concluded "the feedlot area is higher than the swale area, and that overland runoff would follow gravity to – from high point to low point, and would convey east to the swale." TR 332:14-18 (referencing CX-14), TR 333:1-6 (referencing CX-33 at 1). Further, based on his review of aerial images of the facility, the swale was consistently present and saturated in aerial images from 2011 to 2014, indicating that runoff from Respondents' facility flowed to the swale throughout this time period. TR 346:15-18 ("the swale has areas of – vegetative areas, and then darker areas, which are lesser vegetated or pooled

[9] LIDAR is an acronym for "light detection and ranging" and is produced by a laser taking ground elevations and accurately determines height of the ground surface and elevation within a couple of inches or less. *See* Draper Test., TR 331:16-25.

water." (referencing CX-12.17)), TR 353:4-18 (the swale appears colored "blue, identifying that vegetation has a tough time growing there" (referencing CX-12.15)), TR 361:9-19 (tire tracks "seem to avoid that area, likely because it's wet and soggy" (referencing CX-12.13). Also, throughout this time period, the swale had a consistent outline seen in CX-12.13. TR 361:20-24 ("there is an obvious delineation line of the eastern boundary of that swale, which… forms a high-water mark of the swale, where floatable materials deposit as the swale recedes"); *see* CX-12.13-B (swale boundary marked). The swale's outline in CX-12.16 lines up with the outline of the ponding water during the 2014 inspection, TR 356:20-22. Mr. Tony Brown confirmed the swale was always a low, wet spot that would not sustain crops. TR 858:3-11, TR 858:21-23.

Mr. Draper testified that, based on his review of aerial images of the facility taken between April 2011 to March 2015, the runoff from the facility was unchanged throughout that time and "would follow the same pathways," flowing north and then east to the swale. TR 372:21-373:4.[10] Further, because runoff from uncontrolled areas of the facility's production area went to the swale with and without manure pit overflow, the "swale was basically functioning as a secondary manure pit for them. That was basically a process wastewater storage location." TR 390:16-18. Maps prepared by witnesses of both parties, Mr. Urban,[11] Mr. Draper,[12] and Ms.

[10] Mr. Draper also testified that while on site during the 2016 inspection "[he] verified every evaluation [he] made of the facility aerials." TR 378:12-16.

[11] Mr. Trevor Urban has 22 years of experience working for the EPA, including 18 years of experience as an inspector. TR 46:8-47:25. He has inspected approximately 150-200 CAFO facilities during that time, TR 54:15-19, including determining slopes and runoff pathways at facilities.

[12] Mr. Draper has ten years of experience as a compliance officer and inspector for EPA, including as the CAFO coordinator for Region 8 and an enforcement officer for Region 7. TR 287:5-288:9. He was trained to inspect every type of facility regulated by the CWA, TR 288:10-289:8, and has inspected approximately 100 CAFO facilities, TR 289:9-13. He has worked as a compliance officer on approximately 10 enforcement cases involving CAFO facilities, TR 289:14-290:4, and analyzed hundreds of aerials images using computer programs such as Pictometry Online, as well as elevation data in LIDAR images, and determined slopes and runoff pathways at facilities, TR 334:25-336:4, TR 341:11-20.

Heikens,[13] are consistent with each other and illustrate runoff pathways from uncontrolled portions of the facility's production area into the swale. *Compare* CX-1.6 at 4,[14] *with* CX-46 at 7,[15] *and* CX-55.3 at 1.[16] Further, Ms. Heikens and Mr. Madden, who has been visiting the facility for several days per week for the last fifteen years, testified that they agreed with the runoff flow pathways shown on CX-46 at 7. Madden Test., TR 734:24-735:4; Heikens Test., TR 1102:16-19.

Therefore, all runoff exiting the facility's production area flowed to the swale.

i. <u>Before construction of the manure pit</u>

Before construction of the manure pit, runoff from the facility's pens flowed to the central manure alley, backed-up into Pen 1, and then flowed out of the northern gate of Pen 1 before flowing to the swale. CX-20.3. Generally, the facility's pens are sloped towards the central manure alley, TR 424:24-425:1, TR 819:23-24, and openings in the walls allowed process wastewater from the pens to move into the central manure alley where, due to slope, it collected at its northern end behind a 4-foot wall, as shown in CX-28.4. T. Brown Test., TR 807:2-808:7, TR 819:19-20, TR 830:9-11; J. Brown Test., TR 999:20-1000:1. While Respondents' testimony is that manure and process wastewater remained in the central manure alley behind this 4-foot wall, T. Brown Test., TR 830:9-17 and J. Brown Test., TR 1000:2-11, this is contradicted by: Mr. Josh Brown's testimony that water would back up into Pen 1, TR

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[13] Ms. Heikens is an expert witness in civil engineering and was hired by Respondents in June 2015 to create a map using topographic information to determine drainage areas for the purpose of obtaining a NPDES permit. TR 1081:14-17, TR 1083:20-25, TR 1094:12-1095:10.

[14] Based on observations and information obtained from Respondents during the 2014 inspection, Mr. Urban placed arrows on a map of the facility, CX-1.6 at 4, showing "facility slope, in which way processed wastewater and manure solids will flow." TR 96:22-23; *see also* TR 88:13-18, TR 96:24-97:4, TR 112:22-113:6.

[15] Based on his review of aerial images from 2011 to 2016, the 2014 and 2016 inspection reports, and onsite observations, Mr. Draper drew arrows on a map of the facility, CX-46 at 7, indicating where runoff flows within and from the facility. TR 350:20-353:1.

[16] Ms. Heikens created a map of the facility showing runoff directions, CX-55.3 at 1, which she testified was based on topographic information collected at the facility in June 2015. TR 1081:14-24, TR 1083:13-25, TR 1110:25-1111:6. As noted above, because facility structures did not change, Ms. Heikens' 2015 observations and measurements "relate back" to the period of violations in this case. *Leed Foundry*, 2007 WL 2192945, at *16.

1028:14-1029:25 (referencing CX-28.1); Mr. Draper's analysis of aerial photos of the facility showing Pen 1 to be saturated along its eastern wall, TR 367:7-18, TR 368:11-16 (referencing CX-28.5); and Mr. Tony Brown's repeated explanation that they installed the manure pit after realizing how much runoff was generated by rain falling on the pens, TR 805:20-806:2, TR 831:16-832:2.

Mr. Draper testified that runoff would exit Pen 1 to the north through an open slotted gate. TR 364:3-15 (referencing CX-28.3), TR 372:4-10. While Respondents testified that Pen 1 is sloped to the south away from the gate, T. Brown Test., TR 819:20-21, TR 820:1-2, TR 821:1-5 and J. Brown Test., TR 998:4-10, TR 999:5-6, their testimony is undermined by their later placement of an opening on the manure pit wall to capture that runoff. Draper Test., TR 370:15-17, TR 371:8-4, TR 372:1-3; *see also* CX-52 at 4. Significantly, Ms. Heikens' map, which is the result of actual "ground points" collected onsite, TR 1111:1-6, shows an arrow in Pen 1 pointing northeast, CX-55.3 at 1, indicating that it slopes northeast, confirming water flows as shown in CX-20.3. Therefore, it is reasonable to conclude that process wastewater from the central manure alley and runoff originating in Pen 1 flowed out of its northern gate.

Prior to construction of the manure pit, runoff from the entire area north of the facility's pens flowed east to the swale, including the runoff exiting Pen 1 described above, Draper Test., TR 372:5-10, as well as runoff from the feedstock and bale storage area, Urban Test., TR 110:2-25; Draper Test., TR 347:9-12. Prior to the pit, openings on the northern, exterior wall of the northern manure alley, J. Brown Test., TR 1026:19-25, would allow runoff to flow north and then east and into the swale, or runoff flowed directly east to the swale as it continued to do after the construction of the manure pit. Urban Test., TR 103:5-9; Draper Test., TR 347:13-17. The feed alley runoff flows north where it combines with runoff from the northern manure alley at a low point at that intersection, Urban Test., TR 164:9-11, TR 165:10-14, TR 167:25-168:2, where Mr. Draper testified tire tracks can be seen smearing water out of that area in TR 360:11-20 (referencing CX-12.13), TR 364:22-365:6 (referencing CX-28.3), and TR 367:19-368:6 (referencing CX-28.5), before flowing east to the swale. TR 347:19-348:2, TR 350:4-10. *See also* Urban Test., TR 165:15-16. Runoff from the feed alley also flowed directly east to the swale through openings in its eastern wall. J. Brown Test., TR 1006:24-1007:9. The turn-around area, located just beyond the north end of the feed alley, seen in CX-12.6, also drains to the east and into the swale. Draper Test., TR 347:21-348:2.

Therefore, it is reasonable to conclude that all uncontrolled process wastewater runoff from the facility flowed to the swale prior to the manure pit.

ii. <u>After construction of the manure pit</u>

After the manure pit was installed in fall of 2011, the pit functioned to intercept runoff from the facility's pens flowing through the central manure alley and runoff exiting Pen 1, described above, and a portion of the run off from the feedstock storage area located just west of the pit; however, as seen during the 2016 inspection, runoff from the other portion of the feedstock and bale storage area was not intercepted by the pit and continued to flow to the swale.[17] Urban Test., TR 97:24-98:25, TR 110:5-13, TR 169:24-170:7; Draper Test., TR 347:9-12, TR 386:22-387:3; CX 8.6 at 56; Heikens Test., TR 1112:9-19 (referencing CX-46 at 7); *see also* CX-55.3 at 1. Runoff from the feed alley and turn-around area were unaffected by the construction of the manure pit and flowed to the swale.

Any runoff and manure pit overflow or spillage into the northern manure alley also flowed to the swale. Mr. Urban testified, and Respondents admit that on June 17, 2014, the

[17] Mr. Tony Brown testified that some runoff from the bale storage area may have first flowed north of the bale pile, but it would then flow east and around to the south and into the swale. TR 883:14-884:11.

manure pit overflowed out of the southeast opening into the northern manure alley, as seen in CX 1.5 at 31, and flowed east. Urban Test., TR 97:7-14, TR 99:16-25, TR 103:5-9; T. Brown Test., TR 848:11-17; J. Brown Test., TR 956:15-18, TR 993:19-21; Answer ¶ 23; *see also* CX-4 at 2. While Mr. Tony Brown testified that the northern manure alley slopes west,[18] TR 846:7-8, TR 847:1-11, this statement is undermined by: his admission and the undisputed testimony that water was flowing east that day, TR 848:11-15; the lack of pooled water at the west end of the alley present in the photograph from that day, CX-1.5 at 31; and his testimony related to the 2016 sample taken directly east of this area, TR 885:11-886:5. Further, the ripples in CX 1.5 at 32, CX-29.1, CX-29.3, and CX-29.5, show the process wastewater from the northern manure alley was flowing east into the swale. Urban Test., TR 103:15-25, TR 106:11-14, TR 108:24-109:7; Draper Test., TR 316:3-318:21, TR 319:9-17. It is reasonable to conclude that manure pit overflow prior to June 17, 2014 exited the pit through the same southeast opening, which was original to the pit wall just as it did on June 17, 2014.[19] Draper Test., TR 445:16-446:11. In addition, runoff originating in the northern manure alley flowed east into the swale, with manure pit overflow as documented during the 2014 inspection, or without manure pit overflow as documented during the 2016 inspection. Urban Test., TR 167:1-6; Draper Test., TR 387:4-20; CX-8.6 at 57.

Therefore, it is reasonable to conclude that manure pit overflow and runoff from all other uncontrolled areas continued to flow to the swale after construction of the manure pit.

[18] It should be noted that Mr. Tony Brown also testified that he was "not good with percentages and slopes and things" and that it was "more Josh's deal because he's into that type of stuff." TR 848:18-23. Yet, Mr. Josh Brown did not provide any testimony regarding the slope of the northern manure alley.

[19] Mr. Tony Brown testified that manure pit overflow could also exit the pit through the gate on its northeast corner, TR 844:22-845:10, but this area also flows east to the swale.

b. Modeling of facility runoff and overflow to the swale

Hydrologic modeling can serve as circumstantial evidence of discharges and other material facts in cases brought under the CWA. *See, e.g.*, *In re San Pedro Forklift, Inc.*, 15 E.A.D. 838, 2013 WL 1784788, at *30 (EAB 2013); *Leed Foundry,* 2007 WL 2192945, at *19-20. Hydrologic modeling can quantify actual discharges that occurred at the facility; therefore, modeling results are circumstantial evidence of actual, not potential, discharges and can be relied on to prove a discharge even in the absence of sampling data. *See In the Matter of Special Interest Auto Works, Inc. and Troy Peterson*, Docket No. CWA 10-2013-0123, Order on Respondents' Amended Motion for Accelerated Decision, at 21-23 (ALJ Coughlin, Oct. 13, 2015). The court in *Leed Foundry* rejected the Respondent's argument that EPA must "produce scientific evidence concerning its discharges," and instead accepted modeling by EPA's expert who conservatively calculated when rainfall causes stormwater to exit the facility using rainfall data from several of the closest rain stations as reliable indicators that the facility experienced rainfall events of sufficient magnitude. 2007 WL 2192945, at *11-12.

In this case, EPA's expert, Dr. Wang,[20] used hydrologic modeling to determine: 1) the number of days that the manure pit exceeded its storage capacity and contributed overflow to the other process wastewater runoff from the facility that flowed to the swale; and 2) the number of days that process wastewater from the facility in the swale discharged through the tile line to the

[20] Dr. Wang is an expert in hydrology, modeling, and water quality, TR 553:2-10, and has 20 years of modeling experience, TR 547:22-548:7, including reviewing Total Maximum Daily Loads ("TMDLs") for the four states within EPA Region 7, which are Kansas Missouri, Iowa, and Nebraska, TR 532:1-533:10, working on curve number modeling for the Kansas Biological Survey for eight years and the Kansas Department of Health and the Environment for almost five years, TR 541:3-19, TR 543:8-13, TR 544:5-11, and modeling over 50 animal confinement operations, 550:6-13. Dr. Wang has also authored and reviewed several scientific papers, journal articles, and other publications regarding modeling and water quality, and received grants for modeling projects. TR 546:2-547:3; *see also* CX-19.

East Fork of the Des Moines River. CX-20 at 4; Wang Test., TR 553:18-554:8. The first portion of the modeling effort is discussed immediately below.

i. The curve number model is widely-used and conservative

To calculate runoff within and from the facility, Dr. Wang used a runoff curve number method developed by the United States Department of Agriculture ("USDA") Natural Resources Conservation Service ("NRCS"). The curve number method is a time-tested and peer reviewed model and the most widely used method to calculate stormwater runoff. CX-20 at 8-9; CX-20.1 at 1; Wang Test., TR 531:18-25, TR 551:2-5, TR 561:15-19, TR 565:7-15 TR 566:10-13, TR 569:10-570:9. Indeed, the curve number model is ideal to model a small agricultural area as it is simple, reliable, and robust. Wang Test., TR 565:17-20, TR 566:16-20, TR 567:16-18, TR 570:10-20. The curve number model is an empirical model based on observational data and it is inherently conservative. TR 551:2-4, TR 567:20-569:2. As described in further detail below, the assumptions and inputs chosen by Dr. Wang were also very conservative, such that "the runoff volume calculated by the model would be conservative as well." TR 569:3-9.

ii. Site-specific and conservative inputs to calculate facility runoff and overflow

To calculate runoff into the manure pit, the capacity of the manure pit, and runoff from uncontrolled areas of the facility to the swale, Dr. Wang used site-specific and conservative inputs and assumptions. With these conservative inputs, Dr. Wang's modeling resulted in fewer contributions by overflows from the manure pit and less overall runoff from the facility's production area. Dr. Wang calculated the surface area of the portions of the facility's production area that flow to the manure pit and the surface area of the uncontrolled area, conservatively not including the northern portion of the feedstock and bale storage area within the uncontrolled area. CX-20 at 11; Wang Test., TR 554:9-556:19, TR 590:5-592:21. In addition, Dr. Wang used a conservative curve number of 92 for the concrete production area, instead of 97 which is recommended for concrete, resulting in less runoff into the pit.[21] TR 564:9-565:1.

Dr. Wang also conservatively calculated the capacity of the manure pit, using a 10-foot depth for the pit rather than the actual estimated 8-foot depth, assuming it was 20% larger and reducing the number of overflows.[22] TR 571:7-21, TR 609:12-610:2; CX-20 at 11; CX-20.2 at 4. In addition, Dr. Wang used a higher evaporation rate than recommended by the literature for the manure pit. Wang Test., TR 571:1-5; *see also* CX-20.2 at 65.

iii. Precipitation data inputs to the model

The curve number model uses the daily precipitation amount to calculate the total runoff volume for a given day. CX-20 at 8. For precipitation inputs to the model, Dr. Wang used the most accurate, reliable, and site-specific data set available, which was the rainfall data collected at the National Climatic Data Center gauge at Swea City, Iowa. CX-15. Dr. Wang testified that "[i]n the modeling world, the rule number one… [is] always to select the rainfall station either inside the facility or closest to the facility or the study site." TR 584:21-24. Because there was no rainfall station inside the facility,[23] Dr. Wang and Mr. Draper testified that the data collected at

[21] In contrast, Ms. Heikens assumed all of the rainfall falling on the feedlot would runoff into the pit, which is equivalent to a curve number of 100. Wang Test., TR 572:4-8; Heikens Test., TR 1100:23-1101:5.

[22] Dr. Wang calculated the pit's capacity was 322,593 gallons, CX-20.2, at 4, which is larger than the capacity calculated by Ms. Heikens using a depth of 8 feet, which was 42,872 cubic feet, or approximately 320,704 gallons, CX-55.3 at 2. Ms. Benson, environmental specialist with Iowa Department of Natural Resources ("IDNR"), TR: 24:10-12, noted that the manure pit was 8 feet deep based on information given to her by Respondents' father, Mr. Gary Brown. TR 36:4-10 (referencing CX-1.9 at 1).

[23] Mr. Draper testified that he believed that "there was no rain gauge maintained onsite," TR 326:20-21, and he "would have loved to review an on-scene station, love to review that data. That data was never available," TR 468:14-16. For the first time at hearing, despite raising site-specific rainfall as an issue throughout the many years this case has been pending, Respondents testified that they measured rainfall at the facility, and at Josh Brown's residence 1.5 miles away, using common plastic gauges that can be purchased at Walmart or a farm store. T. Brown Test. TR 837:20-21, 838:15-17, TR 943:9-944:8, TR 945:1-7, TR 957:7-961:4; J. Brown Test., TR 990:4-991:11. In any case, Respondents' testimony regarding the amount of rainfall measured on June 17, 2014 did not establish that the NOAA-certified rainfall data measured at the Swea City station was not accurate and reliable to conditions at the site, as Respondents testified that they could not recall how long the gauges had been operating, T. Brown Test., TR 946:10-23, or the precise amount measured or time checked on June 17, 2014, T. Brown Test., TR 945:14-17; J. Brown Test., TR 991:5-11, TR 1016:8-16; further, Respondents did not attempt to compare rainfall

the Swea City station was the best rainfall data available for the Riverview Cattle facility including because it is the closest rainfall station, it measures observed, not estimated rainfall, and it is maintained and certified by the National Oceanic and Atmospheric Administration ("NOAA"). Wang Test., TR 584:16-585:3, TR 585:22-586:1, TR 586:13-587:1, TR 587:25-588:3, TR 647:1-6; Draper Test., TR 327:10-329:1; *see also* CX-16.

iv. <u>Verification of modeling facility runoff and overflow to the swale</u>

Dr. Wang performed model parametrization and calibration and verified his model results using observations by EPA inspectors during the 2014 and 2016 inspections. CX-20.2 at 1; TR 602:24-604:8, TR 623:5-15. Dr. Wang visited the facility in April of 2018, which gave him more confidence that the model inputs and curve numbers were appropriate and the modeling results were accurate. TR 633:13-19. In addition, Dr. Wang's modeling inputs and results were peer reviewed and approved by other expert modelers at the EPA. TR 623:16-23.

v. <u>Modeling results of facility runoff and overflow to the swale</u>

The modeling results of manure pit overflows are summarized in CX-20 at 18, Table 7, including the dates and volumes of overflow events in April and May of 2013 and June of 2014. Detailed volumes of daily runoff to the pit and its overflow are provided in CX-20.2 at 41 to 64. Overflow volumes, runoff from uncontrolled areas of the facility, and runoff from the surrounding watershed were totaled to determine the total runoff to the swale. CX-20.2 at 66 to 109. A comparison of the modeling results for daily runoff from the pens in 2011, CX-20.2 at 66-71 and 88-93, with the capacity of the central manure alley calculated by Dr. Wang, CX-20.3,

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measurements from these gauges on other dates with the Swea City data, noting that although their grandmother may have kept notes of rainfall measured by the gauges in the past, T. Brown Test., TR 837:21-24, TR 944:9-24, TR 945:18-22, they have not kept track of rainfall measured by these gauges themselves, T. Brown Test., TR 948:3-14; J. Brown Test. 1016:19-1017:9, TR 1018:11-1019:22.

shows that, before the construction of the manure pit, the runoff exceeded the alley's capacity multiple times, sometimes by double or triple amounts.[24] Similarly, after construction of the manure pit, a comparison of the modeling results for daily runoff into the pit, CX-20.2 at 41-64, with the conservatively calculated capacity of the pit, CX-20.2 at 4, shows that the manure pit overflowed on several occasions.[25] Even if the manure pit was pumped out more often than Dr. Wang assumed, large volumes of runoff from the facility's uncontrolled areas flowed directly to the swale, as shown in the column labeled "process wastewater from facility that bypasses the manure pit" in CX-20.2 at 66-109.[26]

2. Pollutants were present in Respondents' runoff and overflow

The definitions of pollutant and process wastewater quoted above make clear that pollutants are present in process wastewater and that any runoff or overflow from a production area is process wastewater, which includes spillage or overflow from manure pits and any stormwater that comes into contact with manure, feed or bedding. 40 C.F.R. § 122.23(b)(7). Common pollutants from CAFOs include bacterial loads, such as E. coli and salmonella, and high nutrient loads, such as ammonia and phosphorous, as well as suspended solids. Draper Test., TR 290:9-16. Based on literature about contaminants from CAFOs contained in CX-22, CX-23, CX-24, and CX-25, and experience, Mr. Draper testified that these pollutants wash off in

[24] Dr. Wang calculated that the central manure alley had a capacity of 27,713 gallons. CX-20.3. However, runoff totals from the pens exceeded that amount on multiple occasions in 2011. For example: 33,740 gallons on May 20, CX-20.2, at 67, 89; 45,634 gallons on June 10; 101,297 gallons on June 15; 47,321 gallons on June 19; 50,937 gallons on June 21; 39,812 gallons on July 6; and 34,139 gallons on July 11, CX-20.2 at 69-70, 90.

[25] Moreover, Dr. Wang's calculations were conservative as compared to Ms. Heikens, who concluded that just a 4-inch rain would overtop the manure pit even if it started out completely empty. TR 1103:10-21 (referencing CX-55.3 at 2).

[26] Dr. Wang testified that if the model assumed that the manure pit never overflowed, and was pumped down every day, then the modeling results would only change two days of discharge under the road grade scenario and did not change any of the days under the field condition scenario because process wastewater from other areas of the facility would continue to flow to the swale and sufficient volumes of runoff to the swale, even without the addition of the manure pit overflow volume, resulted in discharges through the tile line. TR 610:3-13, TR 662:21-663:5.

stormwater from a CAFO's production area and any water that touches the production area, whether or not it touches manure or contains manure pit overflow or manure solids, is process wastewater. TR 290:20-294:4; *see also* Urban Test., TR 105:22-106:10. As discussed further below, the results of samples taken by EPA during inspections in 2014 and in 2016 show that common CAFO pollutants, including high amounts of E. coli, ammonia, and suspended solids were present in process wastewater from Respondents' facility.

The court in *Leed Foundry* found that "[g]iven the fact that storm water does exit Leed's property, there is no basis to assume, given the dusty, sandy conditions and consequent sources of mobile materials, that the water would exit in a pristine state." 2007 WL 2192945, at *13. Further, the court rejected "[t]he notion that EPA must sample each site and demonstrate that such pollutants are actually flowing from the facility" and the suggestion "that EPA would have to negate all other potential sources of pollutants." *Id*. As the court noted, these types of requirements were both "unduly burdensome and def[ied] common sense." *Id.*

In this case, EPA's sampling results from the 2014 inspection document that pollutants were present in process wastewater runoff from Respondents' facility, as shown in the results for Sample # 1, taken of runoff in the swale at the tile inlet.[27] Sample # 1 showed that over 4 million colonies of E. coli per 100 mL were discharging that day in addition to high amounts of suspended solids (633 mg/L) as well as high nutrients and biological oxygen demand ("BOD"). CX-1 at 11, Tbl. 1. Mr. Draper testified that the sampling results are indicative of CAFO process

[27] It is undisputed that the swale contained pollutants from Respondents' facility on June 17, 2014, as Respondents admitted that the EPA "inspector observed and sampled pollutant discharges emanating from the confinement pens and other production areas into the tile-drainage system at Riverview Facility." Answer ¶ 23. Mr. Tony Brown also admitted he could see liquid manure in CX-1.5 at 32. TR 855:1-4. In addition, Mr. Draper testified that evidence of manure in the form of a sheen that is unique to CAFOs can be seen in CX-1.5 at 32 and CX-29.5, showing runoff from the facility flowing to the swale. TR 319:19-321:18, TR 475:10-23. Mr. Urban testified that, based on his experience, the water at the southern end of the swale near the tile inlet "smelled like manure and feedlot," with a look and odor identifying that it was process wastewater from the facility. TR 125:3-15.

wastewater and he concluded that the source was the Riverview Cattle facility. TR 324:1-325:5, TR 505:14-19. Sample # 1 included pollutants from the overflowing manure pit[28] and from the northern manure alley and feed alley since runoff from these areas was seen combining with the overflow before flowing east to the swale. Urban Test., TR 100:12-101:2; Draper Test., TR 463:19-464:16. During the 2014 inspection, process wastewater generating materials were visible in the northern manure alley among the facility's process wastewater. Urban Test., TR 100:12-101:2, TR 102:13-20 (referencing CX-1.5 at 31); Draper Test., TR 312:4-10 (referencing CX-29.4). In addition, cornstalks used for feed or bedding, which were typically stored by Respondents in the feed alley and northern manure alley[29] or spilled by the feed wagon[30] were visible in the facility's runoff to the swale. Urban Test., TR 106:18-107:10 (referencing CX-1.5 at 32); T. Brown Test., TR 855:5-16; CX-1.5 at 32.

It is reasonable to conclude that previous runoff events resulting in process wastewater from the northern manure alley and feed alley would contain similar pollutants as those seen in Sample # 1 because facility structures and practices did not change; however, as discussed below, Sample # 3 from the 2016 inspection provides even clearer evidence of the pollutants from this area because there was no manure overflow contributing to that sample. Sample # 1 is stronger evidence of what process wastewater from the central manure alley and Pen 1 contained, before the manure pit, as those areas contained the same type of process wastewater.[31]

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[28] Manure pit overflow is, by definition, process wastewater and the purpose of Respondent's pit was to hold liquid manure and runoff from the pens. T. Brown Test., TR 805:22-806:2.

[29] Respondents typically stored bales for bedding in the northern manure alley and within the feed alley or at its intersection with the northern manure alley. T. Brown Test., TR 879:5-18 (referencing CX-8.6 at 14); J. Brown Test., TR 1000:22-25, TR 1005:19-22; Urban Test., TR 102:16-17, TR 165:17-18 (referencing CX-8.6 at 13), TR 167:1-9; *see also* CX-12.6 (showing bales in feed alley).

[30] Mr. Draper testified that during the 2016 inspection, he observed material spilled or tracked out by the feed wagon along its route. TR 382:4-383:9; *see* n.36, below; *see also* Urban Test., TR 164:3-13, TR 165:8-16.

[31] Respondents testified that they would scrape pens when it rained and push or bucket that material into the central manure alley, and that "slop" or "liquid manure" can be seen in the central alley in aerial photographs. T.

In addition, it is reasonable to assume that, after construction of the manure pit, overflows prior to June 17, 2014 contained the same pollutants as seen in Sample # 1. Further, evidence of heavy nutrient loads and erosional features in the area immediately east of the manure pit can be seen in CX-1.5 at 32, supporting the conclusion that these pollutants were flowing offsite on previous dates as well. Urban Test., TR 104:7-16.

EPA's sampling results from the 2016 inspection show that even a small rainfall event generated uncontrolled runoff from the facility's production area[32] and, without any manure pit overflow, Urban Test., TR 165:5-7, it contained high levels of pollutants. *Leed Foundry,* 2007 WL 2192945, at *16 ("observations made outside the period of violations can reasonably relate back"). In particular, Sample # 3 was taken of runoff from the northern manure alley, feed alley, and turn-around area without manure pit overflow. Urban Test., TR 165:8-166:1, TR 167:21-168:4; Draper Test. TR 387:4-20 (referencing CX-8.6 at 57). Sample # 3 contained substantial amounts of E. coli (160,000 organisms per 100mL), very high suspended solids (1,900 mg/L) and high nutrients and BOD. CX-8 at 12, Tbl. 1; Draper Test. TR 389:7-10.

It is reasonable to assume that past instances of runoff from the northern manure alley and feed alley had similar pollutants as seen in Sample # 3 because facility practices and structures did not change. Respondents testified that the purpose of the northern manure alley since the time it was constructed pre-2011 was to store manure, as seen in CX-28.1 and CX-28.4, or feed and bedding materials. T. Brown Test., TR 826:19-20; J. Brown Test., TR 1000:12-25. Further, Respondents described practices that occurred both before and after the manure pit that

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Brown Test., TR 807:2-808:7 (referencing CX-12.6), TR 815:11-13(referencing CX-12.6), TR 830:10-11 (referencing CX-12.13); J. Brown Test., TR 999:20-1000:1 (referencing CX-28.4), TR 1029:15-22 (referencing CX-28.1). In addition, manure was present in Pen 1 as well, which can be seen in CX-12.13. Draper Test., TR 359:2-9.

[32] Just prior to sampling on the second day of the 2016 inspection, approximately 0.7 inch of rain fell at the facility. CX-8 at 3. Mr. Draper testified that he was not surprised to see runoff from such a small rainfall amount because the entire facility is concrete. TR 385:1-386:3.

resulted in pollutants in this area.[33] Similarly, pollutants were present in the feed alley due to spilled feed[34] and manure tracked in by the feed wagon.[35]

In addition to Sample # 3 discussed above, EPA also sampled runoff from the facility's feedstock and bale storage area during the 2016 inspection. Respondents stored feed and bedding primarily in these areas, including large bales that were stacked as well as broken bales and material scattered along the ground that contributed pollutants to process wastewater runoff; in addition, the material itself also washed off in runoff. Urban Test., TR 110:2-13; Draper Test., TR 322:3-25 (referencing CX-1.5 at 36 and CX-29.5), TR 379:9-18. Sample # 2 taken during the 2016 inspection was taken of runoff from this area after it bypassed the manure pit and flowed towards the swale. Urban Test., TR 169:15-170:3. The results of Sample # 2 showed high counts of E. coli (310 organisms per 100mL) and elevated levels of nutrients and suspended solids. *See* CX-8 at 12, Tbl. 1. In addition, Sample # 1 taken during the 2016 inspection may have also

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[33] Before and after construction of the manure pit, whenever Pen 6 was scraped, manure fell over the wall of Pen 6 and into the northern manure alley. T. Brown Test., TR 826:20-827:14; J. Brown Test., TR 1001:16-1002:4, TR 1025:18-21. In addition, after construction of the manure pit, whenever the pit was pumped, spills occurred in the northern manure alley where the pump hose was unlocked from the load stand. T. Brown Test., TR 846:1-16, TR 881:9-882:3. Moreover, Mr. Tony Brown testified that he was very careful to clean up any manure pit spillage the night before Sample # 3 was collected, in contrast to a typical pumping operation. TR 885:11-886:5 ("…I would be entertained to see what that sample would be had I not squeegeed that manure back into the pit from the night before. There was 160,000 parts of E. Coli after I squeegeed it in. What is it before that if you don't?"). Thus, past instances of runoff from the northern manure alley may have had even greater amounts of pollutants than Sample # 3.

[34] Feed spilled out of the bunks of Pens 5 and 6 while cattle were feeding. J. Brown Test., TR 1007:22-24 ("we come back at night and blade all the feed back to them so they can clean it up."); *see also* Draper Test., TR 389:19-390:1 (typically, cattle "root around and move that material all around… they're not clean animals… [t]hey're trudging – dropping material.").

[35] While Respondents asserted that the feed alley was clean because "there's never any cattle out there," J. Brown Test., TR 1008:12-17, they also testified that it was "a normal practice" for the feed wagon to drive through the central manure alley where solid and liquid manure was commonly stored, T. Brown Test., TR 811:6-8, before driving up the feed alley, then to the turn-around area and back through the feed alley. Draper Test., TR 380:16-382:3; T. Brown Test., TR 810:7-811:20. While Mr. Tony Brown asserted that the feed wagon avoided driving through liquid manure, TR 815:11-816:10, he also testified that if it did, tracks would be seen in CX-12.6, TR 816:12-20. In fact, the track out from the feed wagon can be seen in multiple areas in CX-12.6, including where it drives from the alley between Pens 1 and 2 into the central manure alley, back out the alley between Pens 3 and 4, and at the turn around area. The tracks are even more visible in a zoomed-in version of that same image, CX-28.2, as well as in CX-12.13 and CX-28.7. *See* Draper Test., TR 360:11-20. Furthermore, Mr. Draper observed the feed and manure spilled and tracked out by the feed wagon along its route during the 2016 inspection, as can be seen in CX-8.6 at 14. TR 382:4-383:9; *see also* Urban Test., TR 164:3-13, TR 165:8-18.

contained runoff from the bale storage area that flows north before flowing east and south. Urban Test., TR 170:4-7, T. Brown Test., TR 884:25-885:1. Sample # 1 contained E. coli and even higher suspended solids than Sample # 2. *See* CX-8 at 12, Tbl. 1. It is reasonable to assume that previous uncontrolled runoff from the feedstock and bale storage area had similar amounts of pollutants as Samples # 1 and 2 because facility structures and practices did not change.

3. Respondents' process wastewater in the swale entered the tile inlet

a. Wastewater exceeding the swale's capacity entered the inlet

As noted above, the swale to the east of Respondents' facility slopes from north to south where it is bordered by a road that acts as a dam. Urban Test., TR 99:1-4. The swale's extent and lower elevation compared to surrounding areas can be seen in LIDAR images contained in CX-20 at 28, Fig.13(a) and CX-20.2 at 3. At the southern end of the swale near the road was an inlet to a tile line, shown on CX-1.6 at 4, which was the location of Sample # 1 taken during the 2014 inspection. The inlet is an orange standpipe with approximately 1-inch perforated holes all around the sides, similar to another inlet pipe shown in CX-8.6 at 23. Urban Test., TR 124:13-14; Draper Test., TR 399:23-400:14.

The inlet existed at this location long before 2011 and it is undisputed that it continued to exist throughout the period of violations in this case. Draper Test., TR 397:19-398:11; Urban Test., TR 171:15-17; CX-8 at 7. Respondents blocked it with a sleeve on June 18, 2014, as shown in CX-2 at 3. T. Brown Test., TR 855:17-856:10. Subsequently, Respondents removed the surface standpipe and plugged the ground opening, as shown in CX-8.6 at 19 and 20. Urban Test., TR 160:22, 161:2-10; Draper Test., TR 396:23-397:10. Respondents also installed a culvert in March 2015, CX-5, at the location marked on CX-8.7 at 3, allowing water from the swale to flow under the road and into the field on the south side, as shown in CX-8.6 at 58. Urban Test., TR 160:22-161:2, TR 169:2-5; Draper Test., TR 374:5-10. Mr. Tony Brown admitted that prior to the culvert being installed, the water in the swale could only exit the swale through the tile inlet. T. Brown Test., TR 891:3-5 ("when the tile outlet was plugged, now that's where the field water runoff and any surface runoff goes through that culvert into the next field."). Mr. Draper testified that, based on his review of aerial images taken from April 2011 to March 2015, before the culvert, the field to the south of the swale "appears to be a well-functioning crop ground," TR 346:19-23 (referencing CX-12.17), with a high density of vegetation, TR 356:23-357:3 (referencing CX-12.15), TR 362:7-12 (referencing CX-12.13), and there was no evidence of runoff pathways through that field prior to the culvert, TR 373:5-9. In contrast, in an aerial photograph taken after the installation of the culvert, CX-12.34, runoff pathways are clearly visible in the south field. Draper Test., TR 374:19-375:1, TR 417:20-24. Dr. Wang's calculations of the swale's capacity support the fact that there would have been visible indications in the south field if the large quantities of water retained in the swale overtopped the road instead of entering the tile inlet.[36] For example, Dr. Wang testified, because the area of the swale is about 1.2 acres, the difference between just 2.4 inches of elevation of the water level means over 200,000 gallons of water. TR 615:11-22. Therefore, prior to Respondents' installation of the culvert and blockage of the inlet, runoff from the facility that collected in the swale entered the tile drain. Draper Test., TR 373:10-14.

[36] Using LIDAR and GIS software, Dr. Wang calculated the capacity of the swale. CX-20 at 10; TR 611:20-612:8 (referencing CX-20 at 30); TR 613:19-614:4, TR 616:6-11. Dr. Wang used two different scenarios in modeling runoff in the swale, depending on the location and elevation of the inlet: the "road grade scenario," which assumed the inlet was located closer to and at a similar elevation as the road, giving the swale a larger capacity; and the "field condition scenario," which assumed the inlet was located slightly farther and lower in elevation. TR 612:15-613:18. The location of the inlet is just 2.4 inches difference between the two scenarios. TR 615:1-4.

b. Observations on June 17, 2014 confirmed that wastewater entered the inlet

At approximately 12:15pm on June 17, 2014, EPA inspectors Mr. Urban and Mr. Roberts drove to the Riverview Cattle facility on the road bordering the swale as marked on CX-1.6 at 2B, Urban Test., TR 75:10-73, TR 80:18-81:5, and observed water ponded and encroaching onto the road, as marked on CX-1.6 at 4B. Urban Test., TR 83:3-84:18; Roberts Test., TR 244:7-12. Mr. Urban and Mr. Roberts both testified that they saw and heard the water entering the inlet at that time through an open window of their car. Urban Test., TR 81:9-23, TR 120:9-16; Roberts Test., TR 244:18-22. Mr. Urban testified that four and a half hours later, at approximately 4:50 p.m. when he took a photo of the inlet, CX-1.5 at 42, he again saw and heard water from the swale entering the inlet and it was no longer encroaching on the road. TR 123:15-25, TR 124:5-21. Mr. Urban testified that as the water was flowing into the holes around the sides of the orange inlet pipe, "you can see the weir, it's like it is sucking it in, so it's got an indentation wherever the water flows into one of the round holes." TR 124:13-17. At approximately 5:50pm, when Mr. Urban took a sample at the inlet, he could not stand right next to the standpipe because there was water all around it when he reached out to take the sample, TR 126:20-25, TR 128:2-7, and he could "see the grass right up there, it's dropping seeds onto… and those seeds are flowing and sucking into the pipe." TR 128:7-11. Mr. Roberts testified that at the time Mr. Urban took the sample, the water had receded from the shoulder of the road but still surrounded the inlet, and that it did not appear to have gone on the other side of the road. TR 252:3-253:1.

At the hearing, Respondents denied that they saw or heard the water enter the tile inlet on June 17, 2014. T. Brown Test., TR 856:23-857:1-5; J. Brown Test. TR 994:19-995:4. Although it should be noted that Mr. Tony Brown admitted "I didn't get down there with my hand and hold it there to see if there was anything going on." TR 857:3-4. However, Respondents admitted in their Answer that “at the time of the 2014 inspection, EPA observed and documented an open inlet into the tile drainage system at the Riverview Facility that received surface runoff and process wastewater from the Riverview Facility production areas, and from an estimated 20 acres drainage area,” Answer ¶ 28, and that “[t]he inspector observed and sampled pollutant discharges emanating from the confinement pens and other production areas into the tile-drainage system at the Riverview Facility.” Answer ¶ 23. In addition, Respondents made several statements in filings to the Court indicating that water was actually entering the inlet, even if they disputed how quickly or how loudly. *See* Tony Brown’s Statement and Joshua Brown’s Statement in Support of Respondents’ Response to Complainants’ Motion for Accelerated Decision ¶ 4 (“the surface water <u>entering</u> the tile surface standpipe on June 17, 2014 during the inspection <u>was moving</u> very slowly, if at all.” (emphasis added)); *id.* ¶ 13 (“I have not been aware of any overflow from the feedyard <u>to the tile inlet as occurred</u> on June 17, 2014[.]” (emphasis added)).

Dr. Wang testified that the surface area of the swale is so large that when it is ponded as seen on June 17, 2014 in CX-1.5 at 42, a small change in surface elevation, such as the difference between water encroaching on the road and receding a few hours later, or even a centimeter or two, means the difference of thousands of gallons of water. TR 615:19-616:5. There is no evidence that such a large volume of water went anywhere besides into the tile inlet, particularly given the lack of evidence of runoff on the other side of the road. Further, in the photograph taken by Respondents the following day, CX-2 at 3, water does not appear to be surrounding the standpipe as it was during the inspection and the water level of the swale appears lower than in CX-1.5 at 42, Urban Test., TR 155:23-158:16, meaning even more thousands of gallons of water from the swale had discharged through the tile inlet by the next day.

c. **Modeling results quantified wastewater in the swale that entered the inlet**

EPA's expert, Dr. Wang, used hydrologic modeling to quantify runoff to the swale, including from the facility and the rest of the watershed, and to determine the number of days that the runoff collected in the swale entered the tile inlet.

i. <u>Site-specific and conservative inputs to calculate wastewater that entered the inlet</u>

Dr. Wang used the curve number model, which as noted above is an empirical and inherently conservative model, and selected site-specific and conservative inputs to that model, in order to calculate the amount of runoff to the swale from its surrounding watershed.[37] The inputs to the curve number model are: precipitation data, watershed area, soil hydrological data, cropland, moisture data, land use, and curve number. Wang, Test., TR 561:20-562:5, TR 584:4-9. As discussed above, Dr. Wang used precipitation data collected at the Swea City gauge as an input to the curve number model because it provided the best, closest, observed, and certified rainfall data during the period of violations. TR 584:15-585:3, TR 586:20-587:1, TR 587:25-588:3, TR 649:5-9, TR 661:14-20. Dr. Wang delineated the 24.87-acre watershed that drains into the swale, CX-20 at 27 and 28, using two widely-accepted methods that were site-specific and confirmed the accuracy of the watershed area: LIDAR data and the HEC-RAS model.[38] TR 573:7-8, TR 577:23-578:4, TR 581:8-19, TR 582:15-22, TR 588:4-589:8; *see* CX-20 at 28 and 29; *see also* CX-20.2 at 3. Within the swale's watershed, Dr. Wang identified the hydrologic soil groups, CX-20 at 27, Fig. 12, which are soil types grouped together by the NRCS, TR 593:7-

[37] In addition to the curve number model, Dr. Wang used another hydrological model, HEC-RAS, to determine certain inputs to the curve number model, such as watershed and land use areas, to confirm flow paths and their hydrologic connections within the swale watershed, and to confirm the infiltration rate applied to water ponded in the swale, and similarly performed model parametrization and calibration, and verified the results. TR 572:15-573:8, TR 574:14-576:19; CX-20 at 7-8.

[38] The watershed size and shape delineated by Dr. Wang is almost identical in size and shape to that calculated by Respondents' engineer, Ms. Heikens, using LIDAR data. Wang Test., TR 588:14-18, TR 589:10-590:4; Heikens Test., TR 1104:1-1105:8 (comparing CX-20 at 28, Fig.13(a), with CX-55.3 at 11).

594:19, using the most detailed site-specific data available, collected in the field by the NRCS Soil Survey. TR 594:20-595:8, TR 598:23-599:1; *see also* CX-20.2 at 2. This data is accurate and reliable, and it was the same data used by Mr. Gary Brown to determine the soil types in this same swale area in the manure management plan required for Bacon Maker. TR 595:23-596:8; *see* CX-1.11 at 60 and 62. The majority of soils in the swale area are designated as a C/D group, which means that it is assigned either C group or D group depending on whether it has adequate drainage or not. CX-20 at 7 and 15, Tbl. 1; CX-20.2 at 65. The swale did not have adequate drainage, so Dr. Wang assigned it D group; however, to be conservative, he selected a curve number commensurate with the C group. TR 596:22-598:22. Using site specific moisture data and land use information, TR 575:6-9, TR 599:2-601:15, Dr. Wang selected conservative curve numbers for every area of the watershed, all at the low end of the recommended range, resulting in less modeled runoff. TR 598:12-22, TR 602:18-608:15; CX-20 at 16, Tbl. 3.

In addition to conservative inputs, Dr. Wang did not run the model for the winter months, even though there may have been discharges in those months. TR 560:18-25. The recreation season on the East Fork Des Moines River runs from March 15 to November 15, and recreational use of the River is impaired by E. coli pollution from feedlots such as Respondents' facility. CX-26. To be conservative, Dr. Wang removed the two weeks at the beginning of the season and the two weeks at the end of the season and ran the model from April to October each year. TR 560:25-561:7.

Dr. Wang made conservative assumptions regarding the capacity of the swale and the inlet to calculate the volumes and days it discharged. Dr. Wang modeled two scenarios of the swale's capacity, CX-20 at 30, Fig. 15, but testified that, based on the 2014 inspection report, the field condition scenario is more likely accurate, and the road grade scenario was only modeled to use a more conservative estimate. TR 616:12-617:23; CX-20 at 10. Because the field condition is accurate to actual conditions, EPA asserts that discharges occurred on the days predicted under that scenario, which still reflects conservative assumptions such as assuming that the water in the swale must reach at least a 1-foot depth at the base of the inlet standpipe before water can enter the inlet, whereas photos of a similar pipe from the 2016 inspection show that the pipe's perforated holes start just inches above ground level. CX-20 at 11; CX-8.6 at 23.[39] The maximum daily flow rate of the tile line was also conservatively calculated, meaning it assumed higher volumes of water could flow through the pipe in order to be conservative about the number of days of discharge. CX-20 at 11, 32-33; CX-20.2 at 66, 88; Wang Test., TR 560:17.

Dr. Wang also used conservative evaporation and infiltration rates for the water ponded in the swale, which were applied to subtract volumes from the swale on a daily basis, resulting in less discharge. TR 560:15-17, TR 620:4-6; CX-20.2 at 65. Dr. Wang used the HEC-RAS model to calculate a site-specific infiltration rate for the swale of 0.016 inch/hour, and then he selected a higher rate of 0.02 inch/hour. TR 574:14-16, TR 576:15-19, TR 648:6-11, TR 650:5-13.

ii. Verification of modeling results of wastewater that entered the inlet

As noted above, Dr. Wang performed model parametrization and calibration and verified his model results, conducted a site visit in 2018 that confirmed his assumptions and results, and received peer review of his modeling. Dr. Wang verified the modeling results in several ways, *See* CX-20.2 at 1, including that he compared the results of LIDAR and a HEC-RAS model simulation of runoff on June 16-17, 2014, and found they compared favorably to each other and to conditions observed during the 2014 inspection. TR 575:10-576:17, TR 577:16-579:15 (comparing CX-20 at 28, Fig. 13(a) with CX-20 at 29, Fig. 14); *see also* CX-20 at 8. Dr. Wang

[39] As noted above, Mr. Urban and Mr. Draper testified that these photos show a similar inlet pipe as the one that was in place in the swale. Urban Test., TR 124:13-14; Draper Test., TR 399:23-400:16.

also compared the runoff to rainfall ratio of his modeling results to several local studies and concluded that the model was properly calibrated to the site. TR 620:19-623:4; CX-20 at 9; CX 20.1 at 2. Dr. Wang calibrated the model to account for the observed manure pit overflow on June 17, 2014 but he did not need to calibrate any other parameters to predict the other runoff from the facility that discharged into the tile inlet. TR 603:23-604:8, TR 665:1-2, TR 677:18-678:16; CX-20.1 at 1 and 3; CX-20.2 at 1. Dr. Wang also ran the model for the dates of the 2016 inspection and the results predicted the runoff from the facility and surrounding area that was observed on March 30, 2016 without the need for any calibration, meaning the model was validated by the 2016 observations. TR 623:5-15; CX-20.2 at 1.

iii. Modeling results of wastewater that entered the inlet

The results of Dr. Wang's modeling show a total of forty-two days of discharge after taking into account that Respondents blocked the inlet on June 18, 2014 and that one day of discharge would not have occurred without the volume of runoff retained by the central manure alley, CX-20.3.[40] On several dates, modeling results show manure pit overflow combined with other process wastewater from the facility in the swale before discharging through the inlet. CX-20 at 17-18; CX-20.2 at 41-109. However, manure pit overflow is not necessary for there to be a discharge through the inlet because other runoff from the facility contributed pollutants to the swale, and whenever the total amount of runoff accumulated in the swale was sufficient to reach and enter the tile line, there was a discharge.

[40] After subtracting the dates after June 18, 2014, but including the day of the 18th itself (as discharges occurred prior to the sleeve being installed), and subtracting June 10, 2011, as calculated in CX-20.3, from the field condition scenario (no days of discharge under the road condition scenario were affected), the 42 days of discharge under the field condition scenario include: 14 days in May and June of 2011; 2 days in April of 2012; 19 days in April, May, and June of 2013; and 7 days in April and June of 2014. And the 30 days of discharge under the road condition scenario include: 10 days in May and June of 2011; 1 day in April of 2012; 17 days in April, May, and June of 2013; and 2 days in June 2014. As noted above, because the field condition scenario is more accurate to actual conditions, EPA asserts that discharges occurred on 42 days as predicted under this scenario.

Dr. Wang explained that his model was not based on whether the manure pit overflowed on June 17, 2014, but that he used the manure pit overflow that day to calibrate the model, TR 665:1-2, and that he did not need to change any other inputs and the model still predicted a discharge to the East Fork of the Des Moines River on June 14, 2017 due to the other runoff from the facility, TR 677:18-678:16. Dr. Wang testified that he also modeled facility discharges assuming that the manure pit never overflowed but keeping all other inputs the same and his results showed the facility still would have discharged process wastewater through the inlet on the same days predicted under the field condition scenario, including June 17, 2014. TR 677:9-18, TR 678:17-679:14. Dr. Wang also explained, in response to the Presiding Officer's question as to whether the model was based on a discharge to the East Fork of the Des Moines River on June 17, 2014, that the model calculated water discharged to the East Fork of the Des Moines River as water from the swale, including process wastewater from Respondents' facility, that entered the inlet and assumed the volumes calculated based on the assumed capacity of the inlet and tile line were the volumes discharged to the river. TR 668:2-16 ("I can only say based on my model would be input to the inlet and follow the tile drainage into the Des Moines River… So, if it discharge to the inlet, so everything – along with the soil[41] water into the pipe.").[42] Dr. Wang also testified, if assumptions about the tile's capacity changed, such as if it was 90% clogged, then that would only result in more days of discharge because the swale would be draining more slowly. TR 692:6-16.

[41] The word "soil" in this sentence would change to "swale" pursuant to the Joint Motion to Conform the Transcript, if granted by the Court.

[42] In response to certain other questions from the Presiding Officer regarding whether the model is based on a manure pit overflow or a discharge to the East Fork of the Des Moines River on June 17, 2014, Dr. Wang mistakenly continued to explain the calibration of the model in relation to manure pit overflow that day. TR 666:11-667:7, TR 667:16-668:1, TR 690:4-691:8.

iv. Respondents' expert's unqualified and incorrect critiques of EPA's modeling

Respondents' expert, Mr. Hentges, is not an expert in modeling,[43] but he nonetheless offered several critiques of Dr. Wang's modeling in his report contained in RX-2 and in his testimony. In RX-2 at 1, Mr. Hentges asserts, without citation and without reading any of the literature cited in Dr. Wang's report, TR 1212:5-1214:13, that "[t]he results of many studies listed in the literature that used the models run by EPA indicate that calibration of the models is required to obtain correct predictions" and that, "[i]n many cases, multiple site measurements and revisions of input parameters are required to achieve adequate results." In fact, Dr. Wang's report, citing to specific literature, explained that the curve number method "has proven accurate in estimating runoff throughout the Midwest of the United States with little or no calibration required to adjust curve numbers." CX-20 at 9; *see also* TR 565:17-566:9.

While Mr. Hentges asserted that Dr. Wang did not calibrate the model to be site-specific, RX-2 at 1 and TR 1213:5-10, and did not properly verify or validate his model, TR 1216:18-21, TR 1216:24-1217:3, he acknowledged that Dr. Wang calibrated the model based on the 2014 inspection, TR 1242:9-23, but could not recall whether or how Dr. Wang validated the model using the 2016 inspection, TR 1242:24-1243:2, TR 1243:11-1245:20. Dr. Wang further validated the model by comparing it to several local studies; however, Mr. Hentges testified he did not read the cited studies, did not remember what they all were, and incorrectly asserted that Dr. Wang had simply averaged the results from the Minnesota study. TR 1214:16-1216:17. In fact,

[43] Mr. Hentges is an expert in hydrogeology. TR 1198:1-1199:24. In contrast to Dr. Wang's extensive modeling experience, *see supra* n.20, particularly using the curve number method to model runoff from feedlots, Wang Test., TR 550:6-21, Mr. Hentges' modeling experience, TR 1122:20-1123:5, TR 1167:13-1170:3, does not make up the majority of his work, TR 1209:9-23, he is inexperienced in curve number modeling, TR 1219:12-13 ("I have to read a NRCS paper every time I run it. It's not like I do it every day."), and he has not modeled runoff from feedlots, TR 1204:23-1205:6. Also in contrast to Dr. Wang's experience, Mr. Hentges has not authored any publications or received research grants related to modeling or agricultural runoff, and does not work with state agencies on watershed modeling. TR 1207:5-8, TR 1208:3-6, TR 1208:22-1209:8.

as explained in CX-20 at 9, or as could be gleaned from reading the study itself, the Minnesota study provided ratios for eighty-four river basins, including one site-specific ratio for the East Fork of the Des Moines River, which Dr. Wang used to compare to the model's ratio.

Contrary to Mr. Hentges' statement that average values listed in the literature were used as input parameters in Dr. Wang's modeling, RX-2 at 2 and TR 1173:13-14, every input used, except Manning's n values used in the HEC-RAS model, Wang Test., TR 583:2-9, was site specific and conservative and not an average selected out of literature. In addition, contrary to Mr. Hentges' suggestions that Dr. Wang should have conducted "a land survey instead of using LIDAR", and "auger a few four-foot holes and get some soil samples," TR 1217:14-15, Mr. Hentges admitted he would not suggest that Respondents' engineer do so, TR 1224:4-14, TR 1231:17-1232:9. Furthermore, NRCS developed curve numbers based on 20 years of field data and observation of the relationship between soils and runoff, Wang Test., TR 531:18-21, TR 562:19-564:5, TR 567:20-568:20, making it wholly unnecessary for Dr. Wang to collect soil borings in order to accurately model runoff at the site as Mr. Hentges suggested, TR 1175:17-1176:23. Moreover, simply because Dr. Wang did not personally collect the data does not mean that the data is not site-specific and reliable. *See* Wang Test., TR 652:2-19 ("I trust… soil scientist judgment… it's trustable and many people use that.").

Mr. Hentges clearly did not read Dr. Wang's report and addendums closely or listen to Dr. Wang's testimony closely as he could not recall how Dr. Wang selected input parameters, including how he identified soil types at the site, what curve numbers were used, what information was used for soil moisture data, or how the model accounted for evaporation or infiltration, which were all site-specific and conservative values. TR 1230:5-1238:18. In particular, while Mr. Hentges asserted that Dr. Wang used an incorrect infiltration rate, TR

1174:20-1175:25,[44] he demonstrated a lack of basic understanding of how Dr. Wang accounted for infiltration in the model of Respondents' facility. *See, e.g.*, TR 1226:25-1227:4 ("I'm not specifically sure if it's C or D. I didn't, you know, check every assertion in Dr. Wang's report."); *see also* 1238:16-18 ("Q …do you know how he – whether he accounted for infiltration? A I assume he had to in a model.").

4. Respondents' process wastewater flowed through the tile line and discharged into the East Fork of the Des Moines River

As noted above, the discharge of a pollutant is defined in the CWA to mean "any addition of any pollutant to navigable waters." 33 U.S.C. § 1362(12). In this case, sufficient runoff volumes caused water containing pollutants from Respondent's facility to accumulate in the swale and enter the tile inlet, and the evidence in the record establishes it is more probable than not that those pollutants flowed through the tile line and exited the tile outlet, discharging to the East Fork of the Des Moines River. Despite testimony at the hearing about the outlets not working when submerged and speculation that older tile lines can be plugged, Respondents did not show that the tile drain system did not work as intended. Further, Mr. Tony Brown admitted to Mr. Draper that "they had a problem that day, and they discharged" on June 17, 2014 after a long discussion about what is considered a discharge under the CWA, which took place in April 2018, long after the initiation of this case when he was well-aware of the ultimate issue in this case about whether process wastewater from the facility reached the river. Draper Test., TR 427:19-428:4, TR 496:20-503:1; T. Brown Test., TR 915:15-916:2, TR 916:10-17.[45]

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[44] Mr. Hentges asserted this opinion for the first time at the hearing, and it was not contained in his report, RX-2, or any supplemental report. TR 1229:7-1230:4.

[45] While denying that he meant discharge to the river in the legal sense, Mr. Tony Brown testified that he could have used the word "discharge," TR 916:16-17, when he said to Mr. Draper that he "had a problem on June 17, 2014," TR 916:10-12, and that it followed a conversation pertaining to "[t]he inspections, the rules you might call it, or how the Clean Water Act is written and PDS permits, things like that," TR 915:15-916:2 (note the word "PDS" in this sentence would change to "NPDES" pursuant to the Joint Motion to Conform the Transcript, if granted by the Court).

a. Wastewater flowed from the inlet to the outlet at the East Fork of the Des Moines River

As described above, it is undisputed that an inlet to a tile drain existed at the southern end of the swale, and that it existed long before 2011 and throughout the period of violations. Draper Test., TR 397:19-398:11; Urban Test., TR 171:14-17; CX-8 at 7. Respondents stipulated that, at the time of the June 17, 2014 inspection, "[t]he subsurface drain tile referenced in the Complaint traveled from the location of the former inlet at Respondents' facility, beneath the ground surface to the south, to an outlet on the north bank of the East Fork of the Des Moines River." JX-1 ¶ 3. Maps obtained from the county and from Respondents indicate that main tile lines flowing to the East Fork of the Des Moines River existed long before 2011 and throughout the period of violations. CX-1.10. During the 2016 inspection, the specific outlet of the tile line running from the swale inlet was identified and photographed, shown in CX-8.6 at 38, 39, and 40, which corresponded to hand-drawn maps despite some discrepancies, Draper Test., TR 404:1-406:4, TR 407:23-408:21 (referencing CX-1.10), and the tile line path is more accurately shown on CX-8.7 at 2, Urban Test., TR 174:2-175:1.

The difference in elevation between the facility and the East Fork of the Des Moines River shows that process wastewater from the facility would flow from higher elevation to the river. Draper Test., TR 329:2-331:6 (referencing CX-13). LIDAR data shows that the tile inlet's elevation is at approximately 1231 feet and the outlet's elevation is approximately 1196 to 1197 feet. CX-33 at 2-3; CX-45; Wang Test. TR 624:5-16. Mr. Urban and Mr. Draper estimated from their observations of the outlet in 2016 that it is located approximately 5 to 6 feet higher in elevation and 40 yards distance from the bank of the East Fork of the Des Moines River. Urban Test., TR 175:17-21; Draper Test., TR 406:16-407:5.

b. Pollutants from Respondents' facility reached the East Fork of the Des Moines River through the tile line

As discussed above, pollutants were present at the tile inlet and flowed into the tile line on the dates identified by Dr. Wang's modeling. Those pollutants continued to be present when the process wastewater discharged from the outlet to the East Fork of the Des Moines River. As Mr. Draper testified, based on his experience and review of literature, bacteria such as E. coli "do persist in the environment" and that although "there is some loss… these are… living things, so they do die off, but they also multiply." TR 291:14-292:5 (referencing CX-22, CX-23, CX-24, CX-25). Dr. Wang calculated the fate and transport of E. coli in the subsurface tile drainage line using modeling,[46] CX 20.1 at 3-4, and concluded that, using a typical tile discharge rate, the process wastewater from the swale would reach the East Fork of the Des Moines River in only 1.5 hours and a large number of E. coli organisms would survive during that short transport time; however, even under a scenario of several days travel time, high concentrations of E. coli would remain and discharge to the East Fork of the Des Moines River.

c. The tile line was functioning throughout the period of violations

Respondents' tile drain system was functioning throughout the period of violations and evidence in the record shows that water flowed through the tile line. The purpose of tile drainage systems is to move water from the lateral lines through main lines to the nearest waterbody in order to drain agricultural fields; otherwise, they would not be successfully farmed. Urban Test., TR 58:4-59:1; Draper Test., TR 299:18-23. If the tile system was not working properly, Mr. Draper explained, one would see evidence on the surface that the land was not draining such as

[46] Dr. Wang has extensive experience modeling the fate and transport of pollutants to waterbodies as part of his work developing and reviewing TMDLs, TR 545:4-24 and CX-19, as well as researching and writing a thesis on the impact of land application of sewage effluent on water quality in a tile drainage system, TR 537:9-18, TR 539:14-18, and a PhD dissertation on nitrate transport, TR 538:15-19.

ponding, crop distress or erosional features. TR 299:24-300:5, 416:13-417:19. Although Mr. Hentges speculated that there may not be indications on the surface because "this is all… happening pretty slowly," TR 1150:5-8, aerial images of the facility over a four-year period between April 2011 to March 2015 show that the field to the south of the swale where the tile line traveled underground was a well-functioning crop field with no signs of ponding, crop distress, or surface runoff until Respondents blocked the inlet and installed a culvert, when the runoff-related erosion became apparent within one year. TR 346:19-23, TR 356:23-357:3, TR 362:7-12, TR 373:5-9, TR 374:19-375:1 (referencing CX-12.34), TR 417:20-24.

While Respondents submitted photographs, RX-32 and RX-33, that they assert show sediment in the line, TR 904:18-905:14, Mr. Tony Brown testified that Respondents are not claiming it was clogged and admitted that RX-33 does not show it was completely closed but rather "restricted at that point." TR 908:8-15. Further, Respondents and their father have installed lateral tile lines at no small cost in fields surrounding the Riverview Cattle facility in recent years that connect to the tile system's main lines, indicating they were functional. CX-1.10; Draper Test., TR 398:15-399:3 (referencing CX-8.10 at 1); J. Brown Test., TR 1023:13-22 (recent tile line work cost $18,500). When asked multiple times about the tile drainage system, history, and outlets during both the 2014 and 2016 inspections, the Browns provided maps of lateral lines installed by their contractor, Anderson Tiling,[47] and told EPA inspectors that the tile lines went south to the river; Respondents never indicated that the tile lines were not functioning. Urban Test., TR 135:1-14, TR 145:5-20, TR 152:4-11; Draper Test., TR 398:12-399:3; T. Brown Test., TR 861:2-7, TR 895:9-896:3; J. Brown Test., TR 995:6-13, TR 1017:12-22.

[47] It should be noted that Mr. Derek Anderson of Anderson Tiling installed lateral lines at the facility, TR 858:12-15, TR 895:9-896:3, and likely would have been knowledgeable about the tile lines' composition and function; however, while he was listed as a witness in Respondents' Initial Prehearing Exchange filed February 24, 2017, Respondents did not call him to testify at the hearing.

In response to the Presiding Officer's question as to whether the tile line would flow as it appeared in CX-8.6 at 39 if it were clogged or blocked, Mr. Hentges testified that the line does not appear clogged or blocked in any way. TR 1277:19-21. Further, Mr. Hentges testified, if the line were clogged, water could still flow out the outlet "but at a reduced rate just because the capacity of the pipe is less" and that "any kind of sediment build up in the pipe would just allow less water to flow at a given time." TR 1277:2-11. That opinion is consistent with Dr. Wang's answer as to how his modeling results would change if the tile line was 90% clogged, that it would result in more days of discharge as water would drain from the swale through the tile line more slowly, TR 692:6-16; furthermore, due to the persistence of the pollutants, pollutants would remain in such later discharges of process wastewater. CX-20.1 at 3-4.

d. The tile outlet discharged to the East Fork of the Des Moines River

Observations of the outlet of the tile line confirmed it was a functioning tile line that discharged flow to the East Fork of the Des Moines River. During the 2016 inspection, the tile line and outlet were clearly functioning, as observed and shown in CX-8.6 at 39, water was flowing out of the outlet. Urban Test., TR 175:2-4; Draper Test., TR 406:5-10; T. Brown Test., TR 900:15-21 ("pretty good flow" (referencing CX-8.6 at 39)); Hentges Test., TR 1276:10-12 ("I think this pictures shows that at certain times the tile line flows" (referencing CX-8.6 at 39)), TR 1277:12-23. In 2018, Mr. Draper and Dr. Wang also observed water flowing out of the outlet while it was submerged. Draper Test., TR 426:9-13; Wang Test., TR 629:4-21. Mr. Draper testified that he "could see that the grass was waving underneath the water, that it was moving in the direction, a consistent direction, away from the outlet of the pipe" while "[o]n top of the water, it was still" and he saw "floatable seeds and things on top of the water moving in indeterminate directions. But underneath the water, you could see that grass is – next to the outlet, were pulling – were pushed and moving in a way that would – that was pretty – was obvious that water was coming out of there" TR 425:19-427:10.[48] These observations show that water was not prevented from discharging when the outlets were submerged, and even if it were, it would discharge when the river level goes back down. Hentges Test., TR 1275:10-11, TR 1283:11-18. As noted above, Dr. Wang's calculations of the fate and transport of the pollutants show that pollutants would remain in any such later discharges of process wastewater. CX-20.1 at 3-4. Even a small amount of water containing pollutants from Respondents' facility, or a discharge later in time, is the discharge of a pollutant, which is defined to include *any* addition of *any* pollutant. 33 U.S.C. § 1362(12).

B. <u>Respondents discharged from a point source</u>

At all relevant times, Respondents' facility was an animal feeding operation that met the definition of a medium CAFO. *See* 40 C.F.R. §§ 122.23(b)(1), (2), & (6). As such, it was a point source. 33 U.S.C. § 1362(14).

1. Respondents' facility meets the threshold to be a medium CAFO

Respondents admitted in their Answer that, at all relevant times, their facility confined and fed or maintained cattle for a total of 45 days or more in any 12-month period and that crops, vegetation, forage growth and post-harvest residues were not sustained over any portion of the production area, making the facility an animal feeding operation as defined by 40 C.F.R. § 122.23(b)(1). Answer ¶¶ 24, 25, 26. Respondents admitted that at the time of the 2014 inspection, the facility was confining approximately 886 head of beef cattle. Answer ¶ 23. Respondents stipulated that, at all relevant times, their facility "had greater than 300 head of

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[48] There is no evidence in the record that any aspect of the tile outlet or the main tile lines was changed between 2011 and 2018, allowing these observations made in 2016 and 2018 to relate back to the period of violation. *Leed Foundry,* 2007 WL 2192945, at *16.

cattle present for 45 days or more in any 12-month period," JX-1 ¶ 1, making it a medium CAFO as defined in 40 C.F.R. § 122.23(b)(6)(i)(C).

2. Respondents discharged pollutants through a man-made device into waters of the United States

In addition to the confinement threshold, discussed above, the other condition to meet the definition of a medium CAFO is that pollutants are discharged into waters of the United States, if not directly, "through a man-made ditch, flushing system, or other similar man-made device." 40 C.F.R. § 122.23(b)(6)(ii)(A). While Respondents deny that the tile drain system is a man-made ditch, flushing system, or similar man-made device that transports discharges from the facility to the East Fork of the Des Moines River, Answer ¶ 27, the tile inlet, drain pipe, and outlet at the facility are clearly man-made and function similarly to a ditch, as specifically listed in the definition found at 40 C.F.R. § 122.23(b)(6)(ii)(A). The regulatory preamble also makes clear that a pipe such as the underground one serving as Respondents' tile line, is considered a man-made device, stating that a medium CAFO "with a pipe or other man-made conveyance is likely to discharge to surface water in wet weather, or for that matter could potentially discharge even in dry weather." 68 Fed. Reg. 7176, 7195 (Feb. 12, 2003).

All maps of the tile system in evidence and the testimony from Mr. Draper and Mr. Tony Brown demonstrate that the tile system, including the particular inlet, tile line, and outlet at issue in this case, were man-made. CX-1.10, CX-8.10; Draper Test., TR 404:9-406:15, 409:7-17; T. Brown Test., TR 891:24-896:3. In addition, the tile inlet and outlet are constructed out of man-made materials. Urban Test., TR 81:15 (inlet was an orange standpipe); Draper Test., 406:11-14 (outlet was made of a plastic-type material); *see also* T. Brown Test., TR 899:19-22. Mr. Draper testified that, in his experience as an inspector and compliance officer, examples of man-made conveyances at a medium CAFO include culvert, pipes, and tile inlets, which direct water to the nearest water body. TR 299:1-23. Further, Mr. Urban concluded based on his experience inspecting medium CAFOs, "[t]he pipe that they were discharging into was a man-made conveyance." TR 187:11-13.

The tile outlet is located approximately 40 yards from the bank of the East Fork of the Des Moines River. Urban Test., TR 175:17-21; Draper Test., TR 406:16-407:5. As shown in CX-8.6 at 38, water discharged from the outlet flows directly to the river through a well-formed channel. It is undisputed that flow from the outlet reaches the river. As discussed in detail above, Respondents discharged pollutants through the tile drain system, which is a man-made device, and into the East Fork of the Des Moines River; therefore, Respondent's facility is a medium CAFO and a point source.

II. THE PRESIDING OFFICER SHOULD ASSESS THE FULL PROPOSED PENALTY OF $96,000

For violations of CWA Section 301, CWA Section 309(g)(2)(B), 33 U.S.C. § 1319(g)(2)(B), as modified by 40 C.F.R. § 19.4 (Table 1), authorizes the administrative assessment of civil penalties in an amount not to exceed $16,000 per day for each day during which the violation continues, up to a maximum total penalty of either $177,500 or $187,500, depending on the date of violation. In determining the specific amount of an appropriate penalty up to the statutory maximum, the court shall take into account the nature, circumstances, extent and gravity of the violation, or violations, and, with respect to the violator, ability to pay, any prior history of such violations, the degree of culpability, economic benefit or savings (if any) resulting from the violation, and such other matters as justice may require. 33 U.S.C. § 1319(g)(3). There are no civil penalty guidelines issued under the CWA, so the penalty must be determined based on the evidence in the record and in accordance with the list of penalty criteria set forth in CWA Section 309(g)(3), listed above. 40 C.F.R. § 22.27(b); *In re C.W. Smith*, Docket

No. CWA-04-2001-1501, slip op. at 41 (ALJ Biro, July 15, 2004); *see also Tull v. United States*, 481 U.S. 412, 427 (1987) (describing civil penalties under the CWA as "highly discretionary calculations that take into account multiple factors").

One of the main intents of imposing civil penalties is "to punish culpable individuals and deter future violations, not just to extract compensation or restore the status quo." *Kelly*, 203 F.3d at 523. To deter future violations, a penalty must capture not only the economic benefit, but also a punitive component "which accounts for the degree of seriousness and/or willfulness of the violations." *Catskill Mountains Chapter of Trout Unlimited, Inc. v. New York*, 244 F.Supp.2d 41, 48 (N.D.N.Y. 2003).

After applying the statutory factors, a penalty of $96,000 is warranted for the reasons described below.

A. <u>The nature, circumstances, extent and gravity of Respondents' violations justify the proposed penalty</u>

In this case, taking into account the nature, circumstances, extent and gravity of Respondents' violations, a penalty of $96,000 is warranted. The violations at issue here involve the unauthorized discharge of pollutants, including bacteria such as E. coli, nutrients such as ammonia, nitrogen and phosphorous, and suspended solids, into the East Fork of the Des Moines River. The nature of the violations, discharging pollutants into waters of the United States without a permit, go to the very heart of, and thus significantly harms, the statutory CWA program. CAFOs constitute an ongoing problem in the control of pollutants under the CWA. 68 Fed. Reg. at 7176 ("Improper management of manure from CAFOs is among the many contributors to remaining water quality problems [and] has caused serious acute and chronic water quality problems throughout the United States."). Deterrence is an important factor to consider here as well since Riverview Cattle, along with many other similar facilities in this industry, continues to operate without a NPDES permit. TR 43:6-8.

As Mr. Draper testified, when CAFO runoff enters a stream, it can reduce dissolved oxygen and result in fish kills; in less severe cases, it reduces native biological activity. TR 291:5-13. Further support is found in EPA's Risk Assessment Evaluation for Concentrated Animal Feeding Operations, which explains that nutrients such as nitrogen in the form of ammonia, which was present in samples of Respondents' discharges, "may lead to eutrophication, excessive oxygen demand in surface waters and fish kills, reduced biodiversity, objectionable tastes and odors, and growth of toxic organisms." CX-22 at 39; *see also* CX-23 at 20; CX-1 at 11; CX-8 at 12. Phosphorous, another pollutant found in Respondents' discharges, "is a major contributor to eutrophication." CX-22 at 42; *see also* CX-23 at 20; CX-1 at 11; CX-8 at 12. Suspended solids, another pollutant found in Respondents' discharges, "can clog fish gills and increase turbidity" and "[a]dditionally, solids provide a medium for the accumulation, transport, and storage of other pollutants, including nutrients, pathogens, and trace elements." CX-23 at 13.

Further, as Mr. Draper testified, Respondents' pollutants not only harm the stream biota, fish and wildlife, but "E. coli is harmful to human health as well. So if someone were to be recreating in this river… it would be very dangerous," TR 444:3-8, including "a chance that they… [could] ingest this water, and then they could get sick" or "[i]f someone was using this as a drinking water sources, that could potentially make them ill as well." TR 444:25-445:4; *see also* CX-23 at 24; CX-1 at 11; CX-8 at 12. CAFOs "are a major source of pathogenic contamination in most watersheds," making rivers "unfit for swimming and/or fishing as a result" and affecting drinking water sources. CX-22 at 42-43. The Iowa Department of Natural

Resources ("IDNR") adopted a TMDL for pathogens in the segment of the East Fork of the Des Moines River where Respondents' tile outlet is located, using E. coli as an indicator bacteria. CX-26 at 20; Draper Test., TR 440:16-441:7. The TMDL was developed because recreational use is impaired, in part, due to runoff from feedlots in the area, including Respondents' facility. CX-26 at 27. Waterborne and recreational exposure to E. coli can result in serious illness, or even death. CX-22 at 45; CX-23 at 24.

The evidence shows that there was actual environmental harm as a result of Respondents' uncontrolled runoff and manure pit overflow. Sample # 1 collected during the 2014 inspection "shows the process wastewater entering the tile drain inlet to have elevated levels of pollutants, including very high NH3-N, TKN, BOD, Cl, P and E. coli levels (see Table 1)." CX-1 at 11. Sample # 3 collected during the 2016 inspection "shows the process waste water discharging from the feed truck drive of the Riverview Cattle facility to have elevated levels of pollutants, including very high E. coli, Cl, NH3-N, TKN, P, TSS, and BOD levels." CX-8 at 12. This sample did not include manure pit overflow, but nonetheless, as Mr. Draper testified, there is no less harm from the discharge of the same pollutants from other portions of Respondents' production area into the East Fork of the Des Moines River. TR 391:2-13. Further, "Sample 4 shows the process waste water from the feed truck drive was mixing with the storm water run-off and still has elevated levels of pollutants." *Id*. As discussed above, Respondents' facility remained unchanged and pollutant sources continued to be present in uncontrolled areas of Respondents' facility throughout the period of violations and including the 2016 inspection, so it is reasonable to assume that process wastewater discharged to the East Fork of the Des Moines River contained similar types and amounts of pollutants throughout the period of violations.

The extent and gravity of the environmental impacts are confirmed by the significant amounts of E. coli discharged, contributing to the impairment of beneficial use in the East Fork Des Moines River, as well as the amounts of nutrients and suspended solids. The Iowa water quality standards for primary contact recreation are that "the geometric mean should not exceed 126 organisms/100mL or a single sample concentration of 235 organisms/100 mL for E. coli during the recreation season." CX-26 at 20. In particular, Sample # 1 taken in 2014 showed that process wastewater at the inlet contained E. coli in amounts, specifically 4,110,000 colonies/100 mL, that were "magnitudes" higher, Draper Test., TR 443:14-17 (referencing CX-1 at 11, Tbl. 1), or over 17,000 times higher than the water quality standard. The other pollutants present in Sample # 1include high suspended solids that assist in transporting E. coli and nutrients and create their own water quality problems, as noted above, and high nutrients that "contribute to dissolved oxygen impairments… E. coli isn't just the issue… these nutrients also can cause issues with the stream quality." Draper Test., TR 443:20-23. In addition, even Sample # 3 taken in 2016 of facility runoff without any manure pit overflow showed that Respondent's process wastewater contained 160,000 colonies per 100 mL, which is still almost 700 times higher than the water quality standards. Draper Test., TR 442:20-443:4 (referencing CX-8 at 12, Tbl. 1). Further, as noted above, Mr. Tony Brown testified that the 2016 sample was taken after he was careful to avoid manure pit spillage; therefore, it is reasonable to conclude that facility discharges were typically higher in E. coli. TR 885:11-886:5. Sample # 1 and Sample # 2 taken in 2016 showed that runoff from the feed stock storage area of the facility also contained E. coli and suspended solids. *See* CX-8 at 12, Tbl. 1. As Mr. Draper testified, TR 291:14-292:5, and Dr. Wang's calculations show, CX-20.1 at 3-4, E. coli persist in the environment.

The extent and gravity of the environmental impacts are also demonstrated by the frequency with which pollutants were discharged between May 2011 and June 2014, specifically on forty-two days within that three-year period. CX-20 at 18, 33-34.[49] Mr. Urban testified that, based on his experience, the erosional features and lack of crops growing just east of the facility's manure pit and feed alley is "indicative of something that's been occurring for a while," and that it "happens during most rain events." TR 104:6-16. Although runoff from the facility contained pollutants with or without manure pit overflow, the results of Sample # 1 taken in 2014 show that the extent and gravity of the impacts were even greater on those dates when the manure pit overflowed. CX-1 at 11, Tbl. 1.

Therefore, the nature, circumstances, extent and gravity of Respondents' violations justify EPA's proposed penalty.

B. Respondents gained an economic benefit by failing to implement adequate controls

CWA Section 309(g)(3) includes "economic benefit or savings (if any) resulting from the violation" as one factor in determining the penalty amount. 33 U.S.C. § 1319(g)(3). "Insuring that violators do not reap economic benefit by failing to comply with the statutory mandate is of key importance if the penalties are to successfully[] deter violations." *Atlantic States Legal Found., Inc. v. Tyson Foods, Inc.*, 897 F.2d 1128, 1141 (11th Cir. 1990). The purpose of assessing a penalty amount that reflects a violator's economic benefit of noncompliance is two-fold: "it deters violations by taking away the economic incentive to violate the law" and "helps 'ensure a level playing field by ensuring that violators do not obtain an economic advantage over their competitors who made the necessary investment in environmental compliance.'" *In re B.J.*

[49] As explained above, EPA asserts that a total of 42 days of discharge occurred as predicted by Dr. Wang's modeling under the field condition scenario. *See* CX-20, App. B at 33-34.

Carney Indus., Inc., 7 E.A.D. 171, 207, 208 (EAB 1997) (quoting 60 Fed. Reg. 66706 (Dec. 22, 1995)).

Factoring in economic benefit "is accomplished by including as part of the penalty an approximation of the amount of money the violator has saved by failing to comply," and because the precise amount may be difficult to prove, "reasonable approximations will suffice." *United States v. Smithfield Foods, Inc.*, 191 F.3d 516, 529 (4th Cir. 1999), *cert. denied*, 531 U.S. 813 (2000); *accord In re B.J. Carney Indus.*, 7 E.A.D. at 218 ("To meet [it's] burden, a complainant need not show with precision the exact amount of the economic benefit enjoyed by the respondent.").

Mr. Draper testified that the industry standard to control, contain and properly dispose of feedlot runoff includes the installation of appropriately sized settling basins, lagoons, or holding ponds to capture process runoff, maintenance and land application of retained runoff, and that he believed that Riverview Cattle facility did not have appropriately sized controls even after the installation of the manure pit. TR 294:25-295:16, 433:10-434:10. The cost of such industry-standard controls can be estimated using the Iowa Beef Feedlot Systems Manual ("Systems Manual"), which is published by Iowa State University and updated every few years to allow producers to reasonably estimate the cost to build a feedlot, including environmental controls. Draper Test., TR 435:2-18; CX-21. Mr. Draper used the Systems Manual to obtain a cost estimate to build an appropriately sized manure pit at the Riverview Cattle facility and found that it would be approximately $50,000 to construct, TR 435:19-25, and approximately $5,000 per year to operate and maintain, TR 436:1-7. Both the construction and operation and maintenance costs were conservative cost estimates for typical runoff controls at Riverview Cattle facility. TR 436:8-10.

Following the 2014 inspection, Respondents hired an engineer, Ms. Heikens, to assist them with designing appropriate controls and acquiring a NPDES permit. TR 1081:20-24 ("I was contacted to see if I could come out and assist them… they said they had a visit from EPA and things were not going well and could I come out and take a look at their feedlot."); TR 1097:1-6. Ms. Heikens testified that she was paid approximately $5,000. TR 1097:20-25. In addition, Respondents installed a roof structure over Pens 5 and 6, connecting the roof's drain pipes to an underground tile line, in order to avoid the precipitation falling on the roof from coming into contact with the production area and thereby reducing the amount of process wastewater that the facility needs to manage. Respondents testified that the cost of the roof alone was approximately $300,000, plus $15,800 in addition for the tile line work. T. Brown Test., TR 935:23-936:18; J. Brown Test., TR 1023:14-22.

To be conservative, Mr. Draper estimated the cost of the culvert Respondents installed in the swale and cap on the inlet, and found it would be approximately $3,000; further, when calculated as a delayed cost using EPA's economic benefit model, "[i]t was just shy of $800." TR 436:15-439:7. However, either of the greater costs estimated by the Iowa Beef Feedlot Systems Manual for a properly sized lagoon or by Respondents for their constructed roof and tile line, plus the cost of a qualified engineer to assist or obtain a NPDES permit, may be used to approximate the delayed cost of installing appropriate and effective controls at the Riverview Cattle facility instead of using the very conservative estimate developed by Mr. Draper. *See* Draper Test., TR 438:18-439:7.

Therefore, the economic benefit bolsters the justification for EPA's proposed penalty.

C. <u>Respondents are culpable for violating the CWA</u>

CWA Section 309(g)(3) factors Respondents' degree of culpability in determining an appropriate penalty amount. 33 U.S.C. § 1319(g)(3). Culpability includes "the violator's previous experience with [CWA] requirements, degree of control over the illegal conduct, foreseeability of events constituting the violation, precaution taken against such events, knowledge of the hazards associated with the conduct, knowledge of the legal requirements, attitude, cooperativeness, and good faith and diligence in reporting violations and fixing problems." *In re C.W. Smith*, Docket No. CWA-04-2001-1501 at 56 (citation omitted).

In this case, Respondents had a high degree of control over the day-to-day operation of their facility, involving feed and manure management, as well as the design and construction of the facility. T. Brown Test., TR 793:12-808:7, TR 810:7-814:20, 825:18-828:10, TR 932:3-933:2; J. Brown Test., TR 987:24-988:14, TR 1002:1-1003:17, TR 1005:19-23. Respondents testified that they designed and constructed the concrete feedlot pens themselves, without consulting IDNR or a professional engineer, and initially without a manure pit; they also designed and constructed the manure pit themselves, as well. T. Brown Test., TR 804:11-17, TR 805:14-23, TR 831:16-832:2, TR 843:24-845:4, TR 939:13-940:14; J. Brown Test., TR 998:4-8, TR 1000:2-25, TR 1007:20-24; RX-1; Benson Test. 34:2-5 (referencing CX-1.9 at 1). Further, Respondents sited the facility in that location despite knowing that the swale was always a low, wet spot with an inlet to a tile drain that had existed at that location throughout their lives. Draper Test., TR 398:5-9; T. Brown Test., TR 858:4-24; CX-8 at 7. Although Respondents testified that they did not understand the legal definition of discharge under the CWA prior to the initiation of this case, they knew that the tile lines all flowed south to the river, and it was foreseeable that process wastewater from their facility entering the inlet would also flow to the river. T. Brown Test., TR 861:4-7, TR 868:23-869:6.

Finally, while Respondents were often cordial and cooperative with EPA inspectors, Urban Test., TR 218:11-18; Draper Test., TR 427:19-20, Respondents were not forthcoming with information concerning the location of the outlet in 2014.[50] Urban Test., TR 173:14-174:1 ("I couldn't believe how obvious it was, that there they are, that nobody knew where they were if they had lived there. I felt they were disingenuous to me a little bit."); Draper Test., TR 494:8-17. It is improbable that they did not know the outlet location in 2014 when they had grown up living at the Bacon Maker facility, T. Brown Test., TR 787:2-13, playing in a tree fort structure just west of the outlet, CX-46 at 2, ¶ 8, and riding all-terrain vehicles in the riverbed 40 yards away from the outlet, Urban Test., TR 135:15-136:3, TR 137:7-11, and when their father had farmed the field surrounding the outlet for 10 years previously, even if not at the time of the 2014 inspection, G. Brown Test., TR 773:12-18. It is even more improbable that at the time of the 2016 inspection, Respondents continued to be unaware of the outlet's location. Draper Test., TR 400:21-401:4, TR 402:4-403:25, TR 493:14-494:17; CX-46 at 2, ¶¶ 4, 7, 9.

Therefore, Respondents are culpable for violating the CWA, adding additional support to the conclusion that EPA's proposed penalty is just.

D. Respondents have the ability to pay the proposed penalty

CWA Section 309(g)(3) provides that "with respect to the violator, ability to pay" is a factor that may be considered to reduce the penalty amount. 33 U.S.C. § 1319(g)(3). EPA has the

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[50] Respondents' assertions that they were not asked for the specific location of the outlets are contradictory. *See* T. Brown Test., TR 867:10-24; J. Brown Test., TR 995:9-13; T. Brown Statement, at ¶5 ("When asked by Mr. Urban, I informed him that all of the tile lines in the area of our feedyard drained to the south of our feedyard and outletted at the East Fork of the Des Moines River." Tony Brown Statement ¶ 5; *see* T. Brown Test., TR 961:17-962:11; *see also* J. Brown Statement ¶ 5. In addition, Respondents' assertion that EPA's question about where the tile lines ran is different than asking where the outlets are located is a distinction without a difference. However, this is not the only instance of Respondents failing to provide full information to EPA when EPA's questions were not worded the specifically correct way in Respondents' minds. *See, e.g.,* T. Brown Test., TR 949:1-6 ("Q Okay. Did you ever think to tell EPA in those four years, hey, we had a rain gauge on site that day? A They never asked where the information came from. They asked how much rain we got. You didn't ask a specific spot."), TR 959:5-7 ("we talked about a rain gauge that day. They didn't ask a specific location for it."). It should also be noted that, coupled with the myriad other reasons EPA inspectors did not sample the outlet during the 2014 inspection, Respondents' failure to identify the location of the outlet resulted in prejudice to EPA as it convinced Mr. Urban that it would be too difficult to locate the outlet in the limited holding time for the samples that were taken. Urban Test., TR 137:4-6 ("A The main thing was, I was led to believe that I couldn't find it, they never found it. I took them at their word that I wasn't going to find it."), TR 218:15-17 ("I thought we had a good open dialogue, which led me to believe them when they said I wasn't going to find the outlet").

initial burden to establish that Respondent generally has the ability to pay the proposed penalty and then the burden shifts to Respondent to establish with specific information that the proposed penalty is excessive or incorrect. *In re Chempace Corp.*, 9 E.A.D. 119, 133 (EAB 2000).

In this case, evidence in the record supports the inference that Respondents have the ability to pay the proposed penalty. Respondents own Riverview Cattle as well as Riverview Trucking, which supplies feed to other feedlots, T. Brown Test., TR 930:8-931:12, and own several pieces of equipment for those operations, TR 836:5-6. *See also* CX-4 at 1. Respondents were able to add or expand several structures at the facility over time, such as the manure pit, office, shop, and feed bunker. T. Brown Test., TR 833:10-836:6; J. Brown Test., TR 1004:16-22. Recently, Respondents testified they paid $15,800 for tile line work and financed approximately $300,000 for a roof structure at the facility. T. Brown Test., TR 935:23-936:18, TR 937:9-11; J. Brown Test., TR 1023:11-24. Respondents have never claimed nor provided evidence that they do not have the ability to pay EPA's proposed penalty of $96,000 and, therefore, it is not appropriate to reduce the penalty for inability to pay.

E. <u>There is no basis under other factors to adjust the proposed penalty</u>

Under CWA Section 309(g)(3), the court may adjust the penalty based on "any prior history of such violations." 33 U.S.C. § 1319(g)(3). In this case, EPA is unaware of any previous violations that would make prior history of violations relevant; however, of note, no regulatory agency was aware this facility existed prior to IDNR visiting the facility in advance of EPA's 2014 inspection. Benson Test., TR 33:10-34:9.

In addition, CWA Section 309(g)(3) provides that the court shall also consider "such other matters as justice may require." 33 U.S.C. § 1319(g)(3). The "underlying principle of the justice factor… is essentially to operate as a safety mechanism when necessary to prevent an injustice" so it may be used to reduce the penalty to give due credit for an environmental good deed, for example; however, "use of the justice factor should be far from routine, since application of the other adjustment factors normally produces a penalty that is fair and just." *In re Spang & Co.*, 6 E.A.D. 226, 250 (EAB 1995). In this case, Respondents have produced no evidence to suggest the proposed penalty is unjust. *See id.* (placing the burden upon the respondent to produce evidence that justice requires a penalty adjustment).

Considering the nature and extent of the violations, a $96,000 penalty would be warranted even if Respondents had received no economic benefit and even if culpability were not considered. In addition, in terms of the statutory maximum for assessing penalties, Respondents discharged pollutants on forty-two days, making EPA's proposed penalty just a fraction of the penalty that might be imposed. Taking into account all of the CWA penalty factors, the proposed penalty is conservative and reasonable.

CONCLUSION

EPA proves herein by a preponderance of the evidence that Respondents discharged pollutants from a point source into waters of the United States without obtaining a NPDES permit. EPA also demonstrates that the nature, circumstances, extent and gravity of the violations is substantial, that Respondents enjoyed an economic benefit by failing to install appropriate controls, and Respondents are culpable for violating the CWA, warranting the assessment of the proposed penalty of $96,000.

RESPECTFULLY SUBMITTED this 15th day of March, 2019.

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CERTIFICATE OF SERVICE

I hereby certify that on this 15th day of March 2019, I filed via the E-filing system the original of this Post-Hearing Brief to the Office of Administrative Law Judges Hearing Clerk, and sent by email to Mr. Eldon McAfee, counsel for Respondents:

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