

May 29, 2009

Pacific Northwest National Laboratory

Operated by Battelle for the
U.S. Department of Energy

Elinor Cunningham
Division of New Reactor Licensing
Office of New Reactors
US Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Ms. Cunningham:

Subject: Bell Bend Site Audit Trip Report Deliverable for JCN Q-4007, Task 41, Subtask 3, "PPL Generation - Bell Bend Environmental Review" (TAC No. RX0341)

This letter constitutes Subtask 3 deliverable for Task 41, "PPL Generation - Bell Bend Environmental Review" JCN Q-4007.

PNNL has completed a summary of the site audit conducted April 27 to May 1, 2009 at the East Mountain Business Center located in Wilkes-Barre, Pennsylvania. The purposes of the trip included 1) discussions with PPL Generation concerning the COL environmental report and associated information needs, 2) review of additional documentation related to the environmental report, 3) tour the site and surrounding area, and 4) meet with Federal, State and local officials regarding the application and review process. The trip report summary for the site audit is enclosed. If no comments are received from the NRC within two weeks, PNNL will consider this a Final Trip Report.

If you have questions regarding this submittal, please call Bruce McDowell at 509-375-6668 or Eva Eckert Hickey at 509-375-2065.

Sincerely,



Bruce McDowell
Project Team Leader
Radiological Science and Engineering Group
ENERGY & ENVIRONMENT DIRECTORATE

BKM:ll

Cc w/encl.: Eva Eckert Hickey
Stacey Imboden
Kimberly Leigh
Tomeka Terry

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**Bell Bend Site Audit Trip Report
April 27-May 2, 2009**

The Bell Bend Site Audit was held the week of April 27, 2009 in Wilkes-Barre, Pennsylvania. The applicant is PPL, Bell Bend, Inc. The proposed site for the Bell Bend plant is adjacent to, and west of, the existing Susquehanna Steam Electric Station near Berwick, Pennsylvania. PPL is supported by a number of contractors including Unistar, CH2M Hill, Normandau, Ecology III, Areva, KLD Associates, and others. The following lists the NRC, PNNL, Numark, other State and Federal staff, and applicant and its contractor support staff that attended the audit.

Nuclear Regulatory Commission (NRC) Team

Stacey Imboden	Environmental Project Manager (EPM)
Jack Cushing	Senior staff advisor, Meteorology, Air Quality
Tomeka Terry	Project Support
Jessie Muir	Project Support, Transportation
Peyton Doub	Terrestrial Ecology, Land Use, Transmission Lines
Nancy Kuntzleman	Aquatic Ecology, Alternatives
Mark McBride	Hydrology
Chris Cook	Hydrology
Daniel Mussatti	Socioeconomics, EJ, Cost Benefit Balance
Leah Spradley	Non-rad Human Health
Jill Caverly	Hydrology (Safety)
Jennifer Davis	Cultural Resources
Rao Tammara	Socioeconomics, EJ, Cost Benefit Balance
Tom Nicholson	Observing hydrology safety
Mike Canova	Safety Project Manager
Michelle Hart (via telephone)	Accidents (Design Basis)
Theresa Clark (via telephone)	Accidents (Severe Accident Mitigation Alternatives)
Joe Giacinto	Hydrology (Safety)

Pacific Northwest National Laboratory (PNNL) Team

Bruce McDowell	Team Lead/Site and Technical Overview
Kim Leigh	Deputy Team Lead/Site and Technical Overview
Roy Kropp	Aquatic Ecology
Tom Anderson	Alternatives, Need for Power
Tim Lynch	Health Physics/Decommissioning, Radiological Health, Waste Systems, Uranium Fuel Cycle
Patrick Balducci	Socioeconomics, Environmental Justice, Benefit-Cost
Lara Aston	Non-Radiological Human Health/Noise/Electromagnetic Fields
Tara O'Neil	Cultural Resources (Mentor)

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Jeremy Rishel	Meteorology and Air Quality (Accidents Mentor)
Robin Durham	Terrestrial Ecology
Eva Hickey	Health Physics (Mentor)

Numark Associates, Inc. (Numark) Team

Dick Codell	Hydrology
Jim Scherrer	Geology
Ted Johnson	Hydrology (Safety Side)
Bill Dornsife	Transportation
Michael French	Cultural Resources
Richard (Dick) Warnock	Health Physics (Safety Side)
Adrian Miron	Accidents
Martin Marchaterre	Land Use

Other State and Federal Agencies

Name	Agency
Steve McDougal	Pennsylvania SHPO
Kevin Magerr	U.S. EPA
Amy Elliott	U.S. Army Corps of Engineers
Paula Ballaron and Jennifer Hoffman	Susquehanna River Basin Commission
Tonda Lewis and Gene Trowbridge, Rich Janati – (Tues and Weds), Larry Winker	Pennsylvania Department of Environmental Protection
Melinda Turner and Cindy Tibbott (Tuesday only)	U.S. Fish and Wildlife Service
Shawn Beeler (Tuesday only)	Pennsylvania DCNR

Applicant and contractor staff

Organization	Name
PPL	
PPL ABS	Abrams, Mark
PPL	Daderko, Steve
PPL	Detamore, Mike
PPL Land Studies	Ehrhart, Ben
PPL	Eisenhuth, Fred
PPL EMD	Evans, Nancy
PPL	Fields, Jerry
PPL	Fitzpatrick, Katie
PPL SSES	Fridman, John
PPL Land Studies	Gutshall, Mark
PPL	Harpster, Terry
PPL SSES	Hickey, Frank
PPL	Higgins, Lisa
PPL E-III	Jacobsen, Ted

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Organization	Name
PPL	Kelly, Vince
PPL	Kuczynski, George
PPL SSES	Mackay, Terry
PPL E-III	Mangan, Brian
PPL SSES	McCormick, Jerrold
PPL SSES	Micca, Mike
PPL E-III	Montgomery, Jim
PPL	Peal, R. Mike
PPL JCP	Phillips, Jan
PPL SSES	Riley, Harry
PPL SSES	Saxton, Curtis
PPL	Scopelliti, Karen
PPL	Sgarro, Rocky
UniStar	
UniStar	Beecher, Kim
UniStar	Dashnau, Lisa
UniStar	Ellis, Gregg
UniStar	Freels, Jim
UniStar	Goldstein, Paul
UniStar	Graham, Keith
UniStar	Hull, Vernon
UniStar	Lutchenkov, Dimitri
Unistar	Massie, Wayne
UniStar	Perdomo, Federico
UniStar	Peters, Bob
UniStar	Solazzo, Terry
UniStar	Sullivan, David
UniStar	Tynan, John
Ameren UE	Wink, Roger
AREVA	
ALION	Jacobson, Paul
CH2M HILL	Baker, Cheryl
CH2M HILL	Zeroka, Rich
ERM	Buchak, Ed
ERM	Poremba, Greg
GAI	Munford, Barbara
KLD	McShane, William R.
NORMANDEAU	Alt, Gary
NORMANDEAU	Blye, Robert
NORMANDEAU	Harmon, Paul
NORMANDEAU	Lees, Bryan
NORMANDEAU	Maurice, Keith
AREVA	Cumming, Ed
AREVA	Gluckler, Peter
AREVA	Hodgdon, Andrew
AREVA	Hubbard, Barbara
AREVA	Lewis, Ray
AREVA	Messier, Ted
AREVA	Owens, Martin
AREVA	Perez, Pedro
AREVA	Reinhart, Joshua
AREVA	Voelsing, Kelli
AREVA	Williamson, Rick
RIZZO	
RIZZO	Fernandez, Antonio

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Organization	Name
RIZZO	Mesania, Fehmida
RIZZO	Schubert, Jeff
SARGENT & LUNDY	
SARGENT & LUNDY	Cook, Ron
SARGENT & LUNDY	Hameetman, Robert
SARGENT & LUNDY	Kocunik, Dan
SARGENT & LUNDY	Pressburger, Maury

Community Representatives Interviewed During the Site Audit

Karen Karchner, Zoning Officer	Salem Township - 570-752-4399 ext. 12
Robert Aungst (Director)	Columbia County Planning Commission – 570-389-9146
Rachel Swartwood (Land Use Planner)	Columbia County Planning Commission – 570-389-9146
Shane Pepe (Borough Manager)	Borough of Berwick – 570-752-2723
Frank Brennan (Chief of Police)	Berwick Police Department – 570-752-3677
Gary Pinterich (Council President and Police Committee Chairman)	Borough of Berwick - 570.752.9264
Jim Morris (Emergency Management Director)	Borough of Berwick - 570.752.2937
Diane Krolikowski (Asst. CEO)	Berwick Hospital Center – 570-759-5464
Michael Supczenski (Asst. Administrator)	Berwick Hospital Center – 570-759-5464.
James Thomas (Executive Director)	Columbia County Housing Authority – 570-784-9373
Rich Kisner (Executive Director)	Columbia County Redevelopment Authority – 570-784-9373
Steve Phillips (Exec. Director)	Berwick Industrial Development Association – 570-752-3612.
Ed Edwards (President)	Columbia Montour Chamber of Commerce – 570-784-2522
Stephen Bekanich (EMA Coordinator)	Luzerne County EMA – 570-820-4400
Lucille Lake (Deputy EMA Coordinator)	Luzerne County EMA – 570-820-4400
Adrian Merolli (Executive Director)	Luzerne County Planning Commission – 570-825-1560

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Nancy Snee (NPO Coordinator / Farmland Preservation Program Administrator)	Luzerne County Planning Commission – 570-825-1560
Gene Brady (Executive Director)	Commission on Economic Opportunity – 570-826-0510
Kathy O'Neil (Director of Planning)	Commission on Economic Opportunity – 570-826-0510
Wayne Brookhart (Superintendent)	Berwick Area School District - 570-759-6400
Stephen Fraind (Chairman)	Salem Township Board of Supervisors - 570-784-9373

Schedule of Activities

Staff from NRC, PNNL, and Numark traveled to Wilkes-Barre on April 27, 2009. The Site Audit was held over the next four days. Dick Codell, Ted Johnson and other NRC staff also reviewed hydrology on the safety side and attended safety portions of the site audit on Monday and Friday. The schedule for the site audit was developed in conjunction with the NRC and the applicant in the weeks leading up to the site audit. Minor revisions occurred during the audit because of weather conditions, availability of key staff, and information gathered on previous days. The final pre-audit detailed schedule is attached. Changes from the attached schedule that occurred during the site audit are discussed below.

General Logistics

The Site Audit meetings were held at the East Mountain Business Center (EMBC) in Wilkes-Barre, Pennsylvania. The EMBC is also the Emergency Operations Facility for the Susquehanna Plant and is about 45 minutes from the Bell Bend site. The EMBC had a general auditorium split into a large general meeting area and 4 breakout areas, and additional separate meeting rooms. Large passenger vans were provided by PPL for tours to the site. PPL also provided a boat for river tours. PPL provided daily continental breakfasts and buffet lunches or sack lunches for field trips.

Information Needs Tracking

PNNL and Numark staff prepared detailed information needs prior to attending the site audit. This list, as modified and approved by OGC, was provided to PPL prior to the site audit to give guidance to PPL on what information to have available. PPL developed binders with written responses in each subject matter area. NRC, PNNL and Numark staff was allowed to review these binders, but did not take any copies from the audit. As a lesson's learned for future site audits, a review of written responses by SMEs at the start of the audit would help resolve questions and focus future discussions.

The status of information needs was tracked daily by the Deputy Project Team Lead (PTL) by obtaining updated spreadsheet files from each team member. At the end of the audit, the status of all information needs were consolidated into a single file. This file is attached to this report.

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Daily Summaries

Brief summaries of daily events are provided below. Photographs taken during the site tours have been loaded onto EARRTH.

April 27, 2009 (Monday) – Evening

NRC arranged a conference room at the Best Western Hotel for a pre-audit orientation for NRC, PNNL and Numark staff. This meeting was used to provide introductions, review the audit schedule, review audit goals, and review NRC's expectations about staff conduct in interactions with the applicant.

April 28, 2009 (Tuesday) – Morning

Staff from NRC, PNNL, and Numark coordinated briefly at 7:30 a.m. at the Best Western Lobby to confirm late staff arrival and coordinate rides to the EMBC.

The Site Audit began about 8:15 a.m. in the EMBC. The morning was devoted to orientation, introductions, an overview of the Bell Bend project, preliminary planning for the week with applicant staff, and an Agency-to-Agency meeting. Rocky Sgarro of PPL provided a description of PPL's approach to licensing Bell Bend and an orientation with viewgraphs. Following the general presentations, team members met with the applicant's counterparts and discussed the planned reviews for the remainder of the audit.

Agency-to-Agency Meeting Summary: At 10:30, a meeting was held with only State and Federal agencies and NRC staff and contractor support. The purpose of this meeting was to inform attendees of the NRC site audit process and to give agency staff opportunities to let NRC know about specific agency requirements or concerns. Stacey Imboden provided an overview of the NRC site audit process and the opportunities for agency staff to interact with the applicant, NRC, and NRC contract support staff. Several concerns were brought up by agency staff:

- SRBC expressed concerns about withdrawal from the Susquehanna River during low flow periods. SRBC has been imposing pass bys during low flow periods without Bell Bend. However, PPL had not yet submitted an application to the SRBC for review at the time of the Site Audit. Mitigation for withdrawals would be upstream water that can be released. The SRBC looks for a 1 to 1 replacement for water withdrawn. SRBC notes that the ER anticipates purchasing water from the SRBC without mitigation.
- SRBC expressed concern about an SSES thermal plume being compounded by releases of heated water from Bell Bend. Dick Codell stated that this should not be a problem based on modeling and the river characteristics at the discharge point.
- There will be a joint permit application with the USACE and State of PA for modifications to streams and wetlands. The State determination of whether wetlands associated with Walker Run meet the definition of "Exceptional Value" depends on the stream classification. Studies by the applicant will be completed shortly. The State will conduct their own evaluations in June. According to PA regulations, EV wetlands can only be removed if necessary to protect the public health and safety. The State permitting process was

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discussed and copies of the State permitting regulations were provided to NRC and contractor staff.

- U.S. Fish and Wildlife Service did not feel a Biological Assessment was necessary for the Indiana Bat, although they would like to review the ER.
- The PA SHPO said that their review is currently ongoing. Some properties have potential to be eligible for National Register of Historic Places. A Phase II investigation is needed and this hasn't been started yet.
- The PA DEP would like to see applicant maintain the groundwater monitoring wells, even though it isn't a requirement. Also, no interim storage facility for low level waste was noted in the ER. There was adequate room for an ISFSI although the ER did not include an ISFSI as part of the proposed action.
- USACE doesn't have an application at this point, but notes that the ER does not evaluate alternative sources of energy at the alternate sites that would meet the purpose and need. If nuclear is the chosen option, it is also not clear that Bell Bend would be the environmentally preferable site. When evaluating wetland impacts, the USACE considers avoidance first, then minimization, and mitigation only as a last option. The USACE has not seen an evaluation of the siting of the plant at Bell Bend to know whether all options for avoidance have been considered.

April 28, 2009 (Tuesday) – Afternoon

In the afternoon, PPL personnel and their contractor support staff provided NRC, PNNL, Numark, and regulatory staff with a road and walking tour of the proposed Bell Bend site and its environs. The following facility features were observed during the site tour:

- the proposed center point locations for the containment vessel and cooling towers for the proposed Unit;
- the site of the proposed meteorological tower;
- the existing Susquehanna River water intake structure and outfall;
- Walker Run and associated wetland areas; and
- surrounding farm land and residential areas.

On Tuesday afternoon, Land Use subject matter experts (SMEs) visited with local officials. A listing of local agencies and staff interviewed during the site audit is presented in the table at the end of this report.

Hydrology SMEs reviewed the location and layout of four large municipal wells on northwest bank of Susquehanna River – possible receptors of normal and accidental radioactive releases from BBNPP because of river leakage. Contact was made with PA Department of Environmental Protection on well data that applicant and staff might use for interpreting leakage or river water into wells.

A staff closeout session was held at the EMBC; the 8:00 meeting at the Best Western was cancelled. In general the review was proceeding as planned although potential RAIs were identified.

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April 29, 2009 (Wednesday) – Morning

On Wednesday morning, PPL gave a presentation on ongoing studies to classify Walker Run, and their approach to overall project permitting. Following the presentations, staff continued technical discussions with PPL and its contractors at the EMBC. Socioeconomic and Land Use SMEs left following the presentations for offsite interviews.

April 29, 2009 (Wednesday) – Afternoon

In the afternoon, field tours were provided by PPL and their contractor staff in the following areas:

Ecology/hydrology/Non-radiological human health

- Ted Jacobsen (Ecology III) led staff on a boat tour of the Susquehanna River. The tour included observation of the intake structures for SSES Units 1 and 2, the shoreline at the intake area for proposed BBNPP Unit 1, the ditch connecting the Canal to the river, and the locations of the SSES discharge point and BBNPP proposed discharge point.
- Applicant provided a van tour, led by Mark Gutshall (Land Studies) that focused mainly on Walker Run. Much of the tour repeated that conducted during the alternative site visit in late March. The tour included the East Fork of Walker Run, a piped unnamed tributary that drains a wetlands across the corn field east of the power block area, another unnamed tributary, and palustrine wetlands areas.

Radiological Human Health

- Toured offsite monitoring locations, locations for TLDs, air sampling, water, milk, sediment, biological samples. Discussed SSES Radiological Environmental Monitoring Plant (REMP) and proposed BBNPP REMP.

Air Quality/Meteorology

- Toured the SSES met tower which is located to the east-south east of the SSES cooling towers and within 2000' of these obstructions. The proposed BBNPP site was also toured, including the location for the meteorological tower. This tower will be approximately 20' higher in base elevation (670') than the existing SSES tower (650') and 4' lower than the proposed BBNPP reactor building. The applicant stated that the towers will operate independently, but it is possible that the towers could also serve in a "backup" role for the other plant.

Cultural Resources

- Examined locations of archaeological sites and historic structures within the construction footprint and discussed possibility of avoidance or need for Phase II National Register evaluations. Visited locations of historic structures within viewshed APE. Visited Council Cup, a reported "Native American meeting site".

Staff not participating in a tour continued technical discussions with PPL and its contractors at the EMBC.

At the end of the afternoon, closeout discussions were held with staff for updates to the PTL and Deputy PTL on progress of information needs and any documentation reviewed.

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April 30, 2009 (Thursday) – Morning

On Thursday morning, Socioeconomic, Land Use, and Environmental Justice SMEs visited local officials.

SMEs for Cultural Resources traveled to Harrisburg, Pennsylvania for discussions with the Pennsylvania SHPO.

Staff not participating in a tour or offsite visits continued technical discussions with PPL and its contractors at the EMBC.

A meeting was held with NRC and other agency staff. The CWA 404(b)(1) process and what it means for the BBNPP application was discussed. A general path forward to meet the needs was discussed. The PA DEP permit process was also discussed and a general path forward was discussed.

April 30, 2009 (Thursday) – Afternoon

On Thursday afternoon, Socioeconomic, Land Use, and Environmental Justice SMEs continued interviews with local government officials.

Applicant provided a tour for Terrestrial Ecology SMEs to potentially impacted wetlands, upland habitats, and water bodies to be crossed by the on-site transmission corridor. The potential off-site borrow area along River Rd. (SR11) south of the OCA was visited briefly (from the roadside).

Staff not participating in a tour or offsite visits continued technical discussions with PPL and its contractors at the EMBC.

The Information Needs Table was updated with results from the Site Audit and discussed with PPL management staff and its contractors for consistency.

Some staff departed following the daily closeout.

May 1, 2009 (Friday)

Information needs update in hydrology were obtained from Dick Codell. Remaining staff departed.

Summary of Issues or Concerns by Technical Discipline

General Information Needs, Site and Technical Oversight

Issue	Issue Summary (if appropriate, suggest a resolution or follow-up action)
GIS Data Files and Original Figures	PPL did not provide GIS data files and original figures as requested, citing configuration management concerns. Maps with better definition of the project site, the owner controlled area, land to be cleared, and acreage impacted are needed. These will be requested by RAI. Some maps were modified to better show information in the ER.
Rail Spur	Need information on any upgrades to the PPL-owned portion of the rail spur and any other rail upgrades necessary to deliver components to the Bell Bend site during construction.

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Offsite Disposal Area	PPL plans to remove approximately 3 million yards of material to create a level site for the Bell Bend plant. Need information on the location and impacts of this offsite disposal area.
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Accidents

Issue	Issue Summary (if appropriate, suggest a resolution or follow-up action)
Un-interdicted aquatic food pathway dose	Need a qualitative discussion on the BB un-interdicted aquatic food pathway and on how the Susquehanna NPS dose bounds the BB dose for this pathway.
Groundwater pathway dose	Need a qualitative discussion on the BB groundwater pathway for a basemat core melthrough accident and on how the NRC's Liquid Pathway Generic Study applies to the BB site for this pathway.
Inhalation dose component for early phase dose	Need the confirmatory calculations would not verify that the doses for the early phase of the accident referred in ER section 7.2 include an inhalation dose component.
Earthquake risk	Need a qualitative discussion on why the fire risk bounds an earthquake risk.
DBA source term	Need the source term for three DBA (steam system piping failures, locked rotor and rod ejection)
MACCS2 I/O files	Need all I/O files for the SA and SAMA analysis.
Confirmatory calculations	Need to perform confirmatory calculations for DBA, SA and SAMA.
Large release frequencies (LRF) and Core Damage Frequency (CDF) cutsets	The applicant provided several arguments to justify the evaluation of only top 50% contributing cutsets of LRF and CDF. Possible RAI following discussions with NRC reviewer of design certification ER (Ed Fuller). Question may be asked of design certification applicant and not necessary for COLAs.
Average early and latent cancer fatalities	Need the average early and latent cancer fatalities.
Normal operation risk	Need the reference and justification for the 5.7 person-rem/yr value for normal operation used in ER.

Alternatives and Need for Power

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Issue	Issue Summary (if appropriate, suggest a resolution or follow-up action)
Alternative Screening Criteria	Alternative site screening process is not adequately characterized in the ER. Docketable references and supporting mapping must be provided to support evaluation and determinations regarding environmentally preferable alternatives
Alternative Site Ranking	Independent application of the screening methodology has the potential to score Martins Creek equal to or higher than the BB site. Additionally, unresolved issues regarding Walker Run (wetlands and State trout stream status) and unavailability of cooling water in the Susquehanna River during low flows, potentially compromise the scoring of the BB site. Net result could indicate the Martins Creek site as environmentally preferable. Additionally, USACE (informally as they have no 404 permit application yet) indicated that their regulations would appear to require that the Martins Creek be preferable over BB as there would be less wetland impacts. Near term dialogs with all agencies and applicant needed and applicant's submittal of USACE & SRBC permit applications required immediately to minimize EIS schedule impacts. (Note: PPL had not filed an application with the SRBC at the time of the Site Audit.)
Potential Changes in Site Plan	State declaration of Walker Branch as trout waters of the State could preclude any relocation of the stream as proposed. Relocation or reorientation of the proposed plant layout may be required.
Potential Requirement for Low Flow Augmentation	SRBC (informally indicated since they had no water application at the time of the Site Audit) may be unwilling to accept water purchase as low flow augmentation. If mine water or new reservoir capacity become the only acceptable solutions for SRBC low flow augmentation then these actions would be part of the proposed action and impacts of their construction and operations assessed in the EIS. No such actions are identified in the ER currently.
USACE Requirements for Alternative Site Reviews	USACE maintains that their regulations require that all energy alternatives must be equitably evaluated at all alternatives sites. Such detail is not in the ER or required by NRC regulations. Addition of such would require significant effort by applicant not yet required at any other COL site.

Aquatic Ecology

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Issue	Issue Summary
CWA 404(b)(1)	Process not initiated; Corps doesn't not have enough information regarding efforts to avoid wetlands at the Bell Bend Site to justify issuing a permit.
Walker Run Classification	Trout populations in stream need to be evaluated to allow classification of Walker Run. If a reproducing population occurs, wetlands associated with Walker Run could be classified as "exceptional value" by the State. State will sample trout populations in the Run in June and will classify the stream shortly thereafter.
Susquehanna River	Emerging issues and major stressors in the Susquehanna River system are invasive species (Asian clam, zebra mussel, rusty crayfish), Marcellus shale gas extraction, endocrine disrupting chemicals, decreasing populations of white suckers, fish bacterial infections, acid mine drainage, and climate change. The potential region of interest for analyzing cumulative impacts was discussed. Dr. Mangan suggested that the entire Susquehanna River basin should be included.
Alternative Sites	Aquatic ecology information needs could not be addressed; several questions about each site remain unanswered. RAls likely will be developed.

Cultural Resources

Issue	Issue Summary
Native American consultation	Applicant needs to provide copies of all Native American consultation letters if they have not already been provided.
PA-SHPO/PHMC-BHP concurrence letters	Applicant needs to provide copies of concurrence letters and other relevant correspondence regarding Phase IA and Phase IB cultural resource investigations conducted to date.
NRHP assessments of archaeological sites	Seven archaeological sites within project area may be NRHP eligible. Applicant needs to complete Phase II evaluations of these sites or confirm measures taken to avoid them. Applicant needs to provide schedule.
Criteria of Effects Evaluation Report for historic structures	Ten NRHP eligible aboveground historic properties identified including three linear features that may be impacted by construction and seven historic properties in the viewshed. Applicant must complete a Pennsylvania Criteria of Effects Evaluation Report to assess the severity of impacts to these properties. Applicant needs to provide schedule.
Need information on potential cultural resource impacts in Alternative Sites	Currently the internal draft EIS provides no information on potential cultural resource issues within the proposed Alternative Site locations. This information was not available. During the site audit the Applicant representatives stated that basic reconnaissance level data on previously recorded archaeological sites and historic structures have been conducted and documented in a proprietary report. This report needs to be made available.
Need for management plan to address cultural resource management	In consultation with the NRC and the PA-SHPO the Applicant needs to develop a management plan that incorporates cultural resource management. The plan should: <ol style="list-style-type: none"> 1) Include procedures to address inadvertent discoveries. 2) Include procedures to insure new construction activities address cultural resource concerns. 3) Outline consultation process with NRC and PA-SHPO. 4) Include procedures to train Bell Bend personnel and contractors in cultural resource management procedures. 5) Management plan can be modeled after plan in place for SSES but must be specific to Bell Bend

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Health Physics/Decommissioning/Radiological Health

Issue	Issue Summary (if appropriate, suggest a resolution or follow-up action)
Access to Calculation Packages	Need access to the calculation packages used for the dose calculations in Richland. Making the packages available in both electronic and paper form in a reading room in Richland would be optimal. Need access to input files and output files used for the PPL ODA2, GASPAR, and LADTAP analyses of doses to perform verification runs.
Dose Calculations	Direct radiation dose to construction workers was based on ISFSI loading in 2015 instead of 2017. Doses need to be recalculated with the 2017 ISFSI loading. Figure 4.5.9 should extend out to 2017 to match Table 4.5-9. Also, applicant indicated that fuel with shorter decay times will likely be stored in the SSES ISFSI and the source term and dose estimates should be revised to reflect the larger radionuclide inventory.
ODCM Review	Need to review latest version of the SSES Offsite Dose Calculation Manual (ODCM).
Dose from Waste Storage	Sections 3.5.4.3 to 3.5.4.5 of the ER describes in general how BBNPP will handle solid wastes for about 10 years of operation. However, it is not clear from the ER that the environmental dose impacts of extended onsite storage of radiological waste was addressed (the ASLB stated in the Calvert Cliffs contention that the radiological impacts of extended onsite waste storage should be included in ER). If waste is to be shipped to a licensed offsite facility then the plan for doing this should be included in ER.

Hydrology

Issue	Issue Summary
Flow augmentation	The availability of water from upstream reservoirs and abandoned mines might be inadequate for flow augmentation during droughts. Applicant may propose improving water quality in exchange for augmentation credits. PPL will be making application to SRBC in May with proposals for water supplies during droughts. Need to obtain a copy of the application to the SRBC.
River water users	Surface water users are identified on maps, but little information known about consumption of river water at these locations. Also, its possible that downstream wells in Berwick PA are drawing river water, and need to be quantified at least for normal and accidental release calculations.

Meteorology/Air Quality

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Issue	Issue Summary (if appropriate, suggest a resolution or follow-up action)
<p>Applicant needs to quantify air emissions from plant construction for conformity determination.</p>	<p>Issue: Luzerne County is classified as a maintenance area with regard to the National Ambient Air Quality Standard (NAAQS) 8-hour ozone standard. 40 CFR 93, Subpart B requires a conformity determination if the total of the direct and indirect emissions in a nonattainment or maintenance area caused by a Federal action would exceed certain thresholds as specified in 40 CFR 93. For ozone, the thresholds apply to ozone precursors—NO_x and VOCs—and are 100 tons/year. If the maintenance area is inside an ozone transport region, then VOC threshold is further reduced to 50 tons/year.</p> <p>Resolution: The NRC will evaluate whether 40 CFR 93 Subpart B is applicable to this COL. If 40 CFR 93 is applicable, then the applicant will need to quantify all VOC and NO_x emissions (direct and indirect) to allow for a conformity determination. Emissions not addressed in the ER (but are of concern) include construction emissions, which include worker vehicular emissions to-and-from the site as well as emissions from various construction equipment. Note that the applicant will be moving 3 million + cubic yards of ground for the construction of the cooling towers. As a result, VOC and NO_x emissions are likely to be higher for this site, especially when compared to other sites that are generally flat and require less site preparation.</p>
<p>Applicant needs to demonstrate that Williamsport temperature and dew point temperature measurements are representative of the BBNPP site and can therefore be used in analyses in the ER, including the SACTI cooling tower plume analysis.</p>	<p>Issue: Although the applicant measures dew point temperature onsite, it was noted that the measurements are often in error and are unreliable. As a result, the applicant chose to use dew point measurements from Williamsport, a nearby first-order National Weather Service (NWS) station, in certain ER analyses, including SACTI. Additionally, the applicant chose to use Williamsport's temperature measurements for consistency.</p> <p>Resolution: The applicant needs to demonstrate that Williamsport's dew point temperature and temperature measurements are representative of the BBNPP site. In addition, the applicant needs to indicate if measurements made at Williamsport follow regulatory guidance (Regulatory Guide 1.23 Revision 1) and justify the use of the data if any departures from guidance..</p>
<p>Local farmers believe that current SSES cooling tower plumes are adversely affecting crops. There is concern that additional cooling towers would compound the problem.</p>	<p>Issue: Two local farmers (Hess and Zaginaylo) raised concern during the public comment period that the existing SSES cooling tower plumes are adversely affecting their crops. They have concern that the addition of two new cooling towers would worsen the problem.</p> <p>Resolution: Upon receiving the applicant's hourly meteorological data, staff will review UniStar's SACTI cooling tower analysis to confirm the applicant's estimates for cooling tower plume length and frequency. Staff will follow ESRP 5.3.3.1 to determine if the analysis is appropriate and will issue subsequent RAIs to the applicant, if necessary.</p>

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Socioeconomics/Environmental Justice/Benefit- Cost

Issue	Issue Summary (if appropriate, suggest a resolution or follow-up action)
Information Needs	Multiple RAIs will be issued for information needs not addressed during the Site Audit.

Land Use/Transmission Lines

Issue	Issue Summary (if appropriate, suggest a resolution or follow-up action)
Zoning Requirements	Permitting and zoning are the responsibility of Salem Township, and the BBNPP site will need to be re-zoned from agricultural to heavy industrial use.
Land Use Impacts	Discussed changes in land use from construction. Need to obtain land use change acreages.
Natural Gas Wells	Discussed potential for natural gas to be commercially developed in BBNPP area. RAI needed to show current locations of wells in Luzerne County and figures on Marcellus Shales in relation to BBNPP.
Borrow Areas	Discussed location of offsite borrow areas. Need to confirm location of offsite borrow areas and location of onsite/offsite location to manage construction spoils.
100-year and 500-year Floodplain Areas	Need to identify acreage of floodplains affected by construction and new 100-year and 500-year floodplain after construction.

Terrestrial Ecology

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Issue	Issue Summary (if appropriate, suggest a resolution or follow-up action)
Schedule of construction activities and Biological Assessment for the Indiana Bat	<p>In the applicants written response to TE-8 (regarding the proposed schedule of construction activities, including season of year), it was stated that a detailed construction schedule had not been established. However, preconstruction activities, such as tree removal, have been tentatively proposed for April 2011. The ER states that protection will be provided the Indiana bat through seasonal restrictions on tree removal. Clarification is needed from the applicant on the apparent discrepancy between the ER and the written response to TE-8 (which indicates tree removal commencing as restrictions are scheduled to begin). Additional information on the preconstruction activity schedule for tree removal is needed to confirm schedule restrictions and species protection.</p> <p>During the government to government meeting, when asked about a biological assessment (BA) for the Indiana bat, FWS staff (Melinda Turner and Cindy Tibbott) stated none would be required. Our concern surrounds the mechanism of coordination between those who are setting pre-construction and construction schedules and those insuring compliance with species protection, and ultimately our ability to affirmatively establish a finding of "no impact." Follow up is needed through formal correspondence or conference call with FWS to confirm and detail the option of species protection through schedule restrictions on tree removal.</p>
Wetland Evaluations; 404(b)(1) permitting; and Hydrological modeling	<p>Issues remain to be worked out regarding site selection and site layout needed to support State and Federal permit applications for stream and wetland impacts. PPL consultant, Mark Gutshall of LandStudies, Inc., stated that the preliminary Jurisdictional Determination request and information required was submitted to the Corps by the applicant during the site audit on 4-30-2009. Wetland evaluations to determine the classification of Walker Run as "exceptional value" or "other" are scheduled with the applicant, NRC Staff, and PADEP during June 2009. Based upon the outcome of the State wetland evaluations and the Federal 404(b)(1) permit process, there may be serious and significant site selection and layout issues at the proposed site. Other wetland concerns that arose during the audit surround the installation of a slurry wall. Hydrological changes have not been modeled to evaluate potential impacts to the surrounding wetlands. These impacts may be significant.</p>
Offsite Borrow Areas	<p>The potential borrow pit described in a figure presented during the final Terrestrial break-out session was visited. The afternoon field trip went long and there was no opportunity to debrief with the applicant-assigned team lead, Kim Beecher, to discuss our comments for the record. The main concern with this quarry location is expansion potential. Evaluation of ecological impacts from expansion would need to be addressed.</p>

Transportation

Issue	Issue Summary (if appropriate, suggest a resolution or follow-up action)
Property Damage Cost Estimate	<p>No independent calculations were performed to verify property damage cost estimate in Table S-4. Applicant stated that this was not required for previous plants and number has not been updated in any reference that they could find since originally published. NRC representative will determine if this property damage estimate needs to be updated for Bell Bend EIS.</p>

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Geology

No Major issues.

Non-rad Human Health/ Noise/Electromagnetic Fields

No Major issues.

Data Gathering

PPL provided written documentation on the information needs for staff to review during the Site Audit. PPL also provided a CD with electronic copies of ER references. A list of these documents is presented below.

ID#	Document	Public or Need to be Docketed?
General		
G-1	CDs of figures (color and black and white versions) in the Environmental Report	Public
G-3	CD of publically available references listed in the Environmental Report	Public
Land Use		
L- 15	PJM Manual http://www.pjm.com/planning/design-engineering/~-/media/planning/design-engineering/maac-standards/20020520-va-general-criteria.ashx	Public
Hydrology		
H-11	Ecology III report: "Environmental Studies in the Vicinity of the SSES, 2006 Water Quality and Fishes"	Public
H-24	PA Dept of Enviro Protection, Marcellus Shale fact sheet: http://www.dep.state.pa.us/dep/deputate/minres/oilgas/new_forms/marcellus/0100-FS-DEP4217%20Marcellus%20Shale1.doc PA Geological Survey: www.dcnr.state.pa.us/topogeo/oilandgas/marcellus_shale.aspx SRBC: "Accommodating a New Straw in the Water: Extracting Natural Gas from the Marcellus Shale in the Susquehanna River Basin" www.pbi.org/Goodies/Extras/ELF/Marcellus_Shale.pdf	Public
Terrestrial		
TE-1	BBNPP COLA ER Field Survey of Terrestrial (ML082890761) Field Survey Report (ML082890760)	Public
TE-10	Pennsylvania Department of Environmental Protection, 1992. Design Criteria for Wetland Replacement. Pennsylvania Department of Environmental Protection, Harrisburg, Pennsylvania.	Public
TE-11	PPL Corporation, 2007. Specification for Initial Clearing and Control Maintenance of Vegetation on or Adjacent to Electric Line Right-of-Way Through Use of Herbicides, Mechanical, and Hand clearing Techniques.	Public

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	PPL Corporation, Allentown, Pennsylvania.	
TE-15	FERC, 2006, US Federal Energy Regulatory Commission, Order Issuing Certificate. Docket No CP06-34-000. Transcontinental Gas Pipe Line Corp. May 18, 2006 FERC 2008, Docket No EL08-23-000. Sus-Roseland Transmission Project. April 22, 2008.	Public
TE-16	PPL 1978, SSES Units 1 & 2, ER Operating License Stage, May 1978, Vol. 2. Ecology III 1995: 1994 annual report	Public
Aquatic Ecology		
AE-5	Cultural Resources report (GAI 2008) GAI, 2008. Technical Report, Phase 1A Cultural Resources Reconnaissance - Berwick, PA, NPP-1, Areas 6,7,8 and Confers Lane parcel, Luzerne County, PA, 2008	Public
AE-6	Ecology III report; (1995) Environmental Studies in the Vicinity of the SSES, 1994 Annual Report, Ecology III, Inc, June 1995	Public
AE-8	USFWS, 2008e. Letter from D. Densmore to R. Krich (UniStar Nuclear), Re: USFWS Project #2008-518, Federally Listed Endangered and Threatened Species for the Bell Bend Nuclear Power Plant Site PGC, 2008b. Letter from J.R. Leigey (Pennsylvania Game Commission) to R. Krich (Unistar), Re: PNDI Database Search, Berwick, PA NPP-1 Project, Salem Township, Luzerne County, PA, April 10, 2008 PDCNR, 2008a. Letter from R.H. Bowden (Pennsylvania Department of Conservation and Natural Resources) to G. Wrobel (UniStar), Re: Environmental Review of BBNPP Site, Berwick, Luzerne County, PA, March 24, 2008 PFBC, 2008b. Pennsylvania Fish and Boat Commission, Letter from C.A. Urban to R. Krich (UniStar Nuclear), Re: threatened and endangered reptiles and amphibians concerning the Bell Bend Nuclear Power Site. Letter dated April 14, 2008.	Public
Cultural Resources		
CR-1	Phase 1a June 2007, Phase 1a February 2008, Phase 1b September 2008, and Supplemental Phase 1b November 2008. Submitted under Part 111 of COLA.	Public
Nonradiological Human Health		
NRHH-8	PaDEP Designation Recommendations for the 2008 Eight-hour Ozone National Ambient Air Quality Standard, March 2009 http://www.depweb.state.pa.us	Public
Radiological Human Health		
RHH-2	SSES Offsite Dose Calculation Manual 2007 Radiological Environmental Monitoring Program 2007 Annual Radiological Environmental Operating Report	Public
Transportation		
T-2	KLD Transportation Study (ML082890771)	Public
Alternatives and Need for Power		
ALT/NFP-1	PJM data to 2012 http://www.pjm.com/planning/generation-retirements/gr-summaries.aspx	Public
ALT/NFP	PJM reserve margin forecast sub-region data	Public

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-9	http://www.pjm.com/planning/resource-adequacy-planning/reserve-requirement-dev-process.aspx	
ALT/NFP -17	PJM Data http://www.pjm.com/planning/generation-retirements/gr-summaries.aspx	Public