UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 8

IN THE MATTER OF	)	Docket No. CWA-08-2014-0037
BP America Production Company,	)	**COMPLAINANT'S PREHEARING EXCHANGE**
Respondent.	)	

The United States Environmental Protection Agency (EPA), Complainant in this matter, submits this Prehearing Exchange.

I. BACKGROUND

The EPA's Penalty Complaint and Notice of Opportunity for Hearing (Complaint) in this matter was filed on September 30, 2014. The Complaint alleges that BP America Production Company (Respondent) violated section 301(a) of the Clean Water Act (Act), 33 U.S.C. § 1311(a), by discharging produced water from a leaking pipeline into waters of the United States without a permit issued pursuant to the Act. The pipeline is known as the Y#1 Lateral and will be referenced in this Prehearing Exchange as the Pipeline.

Pending Motion: The Complainant's (EPA's) Motion for Partial Accelerated Decision on Liability is pending. The Respondent's response to this motion originally was due by January 12, 2015. On January 8, 2015, Judge Coughlin granted the Respondent's request to extend the deadline to January 26, 2015. The EPA reserves the right to request to supplement this

Prehearing Exchange as appropriate based on the Respondent's response to the Complainant's Motion for Partial Accelerated Decision on Liability.

Anticipated Motion: The EPA intends to file a motion for leave to amend the Complaint in the near future. The proposed amendment would (1) state that the discharge added pollutants to both a wetland and an adjacent unnamed tributary, rather than to the wetland "and/or" the unnamed tributary, as the Complaint currently states, and (2) add sediment and groundwater as additional pollutants that were discharged. These amendments are appropriate based on photographs that the EPA first received from the Respondent on December 19, 2014, and January 9, 2015.[1] These photographs clearly indicate (1) flow from a depression in the wetland into the adjacent unnamed tributary and (2) sediment in the unnamed tributary. In addition, some groundwater may have been discharged as a result of the leak.

The EPA may also seek leave to amend the Complaint to add allegations that the Respondent did not comply with section 308 of the Act, 33 U.S.C. § 1318. Whether the EPA does so will depend on a reply from the Respondent expected by January 23, 2015.

II. WITNESSES

Robert Brobst. Mr. Brobst is employed by EPA Region 8 (i.e., the EPA's Denver, Colorado, office). His title is Senior Environmental Engineer. Mr. Brobst is expected to testify as an expert witness concerning likely scenarios for the volume and duration of the discharge. Mr. Brobst's resume/curriculum vitae is CX-1.

[1] In its March 19, 2014, request for information under section 308 of the Act, 33 U.S.C. § 1318, the EPA had requested photographs of the leak site. The EPA requested a response within 30 days of receipt. The EPA did not receive these photographs until December 19, 2014, and January 9, 2015.

Christopher Chambers. Mr. Chambers is employed by the Southern Ute Indian Tribe (the Tribe) as a Soil and Water Conservationist. He is expected to testify concerning his discovery of the discharge at issue in this case on March 15, 2013.

Natasha Davis. Ms. Davis is employed by EPA Region 8 as a Life Scientist. Ms. Davis is expected to testify as an expert witness concerning (1) her visit to the site of the discharge at issue, including her observations of the wetland (which Respondent has admitted the discharge reached) and the adjacent unnamed tributary, (2) likely scenarios for the volume and duration of the discharge, (3) other considerations supporting the assessment of a penalty in this matter. Ms. Davis's resume/curriculum vitae is CX-2.

Timothy Davis. Mr. Davis is employed by EPA Region 8. His title is Region 8 Webmaster. He is expected to testify that the EPA posted a public notice for over 30 days on the internet informing the public of the opportunity to comment on the Complaint filed in this action. His declaration is CX-4.

Kara Hellige. Ms. Hellige is employed by the United States Army Corps of Engineers (Corps) in its Durango Regulatory Office, which is part of the Sacramento, California, District. Her title is Senior Project Manager. Ms. Hellige is expected to testify concerning (1) the Respondent's application for, and receipt of, authorization pursuant to section 404 of the Act for discharges associated with repairing the Pipeline, (2) her observations from a visit to the site of the leak, and (3) the flow path from the unnamed tributary referenced above to Spring Creek, the Pine River, and the Navajo Reservoir, and the relevant characteristics of these waters.

Peter Nylander. Mr. Nylander is employed by the Tribe. His title is Senior Water Quality Specialist - Section 319. Mr. Nylander is expected to testify concerning his multiple observations of the unnamed tributary referenced above.

George Parrish. Mr. Parrish is an Environmental Scientist in the Water Quality Standards Team in the Water Quality Unit of the Office of Ecosystems Protection and Remediation for EPA Region 8. He is expected to testify as an expert witness concerning the effects on receiving waters and aquatic life from sediment, electrical conductivity, chloride, total dissolved solids, and other pollutants found in produced water. He may also testify concerning the development of water quality standards for the Tribe and concerning likely scenarios for the volume and duration of the discharge. His resume/curriculum vitae is CX-3.

III. EXHIBITS

CX-1 Resume/Curriculum Vitae for Robert Brobst.

CX-2 Resume/Curriculum Vitae for Natasha Davis.

CX-3 Resume/Curriculum Vitae for George Parrish.

CX-4 Declaration of Timothy Davis, dated January 21, 2015.

CX-5 June 1996 Water Quality Standards for the Southern Ute Indian Reservation (CX-5A) and Resolution No. 96-120 of the Tribal Council (CX-5B).

CX-6 July 18, 2012, Final Order approving Combined Complaint and Consent Agreement in In the Matter of BP America Production Co. / Ford Gas Unit F FT-MV 1A Multi Well Site, Docket No. CWA-08-2012-0014.

CX-7 April 12, 2013, Conversation Record with signature of Kara Hellige. Note: This was also Exhibit 1 to the Declaration of Kara Hellige that accompanied the EPA's Motion for Partial Accelerated Decision on Liability.

CX-8 April 12, 2013, Preliminary Jurisdictional Determination Form from Corps. Note: This was also Exhibit 4 to the Declaration of Kara Hellige that accompanied the EPA's Motion for Partial Accelerated Decision on Liability.

CX-9 June 20, 2013, letter from Kara Hellige, Corps, to Richard Stanley, BP America Production Company. Note: This was also Exhibit 3 to the Declaration of Kara Hellige that accompanied the EPA's Motion for Partial Accelerated Decision on Liability.

CX-10 March 19, 2014, Clean Water Act Section 308 request for information from the EPA to the Respondent.

CX-11 April 16, 2014, response by the Respondent to the EPA's March 19, 2014 request for information. The cover letter is CX-11. The following attachments are also included:

A: Photographs of Leak Pre- and Post-Restoration (CX-11A).

B: Southern Ute Spill Report Form (CX-11B). Note: the site map that is referenced in this report is CX-23 (having been provided by the Respondent on January 9, 2015). This site map was included in Exhibit 1 to the Declaration of Pete Nylander that the EPA's Motion for Partial Accelerated Decision on Liability.

C: May 17, 2013, letter from URS Corporation to Toney Ott, EPA Region 8 (CX-11C). Note: This was also Exhibit 2 to the Declaration of Kara Hellige that accompanied the EPA's Motion for Partial Accelerated Decision on Liability. The May 17, 2013, letter to Ms. Ott was the Respondent's request to the EPA for certification under section 401 of the Act, 33 U.S.C. § 1341. The letter to Ms. Ott includes an attached letter of the same date from URS Corporation to Kara Hellige. The letter to Ms. Hellige is sometimes referenced in this document as the URS Pre-Construction Notice.

D: Purchase Orders and Work Orders (CX-11D).

E: Area Schematic (CX-11E).

G: Analytical Report (CX-11G).

CX-12 Google Earth photo of the discharge site dated May 3, 2013.

CX-13 Set of photographs from September 24, 2014, EPA visit to the spill site.

CX-14 Set of five photographs provided to the EPA from the Respondent on January 9, 2015 (one of which was also provided on December 19, 2014).

CX-15 August 14, 2014, email from Gabrielle Sitomer, in-house counsel for the Respondent, to Peggy Livingston, counsel for the EPA.

CX-16 NACE Standard (NACE MR0175/ISO 15156-1).

CX-17 December 6, 2013, memorandum from Cynthia Giles, Assistant Administrator for Enforcement and Compliance Assurance, regarding "Amendments to the U.S.

Environmental Protection Agency's Civil Penalty Policies to Account for Inflation (effective December 6, 2013).

CX-18 August 28, 2014 letter from Jerry L. Austin, BP America Production Company, to the EPA, including photograph from August 14, 2014.

CX-19 Y-1 Well Pressure and Produced Water Flow Graph provided by the Respondent on January 9, 2015.

CX-20 Y1, X1, Z1 Pressure Data Spreadsheet provided by the Respondent on January 9, 2015.

CX-21 Triple Junction Figure provided by the Respondent on January 9, 2015.

CX-22 Southern Ute Tribal & No. 1 Well Site Facility Site Plan provided by the Respondent on January 9, 2015.

CX-23 Envirotech Sample Location Map dated March 18, 2013, provided by the Respondent on January 9, 2015.

CX-24 Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States, December 2, 2008 (joint guidance by the EPA and the Corps).

CX-25 September 18, 2014, email from Gabrielle Sitomer, in-house counsel for Respondent, to Peggy Livingston, counsel for the EPA.

CX-26 Pond et al. 2008.

CX-27 Ganjegunte et al. 2008.

CX-28 Liu, et al. 2013.

CX-29 Excerpts from Department of Transportation Pipeline Corrosion Report.

CX-30 Appendix S - Oil and Gas Exploration and Production from a Federal Highway Administration study on costs of corrosion (no. FHWA-RD-01-156), http://corrosionda.com/home.html.

CX-31 Colorado Oil and Gas Conservation Commission (COGCC) report on Y-1 well.

CX-32 BEN printouts (32A through 32F).

IV. HEARING LOCATION AND DURATION

The EPA suggests conducting the hearing in Durango, Colorado. The EPA estimates that it can present its *prima facie* case in two days. If the Complainant's Motion for Partial Accelerated Decision on Liability is granted before the hearing date, the EPA may need less time for presenting its *prima facie* case.

V. FACTUAL AND LEGAL BASES FOR UNADMITTED ALLEGATIONS

The Respondent has admitted only the following allegations in the Complaint:

- Par. 3: the Respondent is a Delaware corporation.
- Par. 4: the Respondent is a "person" as defined in the Act.
- Par. 5: the Respondent owns and/or operates the Pipeline (with one qualification concerning the exact location of the Pipeline).
- Par. 6 (partially): the Pipeline transports a two-phase gas and water stream consisting of coal bed methane and produced water; remainder denied.
- Par. 7 (partially): "a release was discovered on March 15, 2013," the Respondent "is not aware of evidence that the release extended beyond the wetland bench,"

and "on information and belief, no more than five barrels of produced water were released."

- Par. 8 (partially): URS Corporation submitted a letter to the EPA dated May 17, 2013.
- Par. 9: prior to the URS's letter dated May 17, 2013, Respondent had not notified the EPA or the National Response Center of the discharge at issue.
- Par. 11: "the release area is near an unnamed tributary that is at least an intermittent tributary of Spring Creek."
- Par. 24: "a small quantity of produced water was accidentally released from the Pipeline" and "a pipe is a point source as defined by the Act."

A. Allegations that Establish Liability

The EPA's basis for the allegations of the Complaint relating to liability is set forth in the EPA's Motion for Partial Accelerated Decision on Liability and the supporting memorandum. As indicated in that motion and memorandum, the Respondent has denied that the produced water was discharged to waters of the United States, but the EPA takes the position that the produced water did, in fact, reach waters of the United States.

B. Additional Allegations

The EPA intends to present the following evidence to support various other allegations that the Respondent has denied.

Receiving waters. The Respondent has denied that the discharge at issue reached any location other than the wetland bench adjacent to the unnamed tributary of Spring Creek. (See Par. 7 of the Respondent's Answer and Request for Hearing (Answer).) However, the EPA will

present evidence that the discharge also reached at least the unnamed tributary itself. See, e.g., CX-14.

Volume and Duration of Discharge. The Respondent has denied that more than five barrels of produced water were released. (See Par. 7 of the Answer.) The Respondent has also stated that it "reasonably assumed that the release could not have occurred more than a few days prior to March 15, 2013." (See item #8 of CX-11.)

The EPA takes the position that the Respondent must have discharged substantially more than five barrels. Please see section VII, below, under "Nature, Circumstances, Extent, and Gravity."

Additional Pollutants. The discharge at issue included not only produced water (as the Respondent has admitted), but also sediment. As mentioned above, at least one of the photographs in CX-14 clearly indicates sediment in the unnamed tributary adjacent to the wetland bench. In addition, some groundwater may have been discharged.

VI. FACTUAL INFORMATION SUPPORTING PENALTY

Please see sections V, above. and VII, below.

VII. FACTORS CONSIDERED FOR PROPOSED PENALTY

The EPA has not developed a penalty policy for Administrative Law Judges to use in assessing penalties under the Act. Instead, the EPA takes the position that Administrative Law Judges are to rely on the wording of the statutory penalty factors set out in section 309(g) of the Act, 33 U.S.C. § 1319(g). See In re Larry Richner/Nancy Sheepbouwer & Richway Farms, 2002 EPA App. LEXIS 13, CWA Appeal No. 01-01, slip op. at 23 (EAB July 22, 2002), stating, "Because there are no [Clean Water Act] penalty guidelines, a [Clean Water Act] penalty must

be calculated based upon the evidence in the record and the penalty criteria set forth in Clean Water Act § 309(g)." See also In re Pepperell Assoc., 2000 EPA App. LEXIS 14, CWA Appeal Nos. 99-1 & 99-2, slip op. at 36 n.22 (EAB, May 10, 2000), petition for review denied on all points, Pepperell Assoc. v. EPA, 246 F.3d 15 (1st Cir. 2001).

In proposing a penalty for this action, the EPA considered the factors set forth in section 309(g)(3) of the Act, 33 U.S.C. § 1319(g)(3). These factors are the nature, circumstances, extent and gravity of the violation(s) 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.

Nature, Circumstances, Extent, and Gravity. The Respondent's assumption that the discharge could not have exceeded five barrels over a few days (see CX-11, item #8) appears to have grossly underestimated the volume and duration of the discharge. The following scenarios for duration and volume of the spill would more accurately explain the damage indicated by the evidence in this case.

Duration and Quantity. Figure 1 of the URS Pre-Construction Notice (CX-11C) shows salt formation on the surface of the soil surrounding the spill site. Salt formation on soil surfaces takes a substantial amount of time. Studies relating to salt formation on the surface of soil are conducted over one to several years in duration (Johnston et al., 2008,[2] Ganjeguente et al., 2008 (CX-27), Liu et al., 2013 (CX-28)). Such a long time is necessary for salt to form on the surface of the soil because the soil must be completely saturated with water that has a dissolved salt

[2] Johnston, C.R., G.F. Vance, and G.K. Ganjeguente. 2008. Irrigation with coalbed natural gas co-produced water. Agric. Water Manage. Doi:10.1016/jagwat.2008.04.015.

content sufficiently high to leave a residue and the salty water must evaporate in order to leave behind the salt residue. In addition, salt can accumulate from lower layers to the surface through capillary forces caused by evaporation, and the length of this process is affected by the rate of evaporation.

The EPA used three methods to determine the duration of the spill, method one using the salt saturation/evaporation dynamics discussed above, method two using the salt (total dissolved solids, or TDS) content of the produced water, and method three using the Revised Universal Soil Loss Equation (RUSLE).

Method 1: Using Figure 1 of the URS Pre-Construction Notice (CX-11C), the EPA conservatively assumed the size of the area contaminated with salt residue to be 10 feet wide, 10 feet long, and one foot deep, or 100 cubic feet. However, the Google Earth image taken on May 3, 2013 (CX-12) suggests that an area of 25 feet by 10 feet by 1 foot, or 250 cubic feet, would have been a more accurate area to use in these calculations. In order to yield salt on the surface a series of saturation and evaporation cycles would have taken place. Based on research and experience, the EPA inferred that at least 10 cycles and up to 20 cycles would have yielded salt on the soil surface, given the assumptions for silty loam soil types of 50% mineral content and 50% void, and available water from saturation to wilt point of 20%. A minimum of 149.6 gallons of water would have been necessary to saturate a 100-cubic-foot area one time; therefore, 1,496 gallons would have been necessary to saturate 10 times, and 2,992 gallons would have been needed to saturate this area 20 times. The Respondent stated that the average production for the three months preceding discovery of the spill was 1.5 barrels per day (CX 11, #8). If gallons are converted to barrels (42 gallons per barrel), and water production rate was 1.5 barrels per

day, a discharge over 29 to 148 days, depending on whether the area was 100 or 250 square feet, would have been necessary to saturate the soil 10 to 20 times.

Method 2: The EPA used the analytical data that the Respondent provided for the produced water that the Respondent discharged from the Pipeline (CX-11G) and production water on the Southern Ute Reservation (CX-18) to determine how much salty water was necessary to create a salt crust. This data ranged between 1,950 and 7,220 milligrams per liter (mg/l) for TDS. Based on research and experience, the EPA inferred that an electrical conductivity of one decisiemen per meter (dS/m) is equivalent to one ton of salt per acre-foot of water. Based on the data range of TDS for the Respondent's production water on the Southern Ute Indian Reservation (CX-18), the EPA calculated that 3.05 tons to 11.25 tons of salt per acre-foot could have been deposited. Using Figure 1 of the URS Pre-Construction Notice (CX-11C), the EPA conservatively assumed that the area contaminated with salt residue was 10 feet wide, 10 feet long, and one foot deep, or 100 cubic feet. However, as mentioned above, based on the Google Earth image taken on May 3, 2013 (CX-12), an area of 25 feet by 10 feet by 1 foot, or 250 cubic feet, would have been a more accurate area to use in these calculations. Therefore, one ton of salt on a 100-square-foot area would require at least 748 gallons of salty water to form a salt crust, and up to 1,870 gallons of salty water would be necessary to form a salt crust over a 250-square-foot area. The Respondent stated that the average production for the three months preceding discovery of the spill was 1.5 barrels per day (CX-11). If gallons are converted to barrels and this water production rate is used, the discharge duration was 12 to 30 days to form one ton of salt on a 100- or 250-square-foot area.

Method 3: Using soil data obtained on the United States Department of Agriculture Web Soil Survey[3] for the soils impacted by the Respondent's discharge, the EPA used the RUSLE to determine the plausible quantity and duration of the produced water spill necessary to remove the amount of soil reported to have been displaced by the discharge. (See CX-11C, page 2 of the Pre-Construction Notice, stating that the leak had created an aproximate 25 feet by 8 feet open pit approximately 10 feet in depth.) Soil loss computations using RUSLE are based on several factors, including the intensity of a rainfall event. In this case, the erosion was caused by an underground pipe leaking, not an aboveground precipitation event. However, the EPA used it here to demonstrate how much water would have been needed to cause the estimated soil loss observed in Figure 1 of the URS Pre-Construction Notice (CX-11C). The amount of water needed to cause the soil loss observed in Figure 1 was calculated using the RUSLE, which is T = R*K*LS*C*P, solving for R.

- **T = Soil Loss in Tons.** In the URS Pre-Construction Notice (CX-11C), the leak was described as having caused "an approximate 25 ft by 8 ft open pit approximately 10 ft in depth on a point bar within the drainage." Therefore, 2,240 cubic feet of soil were lost. However, the EPA conservatively estimated the pit to be at least one foot wide, one foot deep, and about ten feet long, or ten cubic feet. A rule of thumb is that one cubic yard of soil, or 27 cubic feet, weighs approximately one ton, or 2,000 lbs. The 2,240 cubic foot area would equal 82 tons, but the EPA decided to assume **T = 1**

- **K = Soil Erodibility.** According to the USDA Web Soil Survey (see the URL in footnote 3), the soil type for this area is Bayfield silty clay loam, which has a K factor of 0.37. **K = 0.37**

- **LS = Length of the Slope.** The slope that was eroded was approximately 10 feet long, with 5 feet at a steep slope of 45° and 5 feet at a moderate slope of 10°. (CX-13.) Using the EPA's Estimation for Soil Loss Reductions Calculator (see http://intranet.epa.gov/oeca/oc/pmod/ccdscalculatortools/index.html) table for the LS or

[3] http://websoilsurvey.nrcs.usda.gov/app/

Length/Slope Factor, the LS value for the steep slope is 0.85 and the value for the moderate slope is 0.37, which averages to 0.61. **LS = 0.61**

- **C = Cover Management.** The EPA's Estimation for Soil Loss Reductions Calculator (see http://intranet.epa.gov/oeca/oc/pmod/ccdscalculatortools/index.html) assumes a C value of 1 because the EPA expects, for most construction-related cases, that the disturbed acreage at a site will have been cleared of cover. or the soil loss rate would be 100% compared to vegetated soil. Therefore, the EPA assumes 1% loss at this site, because the native vegetation located at this site would hold soil in place. **C = 0.01**

- **P = Soil Conservation Practices.** The site is not disturbed from year to year, although it was disturbed at some point in the past when the Pipeline was originally installed and when subsequent spills at this location were repaired. Because the site was not disturbed within the last year, the conservation practice factor was assumed to be one. **P = 1**

- **R = 1/(0.37*0.61*0.1*1)**

  R = 443.07 mm rain/ha/hour [ha = hectare]
  The R factor was converted to barrels/10 ft^2/day to determine the barrels of water necessary to cause this damage.

  1 ha = 107639 ft^2

$$\left(\frac{443.07\ mm}{\frac{ha}{hour}}\right) * \left(\frac{ha}{107639\ ft2}\right) * \left(\frac{10\ ft2}{site}\right) * \left(\frac{cm}{10\ mm}\right) * \left(\frac{in}{2.54\ cm}\right) * \left(\frac{27154\ gallons}{inch\ of\ rain}\right) * \left(\frac{barrel}{42\ gallons}\right) * \left(\frac{24\ hours}{day}\right) = 25.75\ barrels\ per\ day$$

Therefore, using this method, 25.75 barrels would have been necessary to cause a 100-cubic-foot pit as conservatively assumed by the EPA (even though the Respondent's consultant indicated that the pit was twice this size). As mentioned above, the Respondent stated that the average production for the three months preceding discovery of the spill was 1.5 barrels

per day. Therefore, it would have taken 17 days, at a minimum, to erode a 100-cubic-foot area. If the T factor was changed to 82 to account for the 25-feet by 8-feet by 1-foot estimate of soil loss (based on the Pre-Construction Notice in CX-11C), the amount of water discharged would be 2,061 barrels, over a period of 1,374 days. The COGCC (CX-31) showed a production rate of 6.13 barrels per day in 2013. Using this rate to estimate the duration and assuming a larger area of soil displacement, the duration would have been 343 days, a more plausible amount of time.

Given the variety of figures the EPA used to determine duration of the spill, accounting for the amount of discharge that would have been required to erode soil from a 250-square-foot area as well as form a salt crust on the surface, as well as the EPA's review of the scientific literature that experts in the field commonly rely on concerning salt accumulation, the EPA believes that the photographs of the discharge site provide sufficient evidence that the duration of the discharge was likely at least six months.

Impact to Aquatic Life. The water that the Respondent discharged had the potential to cause negative impacts to the receiving waters. Several peer reviewed studies have shown a strong negative correlation between biological metrics and specific conductance concentrations

(Howard et al., 2001[4]; Stauffer and Ferreri, 2002[5]; Fulk et al., 2003[6]; Hartman et al., 2005[7]; Merricks et al., 2007[8]; Pond et al., 2008 (CX-26)).

The table below shows analytical data from the produced water that the Respondent discharged from the Pipeline, based on CX-11G, and data from monitoring the Respondent performed in 2013 of produced water injected into EPA-permitted injection wells (CX-18). It also compares the concentrations found with the thresholds established by the Tribe's water quality standards (CX-5) and/or scientific literature. These levels of chlorides, TDS, and electrical conductivity were very likely to have caused adverse impacts on aquatic life.

[4] Howard, HS; Berrang, B; Flexner, M; et al. (2001) Kentucky mountaintop mining benthic macroinvertebrate survey: Central Appalachian Ecoregion, Kentucky. In: Draft programmatic environmental impact statement on mountaintop mining / valley fills in Appalachia - 2003. Appendix D. U.S. Environmental Protection Agency, Region 3, Philadelphia, PA. Available online at http://www.epa.gov/region03/mtntop/eis2005.htm.

[5] Stauffer, JR; Ferreri, CP. 2002 Characterization of stream fish assemblages in selected regions of mountain top removal/valley fill coal mining. In: Draft programmatic environmental impact statement on mountaintop mining / valley fills in Appalachia - 2003. Appendix D. U.S. Environmental Protection Agency, Region 3, Philadelphia, PA. Available online at http://www.epa.gov/region03/mtntop/eis2005.htm.

[6] Fulk, F; Autrey, B; Hutchens, J; et al. (2003) Ecological assessment of streams in the coal mining region of West Virginia using data collected by the U.S. EPA and environmental consulting firms. In: Mountaintop mining/valley fills in Appalachia. Final programmatic environmental impact statement. U.S. Environmental Protection Agency, Region 3, Philadelphia, PA. Appendix D. Available online at http://www.epa.gov/region03/mtntop/eis2005.htm.

[7] Hartman, KJ; Kaller, MD; Howell, JW; et al. (2005) How much do valley fills influence headwater streams? Hydrobiologia 532:91–102.

[8] Merricks, TC; Cherry, DS; Zipper, CE; et al. (2007) Coal-mine hollow fill and settling pond influences on headwater streams in southern West Virginia, USA. Environ Monit Assess 129(1–3):359–378.

Parameter	Result from Y-1 Lateral Site	Range in Values from the Respondent's 2013 Monitoring of Produced Water in the Area (CX-18)	Threshold
Chloride	365 mg/l	Less than 74 mg/l to 1,440 mg/l	Acute = 860 mg/l*
Chloride	365 mg/l	Less than 74 mg/l to 1,440 mg/l	Chronic = 230 mg/l*
Total Dissolved Solids (TDS)	4,200 mg/l	1,950 mg/l to 7,220 mg/l	None in current Tribal standards.
Electrical Conductivity	6,040 micro mhos (equivalent to microsiemens per centimeter, or µS/cm)	3,440 microsiemens per centimeter (µS/cm) to 12,700 µS/cm	500 µS/cm+
Electrical Conductivity	6,040 µS/cm	3,440 µS/cm to 12,700 µS/cm	2,657 – 3,050 µS/cm#

*These values are from the Tribe's water quality standards (CX-5).
+This value is from Pond et al. 2008 (CX-26).
#This value is from Merricks, TC; Cherry, DS; Zipper, CE; et al. (2007) Coal-mine hollow fill and settling pond influences on headwater streams in southern West Virginia, USA. Environ. Monit. Assess. 129(1–3):359–378.

In addition, the amount of sediment observed the unnamed tributary as shown in photographs (CX-14) indicates a likely adverse impact on aquatic life. Sediment can interfere with reproductive capacity of fish and macroinvertebrates when it fills in low-lying aquatic habitat and alters natural habitat. Sediment is in the top ten causes of stream impairments, according to the most recent EPA report to Congress pursuant to section 305(b) of the Act. See http://water.epa.gov/lawsregs/guidance/cwa/305b/upload/2009_05_20_305b_2004report_report2004pt3.pdf.

Ability to Pay. The EPA did not increase or decrease its proposed penalty for this factor. The Respondent has not claimed that it lacks the financial ability to pay the proposed penalty, and the EPA is unaware of any reason to believe that inability to pay is an issue in this matter.

Any Prior History of Such Violations. On February 4, 2010, the Respondent discharged produced water from another pipeline on the Southern Ute Indian Reservation. Thus, the proposed penalty has been appropriately increased to reflect the Respondent's history of recent, similar violations. The Respondent agreed to settle an enforcement action based on this prior discharge. A copy of the Final Order and Combined Complaint and Consent Agreement for that matter is CX-6. The settlement of the earlier enforcement action apparently did not deter the Respondent from the 2013 violation that is the subject of this action.

Degree of Culpability. The Respondent has demonstrated culpability for this discharge. The discharge was discovered not by the Respondent, but by an employee of the Tribe.

Economic Savings or Benefit. By not investing the funds necessary to use the strongest materials for the Pipeline, to conduct sufficiently frequent inspections to find leaks in the Pipeline, to monitor for corrosion, or otherwise to operate and maintain the Pipeline properly, the Respondent gained an economic benefit.

When replacing the Pipeline in 2013, the Respondent stated that it had used a particular NACE standard in deciding that stainless steel was an appropriate replacement material. (CX-11, #5.) The standard MR075/ ISO 15156-1 (CX-16) is titled Petroleum and Natural Gas Industries – Materials for Use in H_2S containing environments in oil and gas production. The standard provides requirements and recommendations for the selection and qualification of carbon and low-alloy steels, corrosion-resistant alloys, and other alloys for service in equipment used in oil

and natural gas production and natural gas treatment plants in H_2S-containing environments, whose failure could pose a risk to the health and safety of the public and personnel or to the equipment itself. This particular standard was published in 1975, with updates in 2001. However, the Pipeline had not been built with stainless steel at the time of the unpermitted discharge at issue. Instead, in 2006, after another leak in the Pipeline at the same location, the Respondent had replaced the line with another material, carbon alloy steel, which may not have been in accordance with the NACE standard. Had the material used in 2006 been sufficient or been in accordance with the NACE standard, presumably the discharge at issue would not have occurred.

The Respondent acquired the Pipeline in 1999. (CX-15; CX-31.) Had the Respondent performed due diligence in inspecting the field upon acquisition, and had it earlier used stainless steel to replace the Pipeline, it may have been able to avoid the 2006 and 2013 discharges. The Respondent stated (CX-25) that the cost of the stainless steel pipe section that was replaced was $28,944 and an additional $4,000 was estimated to have been spent on additional materials and pipe fittings, for a total of $32,944. Using the EPA's BEN model, the benefit from delaying this expenditure from March 15, 2006, to March 15, 2013, was $20,168. (CX-32A.) If the cost of replacement dates back to January 1999, the benefit from delaying this expenditure was $49,216. (CX-32B.)

If the cost was in fact not incurred from 1999 to 2006, the Respondent would have avoided spending an additional $67,671. (CX-32C.) Alternatively, the EPA could have assumed an avoided cost from the date the Pipeline was purchased in 1999 to the date the Pipeline was replaced with stainless steel in 2013, which is a cost of $74,382. (CX-32D.) Therefore, the

Respondent's economic benefit for delaying the cost of replacing the Pipeline with a more robust material is $20,168 to $49,216 and the avoided cost is $67,671 to $74,382.

The Respondent has not not provided documentation of the frequency of the well technician visits to the site. Inspection strategies could have included in-line inspection, hydrostatic testing, and direct assessment. By developing new and improved inspection techniques and corrosion prediction models, the Respondent may have been able to determine inspection intervals more accurately, prioritize the most effective corrosion-prevention strategies, and, ultimately, increase the lifetime of the Pipeline. A U.S. Department of Transportation report (CX-29) states that a pipeline integrity management program development can cost $40,000 to $60,000, depending on the miles of pipeline being surveyed. Given that this Pipeline had an integrity problem at the same location in 2006, the EPA believes that the Respondent should have been observing this location on a frequent basis, conducting hydrostatic testing or in-line inspection and specifically training its operators to detect leaks of this nature. For the Pipeline alone, the EPA estimated that the avoided one-time cost to the Respondent for failing to train its technicians and failing to develop a pipeline integrity program was $2,000, and the avoided ongoing annual investment to ensure inspection and pipeline integrity activities took place would be $1,000 from 2006 to 2013. Using the EPA's BEN model, this equates to an economic benefit of $7,965 for pipeline integrity program development and ongoing inspection of the Pipeline. (CX-32E.)

The Respondent did not implement a corrosion maintenance program in the Pipeline. A Federal Highway Administration study (CX-30) indicates that pipeline integrity management costs bewteen $3,500 and $6,000 per mile. The same study details the corrosion prevention

techniques and costs associated with the oil and gas industry. Estimates in the same study are that corrosion costs $0.07 to $0.09 per barrel of produced water. Applying the EPA's inflation adjustment of 1.2815,[9] the costs go up to $0.11 per barrel. The report does not state whether the cost of corrosion is a maintenance cost or a cost associated with pipeline failure. Assuming that maintenance costs are $0.11 per barrel of produced water, and assuming (based on figures from the COGCC website) that the Y#1 well produced 36,311 barrels of produced water from September 2006 (when the well went back online after the 2006 spill) to March 2013, a maintenance cost of $570 per year, or $3,394 for this time period, was avoided. The BEN amount for this avoided cost is $3,158. (CX-32F.)

Other Matters as Justice May Require. The EPA has not increased or decreased the proposed penalty for this factor.

VIII. EPA GUIDANCE DOCUMENTS

In the event of further litigation over the status of the receiving waters as waters of the United States, the EPA may rely on the following:

- Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States, December 2, 2008 (joint guidance by the EPA and the Corps). (CX-24)
- Preamble to proposed EPA-Corps rule defining "waters of the United States," 79 Fed. Reg. 22188 - 22274 (April 21, 2014). Available at http://www2.epa.gov/uswaters/documents-related-proposed-definition-waters-united-states-under-clean-water-act.

[9] This is based on the EPA's 2013 amendment to its penalty policies to account for inflation. (CX-17.)

IX. PUBLIC NOTICE

Please see the accompanying declaration from Tim Davis of EPA Region 8 (Exhibit CX-4).

Respectfully submitted,

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Certificate of Service

The undersigned certifies that on the date indicated below, the preceding Complainant's Prehearing Exchange was distributed as follows:

One copy via electronic mail to Andrea.Wang@dgslaw.com.

One copy via electronic mail to Nicole.Abbott@dgslaw.com.

One copy filed electronically with https://yosemite.epa.gov/OA/EAB/EAB-ALJ Upload.nsf.

Date: Jan. 23, 2015

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