April 17, 2014

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Ms. Laura Quinn-Willingham
Division of New Reactor Licensing
Office of New Reactors
US Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Ms. Quinn-Willingham:

Subject: Bell Bend Site Audit Trip Report for QPC04, Task 18, " Bell Bend COL- Environmental Review"

PPL Bell Bend, LLC has proposed a Consumptive Use Mitigation Plan to compensate for Bell Bend's cooling water use. This plan generally involves use of water stored in Cowanesque Lake and the Rushton Mine in Pennsylvania. PNNL has completed a summary of the site audit conducted March 17 through 21, 2014 of the two water storage sites. The purposes of this trip included 1) meetings with Federal, State and local agencies, 2) discussions with the applicant concerning the COL environmental report, 3) a tour of the Rushton mine, Cowanesque and Tioga-Hammonds reservoirs, the Bell Bend proposed project site and its environs, and other proposed alternative sites. The trip report summary for the site audit is enclosed. The trip report includes a list of NRC and contractor staff who participated in the audit, a schedule of activities conducted at the audit, a summary of each day's activities, a summary of issues for each technical area discussed at the audit and a list of participants in the audit and offsite meetings conducted in association with the audit.

If you have any questions regarding this letter or report, please call Bruce Mcdowell at 509-375-6668 or Eva Eckert Hickey at 509-375-2065.

Sincerely,

Bruce K. McDowell
Project Team Lead
Radiological Science and Engineering Group
ENERGY & ENVIRONMENT DIRECTORATE

BKM:II

Cc w/encl.: Tomeka Terry
Eva Eckert Hickey

Bell Bend Consumptive Use Mitigation Plan
Audit Trip Report

March 16-21, 2014

Overview

PPL Bell Bend, LLC (PPL) has proposed a Consumptive Use Mitigation Plan (CUMP) as part of its combined license (COL) application for the Bell Bend Nuclear Power Plant (BBNPP). Using a pooled asset approach, the CUMP outlines modifications to releases from existing water-storage facilities in the Susquehanna River Basin (SRB) to mitigate for proposed water withdrawals at the BBNPP site for plant cooling. The primary alternatives identified in the CUMP are listed in the table on page 2. The purpose of the site audit was for the review team to become familiar with the facilities at which the modifications are proposed and the stream reaches that would be affected by changes in releases. The primary goal of the audit was for review team members to gain enough background information about the sites to make a determination of the impact of the proposed modifications to facilities and releases. The secondary goal of the audit was for team members that had not visited the BBNPP site before or had not visited since pre-application and power block relocation to tour the site. The audit included meetings with Federal, State, and local officials with regulatory authority for resources potentially affected by the project. Audit photos are available at https://earrth.pnnl.gov/sites/bellbend.

Location: Existing water-storage facilities in the Susquehanna River watershed and the BBNPP site, near Berwick, Pennsylvania. Meetings with the U.S. Army Corps of Engineers (USACE) were held at the operations facilities at Cowanesque Dam and Tioga-Hammonds Dam. Meetings with State and local officials were held at their respective offices. Coordination meetings with PPL for the site tour were held at the 38 Bomboy Lane, Suite 2, Berwick, Pennsylvania.

Participants

Resource Area	NRC Staff	PNNL Staff	USACE Staff	SRBC
Team Lead	Tomeka Terry	Bruce McDowell	Amy Elliott	Paula Ballaron
Cumulative Impacts	Harriet Nash			
Deputy Team Lead		Kim Leigh		
Aquatic Ecology	Mike Masnik	Roy Kropp		
	Nancy Kuntzleman			
Terrestrial Ecology	Peyton Doub	Jim Becker		
Hydrology	Mohammed Haque	Phil Meyer		
Alternatives	Stacey Imboden	Tom Anderson		
Socioeconomics/EJ	Dan Mussatti	Patrick Balducci		
Health Physics	Don Palmrose	Eva Hickey		

PNNL = Pacific Northwest National Laboratory; NRC = U.S. Nuclear Regulatory Commission

DRAFT

BBNPP Consumptive Water Use Mitigation Alternatives

Source[(a)]	Receiving Waters	Upstream Waters	Closest Town, State; County
		Option 1	
Cowanesque Reservoir (1)	Cowanesque River (1); Tioga River (1); Chemung River (2-3); North Branch Susquehanna River (3)		Lawrenceville, PA; Tioga Lawrenceville, PA; Tioga Corning, NY; Steuben Athens, PA; Bradford
Ruston Mine (1)	Moshannon Creek (1); West Branch Susquehanna River (2)		Osceola Mills, PA; Centre Karthaus, PA; Clearfield
Holtwood Dam (3)	Mainstem Susquehanna River (3)	Lake Aldred (3)	Holtwood, PA; Lancaster
		Option 2	
Hammond Dam (2)	Crooked Creek (2); Tioga Reservoir (2)	Crooked Creek (2); Various small creeks (3)	Tioga, PA; Tioga
Tioga Dam (2)	Tioga River (2); Chemung River (3); North Branch Susquehanna River (3)	Tioga River (2); Mill Creek (3); Various small creeks (3)	Tioga, PA; Tioga

(a) Priority (1) = need to visit; (2) nice to visit if time; (3) may not be necessary to visit. Note: Tioga and Hammond Reservoirs are close to Cowanesque (<10 mi) so may be relatively easy to visit.

Schedule Summary

Day	Summary Activities
Sunday	• Travel day for PNNL staff except Balducci and Hickey.
Monday	• Met with the Department of Natural Resources and Game Commission in Harrisburg, PA. Viewed Susquehanna River at Three Mile Island and below York Haven Dam. Peyton and Becker also viewed riverine wetlands near the town of Accomac along the mainstem Susquehanna River across from Marietta. • Travel day for Balducci.
Tuesday	• Toured Rushton Mine treatment facilities outside of Philipsburg, PA and the Moshannon Creek discharge environs. • Met with Department of Environmental Protection and Bureau of Recreation and Conservation in Harrisburg. • Met with PA Fish and Boat Commission in Bellefonte, PA. • Travel day for Hickey.
Wednesday	• Met with USACE staff and toured Cowanesque and Tioga-Hammonds reservoirs and environs. • Toured offsite radiological monitoring locations. • Conducted NRC/PNNL team meeting in preparation for PPL site visit on Thursday.
Thursday	• Toured BBNPP site in the morning and conducted discussions with PPL in the afternoon. • Met with PA American Water in the morning in Berwick, PA. • Terrestrial ecology subject matter experts visited the Humboldt alternative site in the afternoon. • Balducci travel day
Friday	• Travel day for remaining PNNL staff.

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Agency Meetings

Agency and Contact	Meeting Summary
Pennsylvania Department of Conservation and Natural Resources (PDCNR) Rachel Carson State Office Building 400 Market Street, Harrisburg, PA Su Ann Shupp Ecological Information Specialist Jason Ryndock Ecological Information Specialist Pennsylvania Game Commission (PGC) 2001 Elmerton Avenue Harrisburg, PA John Taucher (Wildlife Biologist)	The team met with both the PDCNR and PGC (same meeting) to discuss the agencies' Pennsylvania Natural Diversity Inventory (PNDI) review of the CUMP and any concerns or questions they might have. Phil Meyer explained the most current understanding of how the CUMP would work. PDCNR provided a handout of PNDI findings and discussed potential impacts to the species listed—most likely minor or non-existent. PDCNR provided maps depicting riverine wetlands near the town of Accomac, along the mainstem Susquehanna River across from Marietta, and recommended we visit them. The wetlands support plant species of concern to PDCNR that could be affected by the CUMP. A formal PNDI letter from PDCNR to NRC is forthcoming. PGC discussed PNDI findings which would at most result in minor or non-existent impacts to some bird and mammal species. A formal PNDI letter from PGC to NRC is forthcoming.
PNCNR Rachel Carson State Office Building 400 Market Street, Harrisburg, PA Mike Piaskowski (Recreation and Parks Supervisor) Thomas Ford (Chief, Customer Assistance and Policy Division) Rebecca Oyler (Director of Policy and Planning) Nathan Flood (Deputy Secretary for Conservation and Technical Services) Lauren Imgrund (Director, Bureau of Recreation and Conservation)	The team met with representatives of the PDCNR to discuss data regarding local recreational sites and the potential effects of water withdrawals associated with the BBNPP on local fishing and boating activities. PDCNR representatives indicated that data layers are available for all local parks and recreational areas located within Columbia and Luzerne counties. They also indicated that interactive maps, which document the presence of trails, are available at ExplorePA.gov. Further, PDCNR representatives indicated that Penn State University conducts a periodic economic impact study of the State Park System. With respect to boating, PDCNR representatives noted that the local popularity of canoeing and kayaking is on the rise, and they recommended contacting David Buck at Endless Mountains Outfitters (570-746-9140) and Alan and Betsy Quaint of Canoe Susquehanna (570-524-7692) to determine if they can characterize local boating activities and have any concerns with the BBNPP. In addition, PDCNR representatives noted that the North Branch of the Susquehanna is considered a world-class smallmouth bass fishery and that several tournaments are held each year on the Susquehanna. With respect to fishing, boating, and hunting license information, they recommended contacting the Fish and Boat Commission (PFBC) and the SGC. Finally, they recommended contacting Trish Carothers at the Susquehanna Greenway Commission for more information regarding local recreation.

Agency and Contact	Meeting Summary
Pennsylvania Department of Environmental Protection (DEP) Safe Drinking Water Division Rachel Carson State Office Building 400 Market Street, Harrisburg, PA Susan K. Weaver, P.E. (Environmental Engineer Consultant)	The team met with Ms. Susan Weaver of the Pennsylvania DEP to discuss data regarding local municipal water supplies. Ms. Weaver indicated that much of the data is available through the water use data download tool, which acquires data from the Drinking Water Reporting System. Ms. Weaver presented a map that documented the service area boundaries for the community water systems in Columbia and Luzerne counties. She indicated that while water suppliers must provide one day of storage, there are no operating reserve requirements. Chapter 109 regulations establish parameters, creating triggers for planning of additional capacity; however, no requirements exist for investment or tracking of future expansion plans on the part of the Pennsylvania DEP. Ms. Weaver noted that water use is tracked at the household level, and that the Pennsylvania DEP does not prepare water-demand forecasts at the county level. Future demand is typically considered to be highly correlated with past demand on a per household basis, with the exception of extraordinary system demands (e.g., those tied to fracking). At present, however, fracking is not an issue in Columbia and Luzerne counties. She also noted that the Susquehanna River Basin Commission has regulatory authority for industrial and agricultural water withdrawals from the Susquehanna River. All questions regarding wastewater were referred to Tom Starosta of the Pennsylvania DEP at 717-787-4317. Ms. Weaver indicated that there is potentially useful information accessible through the Sewerage Facilities Act 537 Plans. All question regarding water supply were referred to Mr. Michael Hill, also of the Pennsylvania DEP.
PFBC Division of Environmental Services 450 Robinson Lane, Bellefonte, PA Mark Hartle (Aquatic Resources Section Chief), Geoff Smith, Susquehanna River Biologist Chris Urban Chief, Natural Diversity Section Nevin Welte Nongame Biologist/Malacologist Tom Shervinskie Fisheries Biologist	The team met with PFBC to discuss the agency's PNDI review of the CUMP and any concerns or questions they might have. Phil Meyer explained the most current understanding of how the CUMP would work. PFBC discussed, generally, the wetlands associated with Moshannon Creek and some species of concern to the agency that may be associated with these wetlands and adjacent upland areas. These species will be identified in a forthcoming PNDI letter from PFBC to NRC. The team also discussed letters that PFBC plans to provide NRC from previous unanswered NRC requests, namely a letter regarding the geographic area of interest around the BBNPP site and each of the three alternative sites, and an updated letter on the BBNPP site itself. The team also specifically discussed Normandeau's identification of the northern cricket frog (*Acris crepitans*) (state endangered) along Walker Run on the BBNPP site, which PFBC desires to look into further. Jim Becker promised to deliver the Normandeau fauna field survey report (with the individual amphibian/retile report) to PFBC with copy of the email to NRC. PFBC expressed concern over the temperature of the consumptive use (CU) mitigation discharge. Depending on the timing of discharges, rapid increases in water flow could interrupt the reproductive activities of fish. July marks the end of warm-water fish spawning. A rapid decrease in flow could strand fish. Higher threshold flows could benefit shallow water mussels

Agency and Contact	Meeting Summary
	(e.g., the green floater) and fish (e.g., the darter and the northern hog sucker). Concern could arise over mussels; however, rare mussels are not an issue at Cowanesque or Tioga-Hammond. Tioga River has no significant mussel concerns. The brook floater may inhabit the Tioga River, but it has not been verified. Cowanesque drawdown may effect young-of-year fish by forcing them into greater predation risk. PFBC will provide stocking records for the Cowanesque and Tioga Hammonds. Moshannon Creek is severely polluted from mine drainage and a horrible place for fish. It was indicated that PFBC authored a vernal pool report that may contain information about Riverlands area vernal pools.
PFBC Mark Hartle (Aquatic Resources Section Chief) John Cummins (Waterways Conservation Officer) Geoff Smith (Susquehanna River Biologist)	The team met with PFBC to discuss local river recreation, fishing, and subsistence activities. PFBC indicated that it had commissioned a study to estimate the economic impacts of local recreational fishing. PFBC indicated that Bob Lorantas and Rob Wnuk, respectively, could provide the economic impact study and local angler opinion surveys. PFBC further indicated that approximately 50 bass tournaments occur in the area each year, with an average of between 15 and 20 vessels in each tournament. Data regarding the timing of, and attendance at, these tournaments will be shared by John Cummings, who can also provide data regarding local boat launch ramps in Berwick and Bloomsburg. PFBC did not view the traffic demands generated by the construction and operations workforce at the BBNPP as creating a significant conflict with boaters or the fishing tournaments. Mark Hartle indicated he could provide the research team with data regarding boating and fishing licenses. He indicated that there are no limits regarding the number of boat licenses issued locally as the PFBC encourages maximum participation. The PFBC representatives indicated that the River Management Plan contains relevant information in its characterization of local fish populations. The three primary species fished locally are smallmouth bass, walleye, and channel catfish. PFBC was unaware of any local subsistence fishing activities and indicated that approximately 90% of all local fish and boat traffic originates from within 10 to 15 miles of the river.
Pennsylvania-American Water (PAW) 360 West Front Street, Berwick, PA Rand Wilkin (Supervisor – Field Operations) Joel Mitchell (Project Manager) Don Kessler (Manager of Operations)	Met with PAW to discuss information regarding local municipal water supplies. PAW indicated that in 2013, the average and maximum production levels for the PAW-Berwick water system were 1.3 to 1.4 million gallons per day (mgd) and 2.0 mgd, respectively. The PAW-Berwick system serves a local population of 15,000. PAW indicated that the PAW-Berwick system extracts groundwater from three permitted wells that can collectively provide up to 4.6 mgd per day. A fourth well has been dug and was rated at 1.5 mgd, but has not been permitted. Well #1 is 160 ft deep with a 60-ft casing. Well #2 is 90 ft deep with a 40-ft casing. Well #3 is 87 ft deep; no casing information was provided. Well #4, which is not permitted, is 120 ft deep and has a 48-ft casing. PAW indicated that recent test results indicate that the wells are not pulling surface water. Randy Wilkin indicated that he could provide 10-year historic data for

Agency and Contact	Meeting Summary
	average and maximum production levels for the PAW-Berwick system. Joel Mitchell indicated that he could provide forecast water demand for each of the systems operated by PAW in Columbia and Luzerne counties. PAW indicated that no current plans exist to expand PAW-operated water systems in Columbia and Luzerne counties.
U.S. Army Corps of Engineers Operations Staff, Cowanesque Reservoir 2601 Bliss Road, Lawrenceville, PA William R. Bernstein (Cowanesque Head Dam Operator) Mark Simonis (Conservation Supervisory Ranger) Truby Emerson (Tioga-Hammond Head Dam Operator) Robert Schnell (Operations Project Manager)	Phil Meyer explained the most current understanding of how the CUMP would work. The review team asked USACE questions about current dam operations (e.g., normal pool elevation and minimum releases to maintain flows in Cowanesque River) and possible operational changes under the CUMP. Dam operators described annual operations of the dam and recreational usage of the lake. Unlike many other USACE dams, Cowanesque is operated at a static water elevation of 1,080 ft $\pm$ 6 in. as its target goal. As a result, CUMP drawdowns could have a more noticeable impact. The review team asked questions about current wildlife (e.g., bald eagle and osprey) in the Tioga/Hammond and Cowanesque Lakes area. The USACE discussed the U.S. Fish and Wildlife Service wildlife mitigation plan that was implemented following increasing Cowanesque Lake pool elevation and dedicating a part of the pool to water supply and CU releases in the 1990s. The USACE agreed to send NRC the wildlife mitigation plan upon their request.
U.S. Army Corps of Engineers Operations Staff, Cowanesque Reservoir 2601 Bliss Road, Lawrenceville, PA William R. Bernstein (Cowanesque Head Dam Operator) Mark Simonis (Conservation Supervisory Ranger) Truby Emerson (Tioga-Hammond Head Dam Operator) Robert Schnell (Operations Project Manager)	Dam operators described annual operations of the dams and recreational usage of the lakes. Dam operators explained that current dam operations are complicated, mostly due to use of Hammond Lake to provide clean water to Tioga Lake which is influenced by upstream acid mine drainage. The purpose of this operation is to release near neutral water to the Tioga River below Tioga Dam. Currently no flow augmentation agreements are applicable to these dams. Unlike many other USACE dams, The Tioga and Hammons dams have minimum discharge requirements, but are generally operated at static water elevations of 1,081 ft and 1,086 ft, respectively, as their target goals. All discharges occur from Tioga with Hammond water added via a weir system to dilute the acid level of Tioga. As a result, CUMP drawdowns could have a more noticeable impact.

1 **PPL Meetings and Tours**

Meeting/Tour	Meeting Summary
	March 17
Rushton Mine	The review team met with PPL staff George Kuczynski, Gary Petrewski, and treatment plant operator Jeff Parrett and toured the Rushton Mine treatment plant facilities and operations, including pumps, aeration tanks, lime treatment, settling ponds, and discharge channels that eventually enter Moshannon Creek. The two settling ponds drain into the channel above monitoring point 005. The channel flows downhill into a small wetlands pond, which then flows under the access road to another wetlands pond. Next, the outlet flows under the road again and parallel to a railroad track before crossing under the track and winding into Moshannon Creek. The entrance into Moshannon Creek is slightly overgrown and relatively broad. Strong flow was not obvious. It does not seem that the present channel system would be able to handle the proposed mitigation flows. Moshannon Creek at the bridge over the access road (near the Rushton Outlet) is relatively broad and slow flowing. Rushton Mine has over 1 billion gallons of available water. PPL staff indicated that increasing discharges to meet CUMP demands may require replacing the current aeration and lime additive system with a more efficient reverse osmosis system. Sludge, which is currently disposed of through re-injection into Rushton Mine, may require surface disposal onsite at some point in the future (i.e., if/when available mine space is exhausted). Land appeared available for the onsite surface disposal.
	March 19, 2014
Offsite Environmental Sampling Locations	Don Palmrose and Eva Hickey met with the applicant and environmental monitoring staff for the Susquehanna Steam Electric Station (SSES). SSES staff took Don and Eva on a tour of the local area and pointed out locations where the offsite optically stimulated luminescent dosimetry and air-monitoring stations were located and where milk and vegetables were collected for the calculations of the maximally exposed individual. The group drove around SSES to get an understanding of where the independent spent fuel storage installation and radiological storage areas were located.
	March 20, 2014
Orientation/ Safety Briefing	PPL staff participating in the site tour met with NRC and PNNL staff at the Bomboy offices in Berwick, PA.
Site Tour	PPL provided a vehicle tour of the BBNPP site including stops at the SSES transmission corridor south of U.S. Route 11; ponds off Hicks Ferry Road (site of part of Riverlands mitigation project); the proposed location of the intake structure; the north branch canal and canal outlet (Riverlands mitigation); the proposed location of the discharge structure; Johnson's Pond; the proposed new location of the cooling towers and power block; the Farm Pond/Walker Run area; the Unnamed Tributary 2/Teardrop Wetland area; the bridge to be removed at Unnamed Tributary 1; the proposed BBNPP switchyard; the Confers Lane mitigation area; former Beaver Pond; and the upper part of the Walker Run mitigation area.
Project Discussions	Terry, McDowell, and Leigh did not participate in the site tour and remained at the PPL offices. They discussed site issues with PPL and asked questions about the borrow pit, the clearing north of the site, and onsite land use prior to construction.
Lunch	Following the site tour, NRC and PNNL staff returned to PPL offices where lunch was provided by PPL.
Project	NRC and PNNL subject matter experts expressed noted their tour observations and

Meeting/Tour	Meeting Summary
Discussions	discussed questions with PPL. The issues discussed are summarized in the following section.
Closeout	Terry, McDowell, Leigh and Quinn-Willingham (by phone) reviewed the tour and discussions with PPL (Rocky Scarro) and developed an audit summary and action item list.
Humboldt Alternative Site Visit	Side trip not involving PPL. Peyton Doub and Jim Becker visited the Humboldt alternative site briefly after the BBNPP meetings were completed.

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2 **Summary of Issues/Concerns/Pertinent Information**

Issue	Issue Summary (if appropriate, suggest a resolution or follow-up action)
Cowanesque Reservoir	Cowanesque Dam is operated to maintain a steady pool elevation. The primary impacts of reductions in pool elevation appear to be impacts to recreational uses of the lake. Impacts to submerged aquatic vegetation were also identified in the USACE's final Environmental Assessment for modifying dam operations. Because the dam is operated at a static pool level year round and the typical USACE dam bath tub ring does not exist here, the effects on biota and recreation of a CU release could occur. For example, according to the operators, a 2-ft drawdown would render some boat ramps unusable and a 5-ft drawdown would make the concrete swim beach unsafe. Further, biological impacts to shoreline habitats and spawning grounds could occur. The duration of impacts may last longer than a single season depending upon the magnitude of the drawdown and the precipitation of subsequent seasons. Due to the potential impacts of increasing drawdowns for CU, the USACE indicated that such a change may require and environmental impact statement (EIS) and new negotiated agreements with SRBC. Outflow from the dam often floods "lands" in the area, including one of the farms. **Follow-up action:** Convert estimated volumes released with use of Cowanesque for BBNPP CU mitigation to estimated reductions in lake elevation, and compute changes in frequency of reductions with respect to the baseline.
Tioga-Hammond Reservoirs	Inflows to Tioga Lake are of low pH due to acid mine drainage. Hammond Lake water, which is of neutral pH, is mixed into Tioga Lake just above the release point to the Tioga River to improve the water quality of the releases. There is a connecting channel between the two lakes with a gated weir in the channel. Flow from Hammond Lake to Tioga Lake is controlled by maintaining a higher elevation (generally by 5 ft) in Hammond Lake than in Tioga Lake. Tioga Lake drains an area of 280 mi^2 and is located in a steep-sided valley. Hammond Lake drains an area of 122 mi^2 and is located in a broad valley. As a result of these physical features, fluctuations in the elevation of Tioga Lake are larger and more rapid than in Hammond Lake. At times, water flows over the weir from Tioga Lake into Hammond Lake. The smaller drainage area also means that Hammond Lake fills relatively slowly. The interacting flow dynamics and the water quality objective for releases from Tioga (pH) lead staff to conclude that use of Tioga-Hammond reservoir as a sole source of CU mitigation water for BBNPP would be unlikely. Because the dams are operated at a static pool level year round and the typical USACE dam bath tub ring does not exist here, the effects on biota and recreation of a CU release could occur. The operator noted that a 12-ft drawdown (the potential bounding case) could impact Hammond Reservoir for as much as 3

Issue	Issue Summary (if appropriate, suggest a resolution or follow-up action)
	years, because the input flows to the reservoir are very low. In addition, given the integrated operations of Tioga and Hammond dams and the requirement to maintain a 5-ft head differential between the two could complicate use of this resource for CU. The discharge from Tioga Dam is into a relatively long constructed channel; the distance to the Tioga River itself is not known. Due to the potential impacts of increasing drawdowns for CU, the USACE indicated that such a change may require an EIS and negotiated agreements with SRBC (none currently exist). Based on information gathered from the March 19 afternoon meeting with the USACE at Tioga/Hammond Lake, it may be that PPL's secondary CUMP is not feasible. Feasibility should be determined before determining whether the issue should be included (even at a reconnaissance level) in the BBNPP EIS.
Montour Alternative Site Water Sources	In response to request for additional information (RAI) ENV-28, Alt 7318, PPL indicated Ruston Mine could provide a portion of the water required for the Montour alternative site; however, additional water sources would be required. PPL discussed several options for additional water supplementation, including a mine that had been assessed for the project but was under a non-disclosure agreement with the owner. PPL also discussed raising or expanding Lake Chillisquaque. NRC requested PPL provide specific options for providing the balance of the CU mitigation, as the Montour plant would not be able to use the same pooled asset approach used for the BBNPP, Humboldt, and Seedco sites. The response to RAI ENV-28, Alt 7318 is inadequate and another RAI may be needed if PPL does not provide a more detailed discussion of CU water sources for the Montour site
Plant Description and Construction Activities	Additional structures and treatment systems would be required to treat and release additional water from Rushton Mine. The additions facilities would fit within the existing disturbed site of the current facilities.
Plant Description and Construction Activities	No new structures or modifications to existing structures are proposed. PNNL staff noted that Google.Earth images indicate some acreage north of the BBNPP site near the transmission corridor was cleared in the 2012 time frame. PPL will review this clearing and its purpose. **PPL Action:** PPL will confirm whether or not this clearing is part of the disturbed area described in the Environmental Report (ER), the total cleared area, when it occurred, and its purpose. PPL indicated some of the excavated material from the site (~6M cy) could qualify for engineered fill (~1.4M cy needed). Therefore, not all engineered fill would have to come from offsite as noted in the final safety analysis report (FSAR). However, some assumptions were made about importing offsite fill from commercial pits. **PPL Action:** PPL will compile a listing of the pertinent discussions in the ER and other assessments.
Land Use	PPL leases land at the BBNPP site for crops such as corn. PPL plans to continue leasing land for this purpose on a year-to-year basis until plant construction begins. **PPL Action:** PPL will provide the acreage leased.

Issue	Issue Summary (if appropriate, suggest a resolution or follow-up action)
Walker Run mitigation	Part of the mitigation involves removal of existing forest (eventually to be replanted) and moving both sections of the stream closer to Market Street. Fish and invertebrate communities will be allowed to colonize the new channel "naturally." No criteria have been established yet to evaluate success or to suggest actions to be taken in the event of failure. Such factors would likely be developed as part of the permitting process. At this point, it is not possible to estimate the likelihood of or the timeline for the establishment of fully functioning fish and invertebrate communities in the constructed sections.
Rushton Mine operation	Rushton Mine operation is optimized for current releases. The operator has a goal of keeping the water level in the mine fairly steady. Using the mine as a source of mitigation water would require a higher water level and larger fluctuations in water level. There is a maximum level above which undesirable seepage discharge to the surface occurs. Significant investment in the facility would be required, but use of the facility for BBNPP CU mitigation seems feasible. The entrance into Moshannon Creek is slightly overgrown and is relatively broad. Strong flow is not obvious. It does not seem that the present channel system would be able to handle the proposed mitigation flows. Moshannon Creek at the bridge over the access road (near the Rushton Outlet) is relatively broad and slow flowing.
Map of Community Water Systems in Columbia and Luzerne Counties	Staff requested a PDF of the map of community water systems in Columbia and Luzerne counties presented by Ms. Susan Weaver of the Pennsylvania DEP.
Fishing and Boating Licenses in Columbia and Luzerne Counties	Staff requested data on the number of fishing and boating licenses issued in Columbia and Luzerne counties. Mr. Mark Hartle of the PFBC has agreed to provide this information.
Pennsylvania River Management Plan	Staff requested a copy of the Pennsylvania River Management Plan. Mr. Mark Hartle of the PFBC has agreed to provide this report.
Northern cricket frog	If the northern cricket frog (state endangered) does occur along Walker Run and likely occurs elsewhere onsite as Normandeau has stated, it could be adversely affected by the Walker Run mitigation plan and may be affected by other onsite impacts that would occur around water bodies. PFBC will look into the credibility of the Normandeau report of the occurrence of this species and possible impacts to it.
Forecast Water Demand for PAW systems in Columbia and Luzerne Counties	Staff requested that Mr. Joel Mitchell of PAW provide forecasts of water demand for all PAW water systems located in Columbia and Luzerne counties.
BBNPP site visit	The tour of the site covered all the hydrology-related areas of interest. No observations were made that contradicted the interpretation of site hydrology presented in the ER and applicant RAI responses.

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