TALEN ENERGY

Subject: 2022 USEPA CCR Surface Impoundment Annual Inspection Report Montour Steam Electric Station Ash Basin No. 1

This report presents the findings of the 2022 annual inspection for the Montour Steam Electric Station's Ash Basin No. 1 facility. This report has been placed in the CCR Unit's Operating Record in January 2022 and the site inspection was performed by a Talen Energy employee on November 29th 2021. The annual inspection was conducted in accordance with the requirements of the United States Environmental Protection Agency (USEPA) 40 CFR Parts 257 and 261 Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule, April 17, 2015 (CCR Final Rule).

1.0 Executive Summary

Montour Ash Basin No. 1 is an operating Coal Combustion Residual (CCR) surface impoundment, referred to as an ash basin, which is owned and operated by Montour, LLC, a division of Talen Energy (Talen). The basin is still in service, although over half of the basin has been filled with ash and fill, and is being covered as part of the long-term closure plan. The ash basin is formed by an earthen embankment, with a total perimeter length of about 11,000 feet and a maximum height of approximately 40 feet. The ash basin is, therefore, required to have an annual inspection performed by a qualified engineer, in accordance with the CCR Final Rule. This is the seventh annual inspection performed in accordance with the CCR Final Rule. The ash basin is also subject to regulation by the Pennsylvania Department of Environmental Protection (PADEP) and is classified as Size B, Hazard Classification 1 under the PADEP Dam Safety Guidelines, corresponding to a medium-sized, high-hazard-potential dam.

The CCR Final Rule requires that the annual inspection include the following:

- a review of available information to verify that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards;
- a visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit and appurtenant structures; and
- a visual inspection of any hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation.

Construction of the ash basin was completed in 1971. Seepage and slope stability issues were identified starting shortly after the basin was placed in service, reportedly due to insufficient blending of embankment materials, an indication that design and construction practices were not uniformly adequate. Thus, several seepage control and stability improvement measures have been implemented over the years, which are described in greater detail below. These remedial measures appear to be functioning as intended in general, although seepage outbreaks near the toe of the north embankment have been reported in previous inspection reports and subsequently corrected, indicating that the seepage control measures require ongoing maintenance. No signs of significant distress or malfunction of the CCR unit, appurtenant structures, and hydraulic structures passing through the dike were observed during the visual inspection.

Remotely Operated Vehicle (ROV) inspections of the hydraulic conduits were conducted each year since 2015. The 36-inch-diameter, reinforced-concrete pressure pipe (RCPP) conduit leading to the wastewater treatment area from the ash disposal decanting structure in Sub-basin C, which is currently the sole spillway outlet structure, remained unblocked following the October 2016 cleaning. Conduits between Sub-Basin B and Sub-Basin C were unobstructed. The temporarily closed conduits in Sub-basin A, which pass through the dike, were also inspected, though these have been temporarily plugged off while the preparation for closure work is underway.

The project is generally operated and maintained in accordance with recognized and generally accepted good engineering standards and the CCR Final Rule. Continued attention to the items noted below is appropriate to adequately satisfy the CCR Final Rule inspection requirements for CCR surface impoundments:

- Continued maintenance of vegetation on the slopes of the embankment, removal of burrowing animals and repair of burrows, and periodic repair of ruts, sloughs, and slope irregularities;
- Continued inspection and maintenance of the through-embankment conduits; and
- Continued maintenance of the pumped dewatering system at the north embankment, including evaluation and remediation of seepage outbreaks if observed.

2.0 Project Description and History

Montour Ash Basin No. 1 was placed in service in 1971 and is located adjacent to the Montour Steam Electric Station (SES) in Derry Township, Montour County, Pennsylvania. The ash basin is formed by earthen dikes on the north, south, and west slopes, and ties to natural grade along the eastern slope. The dikes are constructed of homogenous earthfill obtained from overburden soil, consisting primarily of weathered shale bedrock. The perimeter of the basin is approximately 11,000 feet in length with a maximum height of about 40 feet, and the storage area is about 150 acres. The ash basin is located at 41^{0}4'25"N, 76^{0}40'16"W. The dam was originally owned by PPL Montour, LLC (PPL). In June 2015, the company changed their name to Montour, LLC, a division of Talen Energy (Talen).

Areas within the embankment with high permeability soils have been noted by Talen previously, reportedly due to insufficient blending of materials. Thus, several seepage control measures have been implemented over the years, discussed in greater detail below.

The ash/water and coal mill rejects/water slurry from the Montour Steam Electric Station are pumped to Sub-basin B and discharged into the settling/dewatering troughs. The troughs remove nearly all of the bottom ash and coal mill rejects, leaving only ash fines to be discharged into Sub-basin B. Sub-basin B is partially filled in. The settling troughs are still being used with a sand screw system to assist with bottom ash dewatering. A third trough receives coal mill rejects slurry. The screw feeder between the two ash troughs dewaters and conveys the majority of the bottom ash to an adjacent stockpile. The water from the feeder screw overflows into the concrete troughs. Bottom ash that settles in the troughs is removed with heavy equipment and stockpiled, while the water is discharged through a narrow channel to the open water in Sub-basin B. A splitter dike that previously separated Sub-basins A and B has been incorporated in the basin fill. Sub-basin B now acts as the primary settling basin with the discharge water piped through the splitter dike separating Sub-basin B from Sub-basin C. Overflow from Sub-basin C is discharged through a reinforced-concrete riser pipe that leads to the Detention Basin before discharging to the Chillisquaque Creek. Sub-basin A is actively receiving conditioned flyash to prepare the surface with proper grades prior to capping when the basin is taken out of service.

In accordance with the CCR Final Rule inspection requirements for surface impoundments, the following information is required.

2.1 Changes in Geometry since the Previous Inspection

The survey was performed on May 17, 2021. Drawing E376172 Sheet 1 Revision #11 was created comparing the 2021 contours of the site vs. the 2020 contours of the site. There have been no significant changes in the quantities of fill that have been deposited in Sub-Basin B or Sub-Basin C since last year's inspection.

Changes from 2020 to 2021:

- Interior grading of the basin was performed following the 2020 survey as described in the Periodic Inflow Design Flood Control System Plan. This grading included modifying the splitter dike elevation and the interior channels and berms.
- Sub-Basin A is actively receiving conditioned flyash to prepare the site for final grades when the basin is removed from serviced and capped. Talen is actively modifying the ash basin in preparation for closure. Changes in geometry since the previous inspection have included placement off conditioned flyash in Sub-Basin A at a slope of 2% in the center of the basin draining outward toward the perimeter collection swale which is still within the basin. The conditioned flyash placement in Cell A covers an area roughly 47 acres in size, which is unchanged from the previous year's inspection, and roughly 32,587 cubic yards (44,037 tons) of conditioned flyash was placed since the last inspection.

The sill of the outlet structure for Sub-basin B is Elevation 557.3 feet (as determined by surveys performed by PPL in March and May 2014 using a plant-specific vertical datum), resulting in a water surface elevation in Sub-basin B of about 557.3 feet during the time of the inspection which is generally lower than the normal operating level due to lack of flow to the basin. The top of the decanting pipe outlet structure in Sub-basin C is at Elevation 552.55 feet (as determined by the PPL surveys performed by PPL in March and May 2014 using plant-specific vertical datum), and the water surface in the polishing pond was slightly below that at elevation 551.7 feet, also due to lack of flow to the basin. Overtopping protection was installed in sub-basin C in 2020, as noted in the Periodic Inflow Design Flood Control System Plan, and is also noted in the Revised History of Construction document. The overtopping protection section is designed to be activated at approximately the 1,000 year storm event (elevation 562) and is designed to safely pass the PMF.

2.2 Location and Type of Instrumentation

Refer to Section 5 of this report for a discussion of instrumentation.

2.3 Approximate Minimum, Maximum, and Present Depth of and Elevation of Impounded Water and CCR

Elevations and depths of CCR and free water are shown in Table 1 below. These are based on the original ash basin topography, as shown on Drawing G-199943, dated March 1968 (original drawing date) and

Revision 13 dated February 17, 2000. Contours shown on Drawing E376172 Sheet 1 revision 11 were based on an aerial survey which was performed on May 17, 2021 survey.

Table 1
Elevations and Depths of CCR and Free Water

	Sub-basins A and B	Sub-basin C
Original Ground Elevation	525 - 578	525 - 528
Crest Elevation	564 - 566	564 - 565
Ground Elevation (Including Bathymetric)	553 - 595	526 - 565
Approximate Ash Thickness	7 - 40	0
Ponded Water Elevation	558.2	551.8
Approximate Maximum Water Depth	6	26

Talen estimated the volume of free standing water in Sub-basin B and Sub-Basin C, based on the recent bathymetric survey, to be approximately 113 acre-feet as of the date of inspection on November 29th, 2021.

2.4 CCR Storage Capacity

A revised total storage capacity was granted by the DEP to be 9,642,000 cy or roughly 10,510,044 tons. As of the 2021 Inspection an estimated 9,139,074 tons of CCR has already been placed, resulting in a remaining CCR storage capacity of 1,370,970 tons.

3.0 Review of Supporting Technical Information

As required by the USEPA CCR Final Rule, the annual inspection is to include verification that the design, construction, operation, and maintenance of the CCR unit are consistent with recognized and generally accepted good engineering standards.

Talen established their CCR website, posted their fugitive dust control plan, and continued required record keeping, provided required notifications, implemented weekly inspections, and implemented monthly monitoring of instrumentation by October 19, 2015, in accordance with the CCR Final Rule. The permanent marker required by the CCR Final Rule was installed prior to December 17, 2015.

Talen posted summaries of the following information prior to October 17, 2016.

- Initial Hazard Potential Classification Assessment;
- History of Construction;
- Liner Documentation
- Initial Structural Stability Assessment;
- Initial Safety Factor Assessment;

- Initial Inflow Design Flood Control System Plan;
- Initial Closure Plan; and
- Initial Post-Closure Plan.

Talen posted the Location Restriction requirements prior to the deadline of October 17, 2018 and the basin is in compliance with them with the exception of the aquifer separation requirement.

Other available supporting technical information that was reviewed included the following:

- Drawings provided by Talen;
- Revised History of Construction;
- Periodic Structural Stability Assessment;
- Periodic Safety Factor Assessment;
- Periodic Inflow Design Flood Control System Plan;
- Periodic Hazard Potential Classification Assessment;
- Previous PA DEP annual inspection reports prepared by HDR Engineering, Inc., from 2008 to 2016; and
- A summary of weekly inspection reports by qualified personnel.

In general, the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards, and the documentation complies with the requirements of the CCR Final Rule. Additional discussion regarding design, construction, and maintenance practices is presented below.

The Initial and Periodic Hazard Potential Classification Assessment contains the information required by the CCR Final Rule. Ash Basin No. 1 showing the surface impoundment is classified as having a high hazard potential based on potential impacts to occupied structures adjacent and downstream of the dam.

The initial and revised History of Construction Report (Revised in 2021 by Gannett Fleming) generally contains the information required by the CCR Final Rule. The embankment was constructed of controlled fill, with a specified compaction of 95 percent of the Standard Proctor maximum density. The embankment was constructed with an upstream slope of 2.5H to 1V, a crest width of 15 feet, and a downstream slope of 2H to 1V. The original slope stability analyses were not available for review, but the embankment slopes are consistent with common embankment construction design practices of the time. Based on a review of the limited available information, it appears the embankment was generally designed in accordance with good engineering standards that were recognized and generally accepted at the time of design and construction in 1971, though the need for a number of remedial repairs starting shortly after the basin was placed in service indicates that construction practices were not uniformly adequate.

There have been significant changes in embankment dam design practices since Ash Basin No. 1 was constructed in the 1970s, most notably:

- Additional testing and specification requirements for cohesive fills to reduce the risk of cracking and piping;
- Provision of diaphragm filters around through-embankment penetrations;
- Provision of chimney drains, or blanket or toe filters on the downstream face of earthen embankments; and

- Provision of emergency spillways to reduce the potential for an overtopping event due to plugging or mis-operation of primary spillway structures.

These practices are common in new construction, though existing dams are normally not retrofitted unless they are demonstrating behavior that is considered to be a significant risk.

The Constructed Liner Determination Report verified that the basin is considered to be unlined, as it was not constructed with a two-layer composite liner including an upper geomembrane component and lower compacted soil component.

The Initial and Periodic Structural Stability Requirement Assessment Report (CEC 2016, 2020) and the Initial Inflow and Periodic Design Flood Control System Plan (CEC 2016, Gannett Fleming 2020) contains the information required by the CCR Final Rule. The spillway system for Ash Basin No. 1 currently comprises an outlet structure at Sub-basin B with two conduits leading to Sub-basin C, an outlet structure at Sub-basin C with a conduit leading to the waste treatment basin (detention basin), and an overtopping protection section in Sub-Basin C. The current primary spillway capacity with the overtopping protection section does satisfy the requirements of the CCR Final Rule to safely pass the Probable Maximum Flood storm event.

The Initial and Periodic Safety Factor Assessment contained the information required by the CCR Final Rule.

As described in the History of Construction (Geosyntec 2016), seepage and stability issues were observed shortly after Ash Basin No. 1 was placed into service, resulting in the need for a number of remedial actions in the ensuing years including:

- An approximately 2,400-foot-long underdrain system with 4 permanent dewatering wells was installed along the toe of the north embankment in 1972 and was extended in 1977. This was constructed to address seepage outbreaks.
- A weighted filter blanket was constructed in the same area of the north embankment in 1976, and was extended in 1979, to address seepage and surface sloughing.
- A 30-inch-wide, soil-bentonite slurry wall, extending from 3 feet below the crest to bedrock, was constructed to address seepage issues. The wall was constructed initially along the north embankment, in 1984, and later extended around the entire perimeter of the ash basin, in 1987.
- Pressure grouting of southwestern and north sections of the embankment was conducted between 1998 and 1999 to address seepage through the slurry wall.
- Stabilization berms were constructed along the southwest section of the embankment south of the pipe bridge and along the south berm near the east end in 2008. The berm along the southwest embankment was modified in 2010 to address cracking and slope movement at the top of the berm.

The Initial and Periodic Safety Factor Assessment Report, (CEC 2016, 2021) concluded that the stability of the embankment, as analyzed at four representative sections, satisfies the stability requirements of the CCR Final Rule and exceeds the minimum requirements considerably in most cases.

As noted previously, significant quantities of CCR are not being placed, so that operational needs for Ash Basin No. 1 are limited. Talen conducts 30-day instrument monitoring of the ash basin, including monitoring of the piezometers, as well as 7-day inspections as required by the USEPA’s CCR Final Rule, and annual inspection reports that are submitted to the PADEP.

Maintenance measures include vegetation control and repair of ground disturbance that occurs during vegetation control. These measures are generally consistent with good practice and are described in more detail in Section 4.

An assessment of the groundwater monitoring program, sampling, analysis, and detection, as described by the CCR Final Rule, is not included in this inspection report.

The Emergency Action Plan for the dam (EAP) was posted to the Facility Operating Record and subsequently to the website on the due date of 4/17/2017. The EAP has since been revised and reposted to the Facility Operating Record and the public website. Upon review of the inundation area, there appears to be no change to the site to warrant a change to the hazard potential. Talen held a face to face meeting with the emergency responders on April 6^{h}, 2021 to review the EAP. Upon review of recently revised Hazard Potential Assessment Classification report, it is recommended to update the EAP with the newly revised inundation maps.

4.0 Visual Inspection Site Visit

The visual inspection site visit was conducted on November 29th, 2021, by Benjamin Wilburn, P.E. of Talen Energy. The weather was mostly sunny around 40 degrees Fahrenheit. Roughly 0.1" of precipitation occurred on the prior day and portions of the CCR unit had a thin layer of snow on the ground. The water level in Sub-basin B was at elevation 558.2 feet, and the water level in Sub-basin C was at 551.8 feet. Talen surveyed and reset the gage boards prior to the 2014 inspection, so the reported levels may not be directly comparable to those of previous years.

The visual inspection was conducted in accordance with the CCR Final Rule to identify signs of distress or malfunction of the CCR unit and appurtenant structures, and consisted of observations of features and conditions readily discernible by external visual inspection through reasonable efforts and limited video observations made by ROVs of internal conditions of pipes. Relevant photographs and a photograph key plan are provided in Appendix A.

Embankment

Upstream Slope

The vegetation on the upstream slope of Sub-basin C had been recently trimmed and the above-water part of the slope was visible. As noted in previous inspection reports, the upstream slope of Sub-basin C had been filled to widen the crest road for truck access, resulting in steep upstream slopes. Slope stability analyses have verified that the embankment is sufficiently wide to provide an adequate factor of safety for critical failure surfaces.

The upstream slope of Sub-basin B was flatter than at Sub-basin C, and it was apparent that the portions of the basin adjacent to the embankment sections were nearly filled with ash, effectively broadening the embankment. The south end of the basin has progressively moved north as the basin has filled, resulting in a smaller free water surface area and less impounded water volume. Vegetation varied from grass to exposed ash and construction debris. The exposed ash has little erosion potential due to the flat slopes. Two separate, 12-inch HDPE pipes were observed in extending into Sub-basin B along the north embankment at the waterline and were abandoned and plugged with grout in 2016.

The Ash Basin Dike Sump Pump 1 was observed to be pumping during the inspection and no standing water was observed in the seepage collection trench near the four dewatering pumps. Sump Pump 3 was pumping with no flow exiting the pipe and following the inspection it was determined that the pipe was damaged and subsequently repaired. No evidence of material deposition was observed at the discharges.

Sub-basin A has been filled with ash and is closed. As part of the long-term closure plan, Sub-basin A had previously been covered with top soil, graded, and stormwater runoff catch basins had been installed at regular intervals. Talen modified the closure plan and has reworked some parts of Sub-basin A, in accordance with their major permit modification. This work is summarized in Section 2.1. Some wet areas and standing water were observed along the interior perimeter swale.

Crest Road

The crest road is surfaced with gravel and was in good condition. With the basin still in active service, the road is used regularly. Talen surveyed the crest road and raised the low areas of the crest with road base material and raised the crest of the splitter dike between Sub-basins B and C up to 1.5 feet to match the design elevations in 2014. The crest road was surveyed in 2021 and few areas that were slightly below the design elevation were raised to the design elevation prior to the inspection. There was no visible evidence of settlement, movement, or instability extending to the crest. The eastern access road is paved in sections with cracking and potholing evident, but this section of the basin does not normally retain water.

Downstream Slope

The ash basin has undergone a series of remedial repairs since it was constructed to address slope stability and seepage issues, which are evident in places along the downstream slope. Visual observations with respect to this work are noted below.

The vegetation control program was effective in allowing a complete inspection. The thick vegetation reported in previous inspections had been cut, and grass and brush at the time of the inspection was generally between 6 and 12 inches high.

6 animal burrows, presumed to be woodchucks, were observed in the downstream slope. Talen has been trapping for the last seven years and noted that they annually fill the groundhog holes. The holes will be filled by inserting a grout hose as far as it will go into the hole and pumping the hole with flowable fill until return is observed. Eradication and hole-filling efforts should be continued.

The southwest embankment was generally in good condition. No evidence of active movement was observed. A berm was observed at mid-slope at the north end in an area where slope irregularities had been reported previously and the condition remains unchanged. Rutting was observed on the embankment from the mowing equipment and should be repaired. A small area was observed to not be as fully vegetated as others and additional seeding is recommended in this location. Areas along the toe of the southwest embankment from the north end to the pipe bridge had saturated areas, but no active flow. Wet areas were observed in the ditch adjacent to the railroad tracks, a short distance west of the ash basin. A wet area was also observed on the bench just to the right of the ash pipe bridge.

There was flowing water in the drainage ditch on the south side of the pipe bridge signs of iron-fixing bacterial sludge. This may indicate that at least some of the drainage was the result of seepage. The drainage ditch receives flow from a wetland south of the ash basin, so it is difficult to distinguish between seepage, drainage, and runoff. Monitoring of seepage in this area is obscured by the riprap and vegetation and is complicated by the access and influence of runoff. While there does not appear to be any evidence of active seepage or piping, this area should be monitored.

A stabilization berm had been constructed on the southwest embankment in 2008 and was covered with stone. There was no evidence of any issues of the repaired slope crack which was first observed in 2009 at the brink of the berm. The previously observed heavy vegetation along the toe south of the stabilization berm, approximately 20 to 35 feet wide, was removed this year prior to the inspection.

The south embankment was in generally good condition. Ruts from the mowing equipment was observed in a small area. The toe had areas of standing water and a wetland area adjacent to the toe extended from the southwest corner of the basin to near the east end of the south embankment.

A depression at the west end of the south embankment was reported in 2008 and was observed again during the 2010 through the 2013 inspections. The dimensions of the depression were previously estimated as approximately 3 feet in depth and 5 feet in diameter. A second depression, first reported in 2011, measuring about 5 feet in diameter and 18 inches deep and located about 100 yards to the east, at the toe. These were backfilled and have not been observed since.

There was no evidence of recent movement at the south embankment and the slope repair constructed in 2008 at the east end appeared to be in good condition.

The east embankment is a relatively shallow embankment that does not hold water. The toe of the embankment is not far below the level of the fill in the adjacent ash basin. The vegetation in this area was slightly high and should be cut during the routine mowing.

The north embankment was in good condition. A gravel stabilization berm, constructed between 1976 and 1979, is located at the east end of the embankment and extends intermittently to the west end. A pumped dewatering well system, consisting of 4 dewatering wells and lateral underdrains, was constructed between 1972 and 1979 and extends a significant length along the toe of the north embankment. The vegetation was well trimmed. A wet area in the gravel berm at the east end of the north embankment, about 50 feet long and located about 50 feet northwest of Well 4, was initially reported in 2008 and has been observed intermittently since then. In 2016 a small seep with standing water, flowing at less than 1 gpm, was observed in the gravel berm about 150 feet east of Dewatering Well 3 and following the inspection the perforated pipe was cleaned using high pressure water and shortly after the seep dried up and has yet to be observed since which means most likely the filter was clogged and has now been repaired. During the inspection the Well 3 pump could be heard running, though no flow was exiting the pipe into the basin. The on-site contractor determined the cause to be a damaged pipe and repaired the pipe.

A stormwater runoff drainage system was installed several years ago in the northeast corner of the basin. This system includes a catch basin within Sub-basin B with a drain line extending across the crest of the north embankment, down the downstream slope, and across the toe access road to a discharge structure. Talen reported that the stormwater pipe has since been capped at the upstream end. There are two catch basins to the east of Dewatering Well 4 on the downstream slope of the north embankment. In the 2016 annual inspection groundwater was observed to be flowing into the downstream catch basins from pipe penetrations that had not been properly sealed. In 2016 the pipe penetrations were properly sealed and no flow was observed since the repairs were made.

The ditch adjacent to the dewatering wells were dry and pump 1 was observed to be pumping water into the basin. The surface of the north embankment gravel stabilization berm is irregular, as reported previously, although there is no evidence that this is the result of foundation subsidence as suggested in a previous report, or slope instability.

A steel post was located along the toe of the north embankment and contained a nameplate that stated “42-Inch Water Pipe.” This marks the location of the force main serving Lake Chillisquaque. Talen is aware of the location of the force main and monitors its condition and the surrounding ground for leaks. Talen reported that the force main alignment is walked quarterly in the proximity to the ash basin.

Other than as noted above, there was no visible evidence of movement, instability, erosion, sinkholes, or seepage.

Discharge Structures

Bottom ash and coal mill rejects slurry is piped to the basin across a utility bridge where it is discharged into three concrete settling troughs. Talen installed a screw feeder between the two ash troughs which promotes dewatering and conveys the majority of the ash to an adjacent stockpile. The water from the screw feeder flows into the concrete troughs for further settling. Bottom ash that isn’t collected by the screw system settles in the troughs and is removed with heavy equipment and stockpiled, while the water is discharged through two narrow channels to Sub-basin B.

The pipe bridge appeared to be in good condition with no signs of movement. The grout pad supporting the bridge was repaired subsequent to the 2016 inspection.

The undermined footing for the pipe bridge noted in previous reports was repaired in 2010. Cold joints, small voids, and unconsolidated concrete were evident, but the concrete filled the majority of the void. The footing should continue to be monitored for potential undermining.

The ash discharge piping was previously supported on stacks of timbers where it left the bridge and turned 90 degrees towards the ash processing area. Talen replaced the unstable cribwork supporting the ash discharge piping in 2015. The new pipe supports are constructed of structural steel and were in good condition. Talen extended the perimeter swale in Sub-basin A to the location of the discharge piping elbows. Should a leak in the discharge piping develop, discharge will be directed into the swale, as opposed to along the face of the embankment, as happened previously.

The ash slurry handling facilities generally appear well constructed and well managed. The settling troughs are located in an area of Sub-basin B elevated approximately 7 feet above the top of the embankment. Overtopping of the sub-basins as a result of the basins filling with ash, a breach forming around the discharge hose, or a discharge hose coming loose could result in overtopping of the embankment. Erosion, should it occur, would likely be slow, and Talen has addressed this concern with regular observation of the access road.

The side slopes of the internal discharge channels extending from the ash reclamation area to Sub-basin B are steep. A failure of the channel slopes could restrict the channel. Sections of this channel were regraded and widened in 2020. Although it seems likely that the discharge would be able to re-route itself to Sub-basin B without an issue in the event of a partial collapse of the channel walls, this area should be monitored and the channel stabilized as needed. Minor washouts were observed upslope of the internal drainage channel culvert crossing and should be repaired to maintain hydraulic capacity.

The splitter dike between Sub-basins B and C was in good condition with the exception of 3 shallow erosion scars on the Sub-basin C side below the remaining silt sock from the 2020 work. The silt socks can be removed now that the site is stabilized from the prior work which included lowering the elevation of the dike in a certain area per the Periodic Inflow Design Flood Control System Plan. The dike is broad, so that a shallow failure of the steep downstream slope will not affect the stability of the dike, and, in any event, Sub-basin C should be able to contain any inflow resulting from a failure. It is possible that a slope failure could damage the discharge piping; therefore, continued remote monitoring of the Sub-basin B water level for abnormal increases or decreases is important. The upstream end of the 24-inch CMP inlet to the discharge structure in the splitter dike between Sub-basins B and C was replaced in-kind in 2014. This is a 20' long stub pipe that extends into the basin and a trashrack was installed surrounding the intake pipe in 2015. During the inspection, the water surface elevation was slightly above the invert of the intake structure with little flow entering the discharge structure. The trash rack was clear of debris. The deck of the intake structure had been previously jacked up by over-extension of the gate stem, but was restored in 2015.

Several of the CMP discharge pipes at the downstream slope of the splitter dike were previously observed to be corroded and abandoned. In September 2016, Talen located the upstream end of the pipes that discharge near the water's edge, excavated them, grouted the pipes full, and backfilled the pipes, eliminating the seepage. Two pipes, which are above the normal water's edge, were backfilled with concrete on October 12th, 2017. No issues with these abandoned pipes were observed since.

A small riprap landing was installed adjacent to the downstream end of the two active 18-inch CMP discharge pipes through the splitter dike discharge structure, providing access as recommended previously. This allows for visual inspection of the pipes, which exhibit signs of corrosion at the downstream end. The two 18" CMP discharge conduits through the internal splitter dike from Sub-basin B to Sub-basin C showed signs of corrosion at the time of the 2021 inspection at the end of the pipe where the pipes pass through the dike and are exposed on all sides of the pipes. Talen has installed sacrificial CMP pipes over these portions of the discharge conduits for protection and appears to be functioning well..

The skimmer device on top of the riser in Sub-basin C could be viewed. The outlet pipe of an abandoned outlet structure running from Sub-basin C to Chillisquaque Creek was located and observed. The downstream end was partially open. Talen inspected the pipeline with an ROV in 2014 and verified that the pipe was plugged with stone and cement approximately 59 feet from the discharge end of the pipe effectively filling the length of pipe underlying the dike.

Conduit ROV Inspections

The CCR Final Rule requires that the annual inspection include a visual inspection of any hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation. Since the conduits that comprise the hydraulic structures underlying the base of the CCR unit cannot be readily accessed for visual inspection due to confined space safety concerns, an ROV inspection of the hydraulic conduits was conducted on November 5th, 2021, by Sorg, Inc. Roto-Rooter Sewer & Drain (Roto-Rooter) and was monitored by Talen.

The video inspection included the following conduits:

- Median dike between Sub-basins B and C:
  - Two 80-foot-long sections of 18-inch-diameter CMP discharge conduits.
  - One 7-foot-long concrete box catch basin connecting the conduits described above.
- Sub-basin C ash disposal decanting structure: The inspection consisted of the first 400 feet of a 36-inch-diameter, RCPP extending downstream from the inlet of the ash disposal decanting structure to beyond the downstream toe of the Sub-basin C Dike. This section of pipe was dewatered and cleaned in 2016 due to a blockage observed during the 2016 video inspection. The 2017 through 2021 video inspections showed that the pipe was no longer blocked with no issues visually observed. Visibility due to turbid conditions did not allow for a clear view of the inside walls and joints of the pipe; however, no observations indicated that the condition of the pipe has changed since it was dewatered and observed in 2016.
- Sub-basin A stormwater conduits, which have been temporarily capped at the inlet. These pipes are capped from flow from the basin cap, but have inlets with grating and rainfall that falls onto the grating will enter the pipe :
  - 24-inch-diameter HDPE at Swale 2A located on the north side.
  - 24-inch-diameter HDPE at Swale 3A located on the east side.
  - 24-inch-diameter HDPE at Swale 4A located on the east side.
  - 15-inch-diameter HDPE at Swale 1A located on the east side.
  - 24-inch-diameter HDPE at Swale 5A (North) located on the west side.
  - 24-inch-diameter HDPE at Swale 5A (South) located on the west side.

The 20-foot-long, 24-inch-diameter CMP inlet pipe located at the upstream toe of the median dike between Sub-basins B and C, which serves as a low-level intake for the concrete catch basin, does not lie beneath the dike or flow through a dike and therefore it is not required to be inspected.

The two 18" CMP discharge conduits through the internal splitter dike from Cell B to Cell C showed signs of corrosion at the end of the pipe where the pipes pass through the dike and are exposed on all sides of the pipes. Talen has installed sacrificial CMP pipes over these portions of the discharge conduits for protection.

The following are concerns for the remaining pipes (for the temporarily abandoned stormwater pipes):

- The circular HDPE conduit at Swale 5A North, located on the west side of Sub-Basin A, was oval shaped at about 57 feet from the inlet to 80 feet from the inlet. This pipe is temporarily out of service and no flow is directed into this pipe. The deformation continued for three feet, and then the conduit returns to circular shape at about 80 feet. A trickle of water was observed in the 2018 inspection at the bend before the pipe travels down the slope roughly 54’ from the upstream inlet and was not observed in 2021. No issues were observed at the surface overtop this pipe. Sediment was observed in the bottom of the pipe from 120’ from the inlet to the end of the pipe at roughly 134’.

- The outlet for Swale 5A South, located on the west side of Sub-Basin A, had a buildup of sediment and water at the sloped transition from gradual to steep roughly 55 feet downstream from the inlet. Sediment was observed at 125’ from the inlet to the end of the pipe.
- The upstream end of the pipe for Swale 4A is capped which has a small crack in the cap and the cap’s seal appears to be slightly off. Following the inspection, Talen reported that their contractor Transash sealed the pipe off in the inlet box.
- The outlet for Swale 3A, located on the east side of Sub-basin A, had a 1-inch separation at the joint between the conduit and the concrete catch basin. This pipe is temporarily out of service and no flow is directed into this pipe. No signs of root growth or infiltration were visible. The pipe was observed to be oval shaped about 4 feet downstream from the inlet and transitions back to circular around 130 feet downstream from the inlet.
- At Swale 2A, located on the north side of Sub-basin A, the conduit consists of a 24-inch-diameter HDPE pipe. This pipe is temporarily out of service and no flow is directed into this pipe. This pipe had the following areas of interest:
    - Beginning at approximately 122 feet downstream from the inlet of the conduit the invert became silted and water, approximately 2-3 inches deep, was backed up into the conduit. This back up of silt into the conduit was presumably due to the wetland vegetation at the outlet of the pipe clogging the path of discharge and causing water and sediment to back up into the pipe. The vegetative growth should be cleared at the discharge of the conduit and any sediment built up at the outlet of the pipe should be removed to allow for the pipe to drain if the pipe is to be placed back into service.
    - Water and orange staining was observed along the inside of the pipe at the 8 o’clock mark about 96 feet from the upper inlet and at 123’ at the 9 o’clock mark. This should be repaired if the pipe is to be placed back into service.
    - The pipe transitions from circular to oval shaped around 10 feet downstream from the inlet and continues to around 60 feet from the inlet to where it transitions back to circular. The pipe transitions back to oval around 90 feet and continues to around 100 feet where it transitions back to circular. Cracks were observed at 32’, approximately 5 cracks between 47’ and 51’, and at 57’, 65’, and 67’. This should be repaired if the pipe is to be placed back into service.
- The outlet at Swale 1A, located on the east side of Sub-basin A, beginning at about 80 feet and extending to the outlet of the conduit, had a minor buildup of silt at the invert. The upstream end, approximately 45’ upstream from the inlet, noticed the bottom seal has a small leak. Following the inspection, Talen reported that their contractor Transash sealed the pipe off in the inlet box.

5.0 Instrumentation

Instrumentation at the site consists of:

- Open standpipe piezometers,
- Survey benchmark monuments,
- Run-time meters on the dewatering well pumps, and
- Water level monitors in Sub-basins B and C.

Talen installed four (4) piezometers in May 2015 in support of the stability analyses included in the Initial Safety Factor Assessment Report, CEC, 2016. An additional 6 piezometers that were previously installed were also used in these analyses. A piezometer location plan is provided in Appendix B of this annual report. Data for the other piezometers used in the stability analyses are also provided in Appendix B, showing the maximum recorded levels. A review of the piezometer data indicates that there has been little change in the last four years.

Talen regraded portions of the crest in 2014, following a level survey. The crest was also surveyed again in 2021 and maintenance was performed by adding material roadway material to any areas that were below the crest elevation.

The dewatering well run time has historically been monitored from a motor maintenance viewpoint, as opposed to an indicator of changes in seepage. This data was collected and plotted as kWh versus date for each well for 2008 through 2013. The plots showed great variability in pumping effort, which is unusual given that the reservoir elevation is fairly constant. The pump motors and run-time meters were periodically rotated from pump to pump to balance motor wear, which made the run-time plots difficult to interpret. Talen has evaluated the variation in pump run times from year to year and has not identified a cause. Pump 1, located at the west end of the north embankment dewatering well system, also drains a section of the ditch adjacent to the access road, so that the run time for that pump is affected by surface runoff.

The water level gages in Sub-basins B and C are monitored remotely at the control room which is staffed continuously. The system is reportedly annunciated with alarms for high level and rate of rise. Talen surveyed and reset the gage boards in 2014 and added redundant level indicators to Sub-basins B and C. Operations personnel are on duty continuously and would quickly respond in the event of an abnormal reading. It was noted that during past inspections a standpipe in cell C holding instruments was tilted and during this inspection it was secured for continued operation.

6.0 Closure

Based on the information provided by plant personnel, information available on Talen's CCR website, and Talen's visual observations, this annual inspection was conducted in accordance with the requirements of the USEPA 40 CFR Parts 257 and 261 Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule, April 17, 2015 (CCR Final Rule), to the best of my knowledge, information, and belief, and was conducted in accordance with professional standards of care for similar work.

7.0 Certification

By affixing my seal to this, I do hereby certify to the best of my knowledge, information, and belief that the information contained in this report is true and correct. I further certify I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

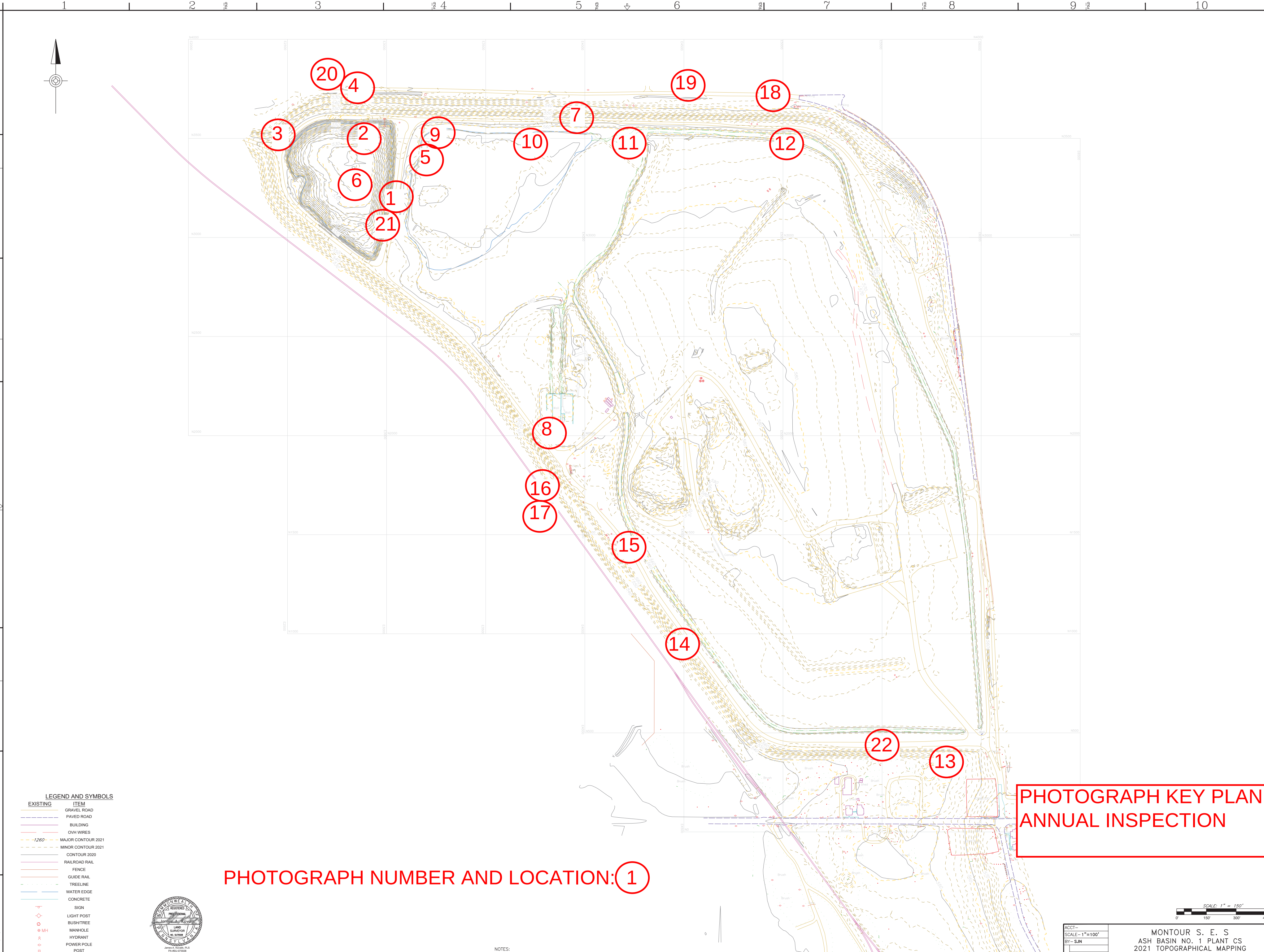
Benjamin R. Wilburn, P.E.
P.E. License Number: PE080739
Signature: ____________________
Date: 1/5/2022

Benjamin R. Wilburn, P.E.
Principal Engineer

Appendix A: Inspection Photographs
Appendix B: Piezometer Data

APPENDIX A

INSPECTION PHOTOGRAPHS



LEGEND AND SYMBOLS

EXISTING	ITEM
	GRAVEL ROAD
	PAVED ROAD
	BUILDING
	OVH WIRES
1260	MAJOR CONTOUR 2021
	MINOR CONTOUR 2021
	CONTOUR 2020
	RAILROAD RAIL
	FENCE
	GUIDE RAIL
	TREELINE
	WATER EDGE
	CONCRETE
	SIGN
	LIGHT POST
	BUSH/TREE
MH	MANHOLE
	HYDRANT
	POWER POLE
	POST

NOTES:

1. Aerial photography dated May 17, 2021 flown by Borton Lawson.
2. Horizontal control is based on Plant Coordinates provided by Talen Energy Services.
3. Vertical control is based on Plant Coordinates provided by Talen Energy Services.
4. Reporting year contours are in tan and dark tan. Previous report year contours are grey.

NO.	DATE	ACCT.	REVISION	BY	REVIEWED	APPROVED
11	6/21	–	ADDED 2021 ASH CONTOURS & CHANGED TITLE TO REFLECT 2020 RESULTS	SJN	–	–

REFERENCE TITLE	NUMBER	REFERENCE TITLE	NUMBER

SCALE: 1" = 150'

ACCT–
SCALE– 1"=100'
BY– SJN
REVIEWED

MONTOUR S. E. S
ASH BASIN NO. 1 PLANT CS
2021 TOPOGRAPHICAL MAPPING
FOR 2020 OPERATIONAL REPORT
DERRY TOWNSHIP MONTOUR COUNTY, PA

APPROVED DATE

TALEN ENERGY

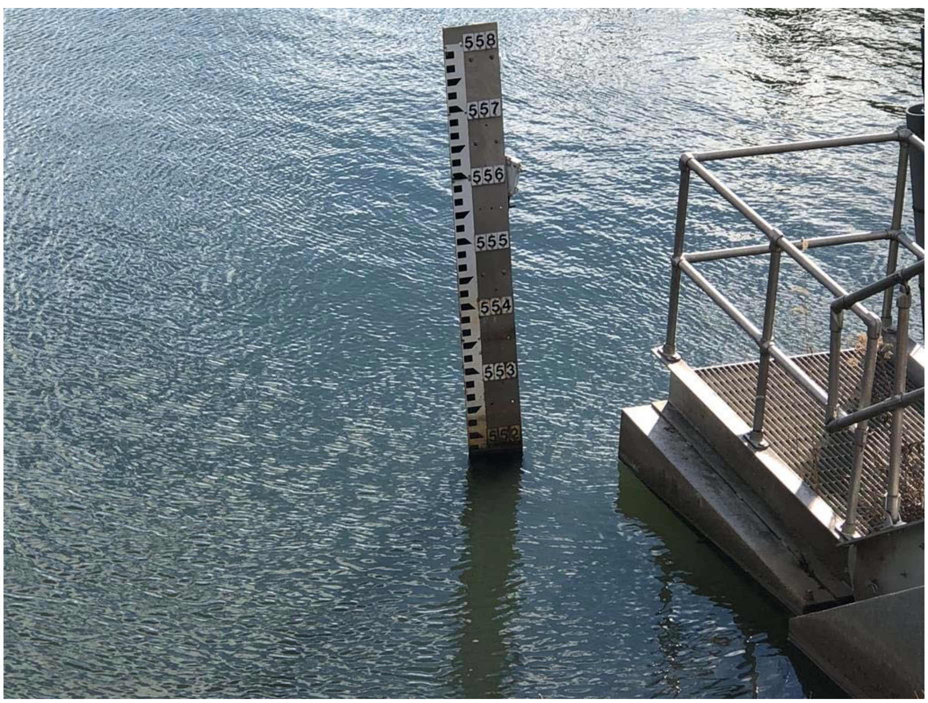
DRAWING NO. E376172 SHEET NO. 1 REV. 11

Montour_Ash_Basin_PLANT_20210517.dwg

PC CAD

June 8, 2021

Picture 1- Inside slope of Cell C



Picture 2 - Staff Gauge in Cell C

SITE PHOTOGRAPHS **MONTOUR ASH BASIN 1** **ANNUAL INSPECTION**		
SHEET: 1	OF: 11	DATE: NOVEMBER 2021

TALEN ENERGY

Picture 3- Discharge structure draining Cell C to the detention basin.

Picture 4 – Overtopping section in cell C.

Picture 5 - Staff gauge in Cell B.

Picture 6 – Discharge pipe (1 of 2) from Cell B to Cell C.

Picture 7 - Crest road and embankment.

Picture 8 – Bottom ash and mill rejects dewatering system.

SITE PHOTOGRAPHS

MONTOUR ASH BASIN 1

ANNUAL INSPECTION

SHEET:	OF:	DATE:
4	11	NOVEMBER 2021

TALEN ENERGY

Picture 9 - Dewatering Well #1 discharge into Cell B.

Picture 10 – Dewatering Well #2 discharge into Cell B.

Picture 11 - Dewatering Well #3 discharge into Cell B.

Picture 12 – Dewatering Well #4 discharge into Cell B.

Picture 13 - Downstream face embankment. Groundhog holes were observed and no other signs of distress were observed.

Picture 14 – The majority of the upstream face in cell A has an interior swale discharging stormwater runoff into cell B.

Picture 15 - Erosion in internal swale in cell A.

Picture 16 – Concrete pipe bridge abutment where the pipes enter the basin.

Picture 17 - Very slowly flowing water between the south embankment and the railroad tracks.

Picture 18 –. Manhole for dewatering well pump #4.

Picture 19 - Toe of slope on the north side. Note the seepage collection trench is in this area and the trench was dry.

Picture 20 – Concrete filled abandoned pipe.

Picture 21 - Erosion scar in the splitter dike between cell B and C.

Picture 22 – Rutting on embankment from mowing equipment.

APPENDIX B

PIEZOMETER DATA AND LOCATION PLAN

	Piezometer Readings										Lake Level Elevations	
Date	B-102	B-103	B-202	B-301	PZ-205A	PZ-107D	MPZ-7	MPZ-11	MW1-3	MW1-5	Basin B Lake	Basin C Lake
6/14/2015	16.2	40.4	38.4	28.1		4.7	10.6	10.7	7.3	2.6	557.5	552.5
11/13/2015	15.8	40.1	37.1	27.7		4.5	10.2	10.2	7.1	2.4	558.5	552.8
12/11/2015	16	40.2	37.7	27.6		4.6	10.3	10.2	7.3	2.4	559	553
1/11/2016	16.1	40.2	38	27.4		4.5	10.1	9.9	7.2	2.7	558.8	552.8
2/9/2016	15.9	40	37	27.2		4.3	9.9	9.7	6.8	2.3	558.5	553
3/8/2016	16	40.1	37.6	27.2		4.3	9.8	10.2	6.8	3.5	558.3	552.5
4/7/2016	16.2	40.4	38.9	27.6	5.8	4.6	10.3	10	7.7	2.9	558.5	552.8
5/6/2016	16.22	40.4	37.9	27.8	6.17	4.9	10.7	10.75	7.25	2.8	558	552.75
6/3/2016	15.93	40.19	38.77	28.14	6.24	4.82	10.88	10.67	7.84	2.7	558.25	552.5
7/1/2016	16.04	40.28	38.64	27.99	6.2	4.86	10.7	10.88	7.34	2.74	558.5	552.75
7/29/2016	16.11	40.07	38.42	27.87	6.11	4.61	10.43	10.74	7.17	2.55	558.25	552.75
8/25/2016	15.87	40.04	38.07	28.19	5.97	4.77	10.25	10.39	7.26	2.41	558.5	552.75
9/21/2016	15.91	40.34	37.9	28.24	6.15	4.8	10.65	10.25	7.09	2.2	558	552.75
10/19/2016	15.79	40.22	38.14	27.97	6.1	4.65	10.01	10.57	7.49	2.18	558.25	552.75
11/17/2016	15.7	40.3	38.1	28	6.2	4.7	10.2	10.4	7.3	2.3	557.75	552.75
12/6/2016	15.82	40.3	38.2	27.9	6.1	4.6	10.1	10.4	7.3	2.2	557.75	552.5
1/13/2017	15.9	40.2	37.9	27.9	6.1	4.5	10.1	10.2	7.2	2.3	557.5	552.5
2/10/2017	15.7	40.3	37.8	27.8	6	4.5	10.1	10.1	7.1	2.3	557.5	552.5
3/9/2017	15.82	40.4	37.8	27.9	6.1	4.6	10	10.3	7.3	2.4	557.5	552.75
4/7/2017	15.9	40.4	37.9	27.7	6.3	4.7	10.1	10.1	7.1	2.3	557.5	552.5
5/5/2017	15.87	40.2	37.7	27.7	6.1	4.8	10.4	10	7.2	2.3	557.5	552.5
6/5/2017	16.1	40.2	37.5	27.6	6.2	4.7	10.3	9.8	7	2.5	557.5	552.5
6/29/2017	16.3	40.3	37.8	27.7	6.3	4.8	10.2	10	7.5	2.8	557.5	552.5
7/21/2017	16.6	40.5	37.9	27.9	6.3	4.8	10.2	10.1	7.8	2.9	557.25	552.5
8/18/2017	16.5	40.3	38.2	28	6.4	5.2	10.3	10.1	7.7	3.2	557.25	552.5
9/11/2017	16.4	40.5	38.6	28.3	6.6	5.1	10.1	10.2	8.1	3.7	557.2	552.2
10/23/2017	16.2	40.4	38.5	28.4	7.3	5.5	12	11.5	8	4.2	557.2	552.5
11/15/2017	16.1	40.3	38.1	27.9	6.6	5.1	11.2	11.1	7	3.1	558	552
12/27/2017	16.3	40.4	38.1	27.8	6.8	5	9.5	10.6	7.1	3.3	558.2	552.9
1/26/2018	15.9	40.1	37.6	27.5	5.7	4.4	9.8	10.9	6.7	3.3	560.5	552.6
2/20/2018	15.6	39.8	36.7	27.2	4.6	4.2	10	10.3	6.3	2.6	557.5	552.2
3/9/2018	15.9	40.1	36.5	27.3	5.2	4	10.1	9.1	7.1	2.8	558.2	552.4
4/23/2018	16.1	40.2	36.8	27.3	5.5	4.3	10.2	9.7	7.1	2.7	558.8	552.5
5/11/2018	16.2	40.3	37.7	27.5	5.7	4.3	10.1	10	7.8	2.9	557.8	552.1
6/7/2018	16.4	40.53	37.84	27.75	5.55	4.13	9.76	9.65	8.02	3.22	557.6	552
7/10/2018	16.1	40.4	37.4	27.8	6.3	4.5	10.4	9.6	7.4	3.9	559	552.5
8/21/2018	15.9	39.9	36.4	27.5	5	3.8	9.6	8.5	6.4	2.3	558.8	552.5
9/20/2018	15.5	39.6	36	27.4	4.6	3.7	9.3	7.7	5.4	2.3	558.8	552.6
10/19/2018	15.7	39.7	36.2	27.4	4.9	3.8	9.1	9	5.8	2.4	557	552
11/26/2018	15.2	39.4	35.6	27.1	4.2	3.5	9.1	7.6	4.8	1.9	558	552
12/6/2018	15.86	39.7	36.55	27.32	4.91	3.64	9.33	7.86	6.13	2.41	557.8	552
1/17/2019	16.1	40.2	37.1	27.4	5.2	3.8	9.4	8.5	7.2	2.9	558.7	552.5
2/26/2019	16.8	39.7	36.8	27.1	4.9	3.8	9.6	8.3	6.3	2.5	558	551.7
3/15/2019	15.73	39.85	36.28	27	5	3.69	9.8	8.6	6.47	2.24	558.6	551.8
4/25/2019	15.9	40	36.7	27.2	5	3.5	9.4	8.6	6.7	2.4	558.8	551.8
5/17/2019	15.6	39.7	36.1	27.3	4.9	3.6	9.3	8.1	6	2.2	558.6	551.8
6/12/2019	16.2	40.3	37.2	27.5	5.1	3.7	9.4	8.7	6.9	2.3	558.4	551.8
7/30/2019	16.1	40.2	37.4	27.8	5.7	3.8	9.2	9.4	7.4	2.6	560.4	551.8
8/22/2019	16.2	40.3	37.8	27.9	5.7	4	10.1	9.9	7.7	2.9	559.8	552
9/3/2019	16.1	40.2	37.8	27.8	5.7	4.2	10.3	10.1	7.9	3.2	557.5	552
10/8/2019	16.1	40.2	38	28	6.2	4.5	11	10.6	7.52	3.7	557.8	551.8
11/5/2019	15.9	40	361	27.5	5.3	4	9.6	9.8	6.11	2.55	557.6	551.8
12/9/2019	15.7	40	36.7	27.3	4.8	3.8	10.1	9.5	5.7	2.3	557.8	551.8
1/9/2020	15.9	40	36.6	27.3	5.4	3.9	10	9.4	6.1	2.5	557.8	551.7
2/13/2020	15.4	27.1	35.6	39.5	5.2	3.6	9.7	9	5.6	2.2	558	551.8
3/4/2020	15.7	39.9	36.1	27.1	5.2	3.65	9.7	8.9	6	2.4	557.8	551.8
4/6/2020	15.9	40	36.3	27.2	5.2	3.7	9.6	8.6	6.9	2.5	557.8	551.8
5/1/2020	15.7	39.8	36	27.2	5.1	3.6	9.5	8.4	6.4	2.2	558.8	552
6/4/2020	15.8	39.9	36.6	27.4	5.3	3.9	10	9.5	6.9	2.4	557.8	551.8
7/9/2020	16.3	40.45	37.25	28.55	6.4	4.4	10.6	10.6	5.7	3.8	557.6	551.6
8/7/2020	16.3	40.4	37.5	28.8	6.8	4.7	10.8	11.3	8.3	4.5	558	551.8
9/1/2020	16.4	40.5	37.8	29.6	7.5	4.9	11.6	11.7	8.3	5.2	558.1	551.8
10/6/2020	16.3	40.4	37.1	29.1	8.1	5.3	12.3	12.3	8.2	5.2	557.2	551.6
11/9/2020	16.4	40.4	36.8	28.4	7.7	5.1	12.1	12.2	7.8	4	558.7	552
12/3/2020	16.3	40.4	36.4	28	7.15	4.82	11.6	11.8	7.6	3.7	557.6	551.7
1/8/2021	15.9	40	35.8	27.6	5.7	4.4	10.9	10.9	6.8	2.6	557.7	551.7
2/23/2021	15.6	39.8	35.2	27.4	6.1	4.2	9.4	10.8	6.7	2.5	558.7	552
3/9/2021	15.7	39.7	35.6	27.4	5.8	4.1	9.9	10.1	6.6	2.7	557.8	551.8
4/6/2021	16	40.1	35.4	27.5	5.8	4.1	9.6	10.1	7.1	2.6	557.7	551.7
5/13/2021	16.4	40.5	36.1	27.8	6.3	4.5	10.7	10.6	7.6	2.7	557.7	551.7
6/8/2021	16.7	40.8	36.4	28.3	6.8	4.6	11.2	11.1	8.4	3.05	557.8	551.6
7/20/2021	15.7	39.85	34.9	27.7	5.4	4.1	10.1	9.8	4.8	2.3	559.5	552
8/5/2021	16	40.1	36.5	28.2	5.9	4.2	10.3	10.2	7	3.1	558.4	552.3
9/10/2021	16	40	36.4	27.8	5.7	4.2	9.5	10	5.6	2.6	558	551.7
10/7/2021	15.7	39.8	36.4	27.7	5.4	4.2	10.1	9.5	4.9	2.4	558.2	551.8
11/4/2021	15.8	39.9	36.8	27.6	5.6	4.2	10.1	9.6	5.3	2.5	558	551.7

Notes: Piezometer measurements baded on depth below top of PVC riser

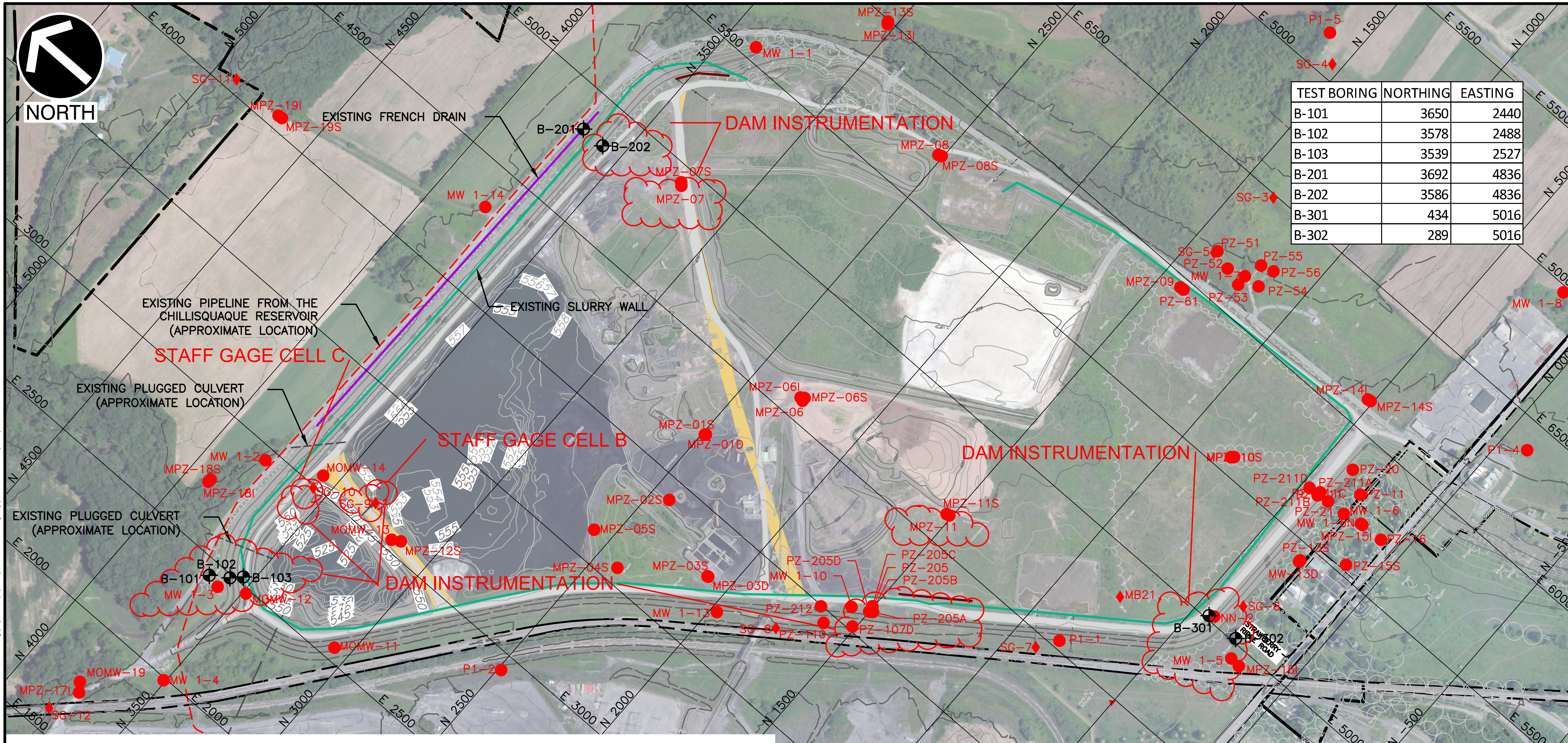
Highighted with yellow show the maximum readings since the 2020 Annual Inspection

Piezometer Water Level Elevations | Lake Level Elevations

Date	B-102	B-103	B-202	B-301	PZ-205A	PZ-107D	MPZ-7	MPZ-11	MW1-3	MW1-5	Basin B Lake	Basin C Lake
6/14/2015	526.2	526.5	529.1	538.6		546.1	559.1	559.4	517.7	536.7	557.5	552.5
11/13/2015	526.6	526.8	530.4	539		546.3	559.5	559.9	517.9	536.9	558.5	552.8
12/11/2015	526.4	526.7	529.8	539.1		546.2	559.4	559.9	517.7	536.9	559	553
1/11/2016	526.3	526.7	529.5	539.3		546.3	559.6	560.2	517.8	536.6	558.8	552.8
2/9/2016	526.5	526.9	530.5	539.5		546.5	559.8	560.4	518.2	537	558.5	553
3/8/2016	526.4	526.8	529.9	539.5		546.5	559.9	559.9	518.2	535.8	558.3	552.5
4/7/2016	526.2	526.5	528.6	539.1	559.6	546.2	559.4	560.1	517.3	536.4	558.5	552.8
5/6/2016	526.18	526.5	529.6	538.9	559.23	545.9	559	559.35	517.75	536.5	558	552.75
6/3/2016	526.47	526.71	528.73	538.56	559.16	545.98	558.82	559.43	517.16	536.6	558.25	552.5
7/1/2016	526.36	526.62	528.86	538.71	559.2	545.94	559	559.22	517.66	536.56	558.5	552.75
7/29/2016	526.29	526.83	529.08	538.83	559.29	546.19	559.27	559.36	517.83	536.75	558.25	552.75
8/25/2016	526.53	526.86	529.43	538.51	559.43	546.03	559.45	559.71	517.74	536.89	558.5	552.75
9/21/2016	526.49	526.56	529.6	538.46	559.25	546	559.05	559.85	517.91	537.1	558	552.75
10/19/2016	526.61	526.68	529.36	538.73	559.3	546.15	559.69	559.53	517.51	537.12	558.25	552.75
11/17/2016	526.7	526.6	529.4	538.7	559.2	546.1	559.5	559.7	517.7	537	557.75	552.75
12/6/2016	526.58	526.6	529.3	538.8	559.3	546.2	559.6	559.7	517.7	537.1	557.75	552.5
1/13/2017	526.5	526.7	529.6	538.8	559.3	546.3	559.6	559.9	517.8	537	557.5	552.5
2/10/2017	526.7	526.6	529.7	538.9	559.4	546.3	559.6	560	517.9	537	557.5	552.5
3/9/2017	526.58	526.5	529.7	538.8	559.3	546.2	559.7	559.8	517.7	536.9	557.5	552.75
4/7/2017	526.5	526.5	529.6	539	559.1	546.1	559.6	560	517.9	537	557.5	552.5
5/5/2017	526.53	526.7	529.8	539	559.3	546	559.3	560.1	517.8	537	557.5	552.5
6/5/2017	526.3	526.7	530	539.1	559.2	546.1	559.4	560.3	518	536.8	557.5	552.5
6/29/2017	526.1	526.6	529.7	539	559.1	546	559.5	560.1	517.5	536.5	557.5	552.5
7/21/2017	525.8	526.4	529.6	538.8	559.1	546	559.5	560	517.2	536.4	557.25	552.5
8/18/2017	525.9	526.6	529.3	538.7	559	545.6	559.4	560	517.3	536.1	557.25	552.5
9/11/2017	526	526.4	528.9	538.4	558.8	545.7	559.6	559.9	516.9	535.6	557.2	552.2
10/23/2017	526.2	526.5	529	538.3	558.1	545.3	557.7	558.6	517	535.1	557.2	552.5
11/15/2017	526.3	526.6	529.4	538.8	558.8	545.7	558.5	559	518	536.2	558	552
12/27/2017	526.1	526.5	529.4	538.9	558.6	545.8	560.2	559.5	517.9	536	558.2	552.9
1/26/2018	526.5	526.8	529.9	539.2	559.7	546.4	559.9	559.2	518.3	536	560.5	552.6
2/20/2018	526.8	527.1	530.8	539.5	560.8	546.6	559.7	559.8	518.7	536.7	557.5	552.2
3/9/2018	526.5	526.8	531	539.4	560.2	546.8	559.6	561	517.9	536.5	558.2	552.4
4/23/2018	526.3	526.7	530.7	539.4	559.9	546.5	559.5	560.4	517.9	536.6	558.8	552.5
5/11/2018	526.2	526.6	529.8	539.2	559.7	546.5	559.6	560.1	517.2	536.4	557.8	552.1
6/7/2018	526	526.37	529.66	538.95	559.85	546.67	559.94	560.45	516.98	536.08	557.6	552
7/10/2018	526.3	526.5	530.1	538.9	559.1	546.3	559.3	560.5	517.6	535.4	559	552.5
8/21/2018	526.5	527	531.1	539.2	560.4	547	560.1	561.6	518.6	537	558.8	552.5
9/20/2018	526.9	527.3	531.5	539.3	560.8	547.1	560.4	562.4	519.6	537	558.8	552.6
10/19/2018	526.7	527.2	531.3	539.3	560.5	547	560.6	561.1	519.2	536.9	557	552
11/26/2018	527.2	527.5	531.9	539.6	561.2	547.3	560.6	562.5	520.2	537.4	558	552
12/6/2018	526.54	527.2	530.95	539.38	560.49	547.16	560.37	562.24	518.87	536.89	557.8	552
1/17/2019	526.3	526.7	530.4	539.3	560.2	547	560.3	561.6	517.8	536.4	558.7	552.5
2/26/2019	525.6	527.2	530.7	539.6	560.5	547	560.1	561.8	518.7	536.8	558	551.7
3/15/2019	526.67	527.05	531.22	539.7	560.4	547.11	559.9	561.5	518.53	537.06	558.6	551.8
4/25/2019	526.5	526.9	530.8	539.5	560.4	547.3	560.3	561.5	518.3	536.9	558.8	551.8
5/17/2019	526.8	527.2	531.4	539.4	560.5	547.2	560.4	562	519	537.1	558.6	551.8
6/12/2019	526.2	526.6	530.3	539.2	560.3	547.1	560.3	561.4	518.1	537	558.4	551.8
7/30/2019	526.3	526.7	530.1	538.9	559.7	547	560.5	560.7	517.6	536.7	560.4	551.8
8/22/2019	526.2	526.6	529.7	538.8	559.7	546.8	559.6	560.2	517.3	536.4	559.8	552
9/3/2019	526.3	526.7	529.7	538.9	559.7	546.6	559.4	560	517.1	536.1	557.5	552
10/8/2019	526.3	526.7	529.5	538.7	559.2	546.3	558.7	559.5	517.48	535.6	557.8	551.8
11/5/2019	526.5	526.9	206.5	539.2	560.1	546.8	560.1	560.3	518.89	536.75	557.6	551.8
12/9/2019	526.7	526.9	530.8	539.4	560.6	547	559.6	560.6	519.3	537	557.8	551.8
1/9/2020	526.5	526.9	530.9	539.4	560	546.9	559.7	560.7	518.9	536.8	557.8	551.7
2/13/2020	527	539.8	531.9	527.2	560.2	547.2	560	561.1	519.4	537.1	558	551.8
3/4/2020	526.7	527	531.4	539.6	560.2	547.15	560	561.2	519	536.9	557.8	551.8
4/6/2020	526.5	526.9	531.2	539.5	560.2	547.1	560.1	561.5	518.1	536.8	557.8	551.8
5/1/2020	526.7	527.1	531.5	539.5	560.3	547.2	560.2	561.7	518.6	537.1	558.8	552
6/4/2020	526.6	527	530.9	539.3	560.1	546.9	559.7	560.6	518.1	536.9	557.8	551.8
7/9/2020	526.1	526.45	530.25	538.15	559	546.4	559.1	559.5	519.3	535.5	557.6	551.6
8/7/2020	526.1	526.5	530	537.9	558.6	546.1	558.9	558.8	516.7	534.8	558	551.8
9/1/2020	526	526.4	529.7	537.1	557.9	545.9	558.1	558.4	516.7	534.1	558.1	551.8
10/6/2020	526.1	526.5	530.4	537.6	557.3	545.5	557.4	557.8	516.8	534.1	557.2	551.6
11/9/2020	526	526.5	530.7	538.3	557.7	545.7	557.6	557.9	517.2	535.3	558.7	552
12/3/2020	526.1	526.5	531.1	538.7	558.25	545.98	558.1	558.3	517.4	535.6	557.6	551.7
1/8/2021	526.5	526.9	531.7	539.1	559.7	546.4	558.8	559.2	518.2	536.7	557.7	551.7
2/23/2021	526.8	527.1	532.3	539.3	559.3	546.6	560.3	559.3	518.3	536.8	558.7	552
3/9/2021	526.7	527.2	531.9	539.3	559.6	546.7	559.8	560	518.4	536.6	557.8	551.8
4/6/2021	526.4	526.8	532.1	539.2	559.6	546.7	560.1	560	517.9	536.7	557.7	551.7
5/13/2021	526	526.4	531.4	538.9	559.1	546.3	559	559.5	517.4	536.6	557.7	551.7
6/8/2021	525.7	526.1	531.1	538.4	558.6	546.2	558.5	559	516.6	536.25	557.8	551.6
7/20/2021	526.7	527.05	532.6	539	560	546.7	559.6	560.3	520.2	537	559.5	552
8/5/2021	526.4	526.8	531	538.5	559.5	546.6	559.4	559.9	518	536.2	558.4	552.3
9/10/2021	526.4	526.9	531.1	538.9	559.7	546.6	560.2	560.1	519.4	536.7	558	551.7
10/7/2021	526.7	527.1	531.1	539	560	546.6	559.6	560.6	520.1	536.9	558.2	551.8
11/4/2021	526.6	527	530.7	539.1	559.8	546.6	559.6	560.5	519.7	536.8	558	551.7

Notes: Highighted with yellow show the maximum water level elevations since the 2020 Annual Inspection

All elevations are based on NGVD 1929



TEST BORING	NORTHING	EASTING
B-101	3650	2440
B-102	3578	2488
B-103	3539	2527
B-201	3692	4836
B-202	3586	4836
B-301	434	5016
B-302	289	5016

REFERENCE

1. ESRI WORLD IMAGERY / ARCGIS MAP SERVICE: HTTP://GTO.ARCGISONLINE.COM/MAPS/WORLD_IMAGERY, ACCESSED 12/29/2014, IMAGERY DATE: 2011.
2. THE EXISTING TOPOGRAPHY, DATED MAY 1, 2013 WAS GENERATED USING AERIAL PHOTOGRAPHY BY L. ROBERT KIMBALL AND ASSOCIATES, INC. THE 2013 TOPOGRAPHY IN SUBBASIN B WAS REFERENCED FROM PPL DRAWING NO. E376172 REV 3, DATED 6/2013.
3. THE 2014 ANNUAL BATHYMETRIC SURVEY IN SUBBASINS B AND C IS REFERENCED FROM DRAWING 750188GPS.DWG, DATED MAY 8, 2014, WHICH WAS GENERATED BY PPL. THE BATHYMETRIC CONTOURS WERE ADJUSTED FROM NAVD 1988 TO NGVD 1929 VERTICAL DATUM BY RAISING THE BATHYMETRIC CONTOURS BY 0.9 FEET.
4. A SITE SPECIFIC COORDINATE SYSTEM IS SHOWN. MONTOUR S.E.S. USES A NGVD 1929 VERTICAL DATUM INSIDE BASIN 1.
5. EXISTING CONTOURS TO SOUTH OF BASIN 1 WERE DERIVED FROM THE PAMAP PROGRAM 3.2 FT DIGITAL ELEVATION MODEL OF PENNSYLVANIA; DEVELOPED BY PAMAP PROGRAM, PA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY; DATED 2008.
6. PROPERTY BOUNDARIES AND OWNERS HAVE BEEN PROVIDED BY PPL THROUGH A GIS DATA RELEASE AGREEMENT, DATED SEPTEMBER 4, 2014.COPYRIGHT 2011, ALL RIGHTS RESERVED THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF THE CONTRIBUTOR SUPPLIED UNDER LICENSE AND MAY NOT BE REPRODUCED EXCEPT AS LICENSED BY DIGITAL MAP PRODUCTS.

LEGEND

●,▲,♦ EXISTING PIEZOMETER /MONITORING WELL

⊕ B-101 PROPOSED TEST BORING

PROPERTY LINE

*HAND SIGNATURE ON FILE

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PPL MONTOUR, LLC.
BASIN-WIDE HYDROGEOLOGIC AND RISK ASSESSMENT REPORT - MONTOUR STEAM ELECTRIC STATION - WASHINGTONVILLE, PA

TEST BORING PLAN

DRAWN BY: JAH	CHECKED BY: JMN	APPROVED BY: *DMC	FIGURE NO.:	1
DATE: 04/20/15	DWG SCALE: 1"=400'	PROJECT NO: 150-989		

P:\2015\150-989\-CADD\Dwg\GT01\150989-GT01-OVERALL TEST BORING PLAN.dwg{1} LS:(4/28/2015 - agray) - LP: 4/28/2015 10:03 AM