

R. R. Sgarro  
Manager, Nuclear Regulatory Affairs

PPL Bell Bend, LLC  
38 Bomboy Lane, Suite 2  
Berwick, PA 18603  
Tel. 570.802.8102 FAX 570.802.8119  
rrsgarro@pplweb.com



October 19, 2010

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**BELL BEND NUCLEAR POWER PLANT  
PARTIAL RESPONSE TO  
ENVIRONMENTAL REQUESTS FOR  
ADDITIONAL INFORMATION  
5022, 5026, & 5036  
BNP-2010-271                  Docket No. 52-039**

- References:
- 1) S. Imboden (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend Env. - Final RAI EIS 9.3 (RAI No.5022)- Alternatives, e-mail dated September 9, 2010
  - 2) S. Imboden (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend Env. - USACE RAIs, e-mail dated August 20, 2010
  - 3) S. Imboden (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend Env. - Final RAI EIS 9.3 (RAI No.5036)- Hydro, e-mail dated September 7, 2010
  - 4) R. Sgarro (PPL Bell Bend, LLC) to S. Imboden (NRC), Partial Response to Environmental Requests for Additional Information 5022, 5024, 5033, & 5043 and Schedule Information, dated October 7, 2010
  - 5) S. Imboden (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend Env. - Final RAI EIS 9.3 (RAI No.5035)- General, e-mail dated September 7, 2010

The purpose of this letter is to respond to several Environmental Report (ER) requests for additional information (RAIs) identified in the referenced NRC correspondence to PPL Bell Bend, LLC (PPL) (References 1, 2, and 3). These RAIs address environmental issues, as discussed in Part 3 of the Bell Bend Nuclear Power Plant Combined License Application (BBNPP COLA).

The enclosure provides our responses to the following RAI Questions:

- RAI 5022 EIS 9.3-15
- RAI 5022 EIS 9.3-18
- RAI 5022 EIS 9.3-19a
- RAI 5026 EIS USACE-16
- RAI 5036 EIS 9.3-32
- RAI 5036 EIS 9.3-33

The previous submittal on October 7, 2010 (Reference 4) contained two typographical errors. The response dates for RAI Questions 5022 EIS 9.3-19b, 5022 EIS 9.3-20, 5023 EIS 9.4-4, and 5036 EIS 9.3-30 should have been November 11, 2010, and the response dates for RAI

D102  
NRD

Questions 5022 EIS 9.3-14, 5025 EIS 5.4-3, and 5035 EIS 9.3-28 should have been November 22, 2010.

Finally, please be advised that the responses to RAI No. 5035, Questions EIS 9.3-25, 9.3-26, and 9.3-27 (Reference 5) will also be submitted on or before January 25, 2011.

Should you have questions or need additional information, please contact the undersigned at 570.802.8102.

*I declare under penalty of perjury that the foregoing is true and correct.*

Executed on October 19, 2010

Respectfully,

A handwritten signature in black ink, appearing to read "Rocco R. Sgarro". The signature is written in a cursive style with a large, prominent "S" at the end.

Rocco R. Sgarro

RRS/kw

Enclosure: As stated

cc: w/ Enclosure

Ms. Paula Ballaron  
Director, Regulatory Program  
Susquehanna River Basin Commission  
1721 N. Front Street  
Harrisburg, PA 17102

Mr. Tom Shervinskie  
Pa Fish & Boat Commission  
450 Robinson Lane  
Bellefonte, PA 16823

Ms. Jamie Davis  
Office of Environmental Programs (3EA30)  
U.S. Environmental Protection Agency  
1650 Arch Street  
Philadelphia, PA 19103-2029

Mr. Gene Trowbridge  
Pennsylvania Department of  
Environmental Protection  
Northeast Regional Office  
2 Public Square  
Wilkes-Barre, PA 18711

Mr. William Dean  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
King of Prussia, PA 19406-1415

Ms. Amy Elliott  
U.S. Army Corps of Engineers  
State College Field Office  
1631 South Atherton Street, Suite 102  
State College, PA 16801

Ms. Stacey Imboden  
Project Manager  
U.S. Nuclear Regulatory Commission  
11545 Rockville Pike  
Rockville, MD 20852

Ms. Jennifer Kagel  
United States Fish & Wildlife Service  
Pennsylvania Field Office  
315 S. Allen St. #322  
State College, PA 16801

Enclosure

Responses to Environmental Requests for Additional Information  
No. 5022 EIS 9.3-15, EIS 9.3-18 & EIS 9.3-19a  
No. 5026 EIS USACE-16  
No. 5036 EIS 9.3-32 & EIS 9.3-33  
Bell Bend Nuclear Power Plant

**RAI No. 5022 EIS 9.3-15**

**Summary:** *This RAI is related to the second alternative sites audit information need ALT-20.*

*Clarification is needed for ASER Appendix C, page C-7. Criterion 1e attributes "steep" topography to the Montour site. The Montour site visited during the initial alternative site tour did not appear to have any steep terrain.*

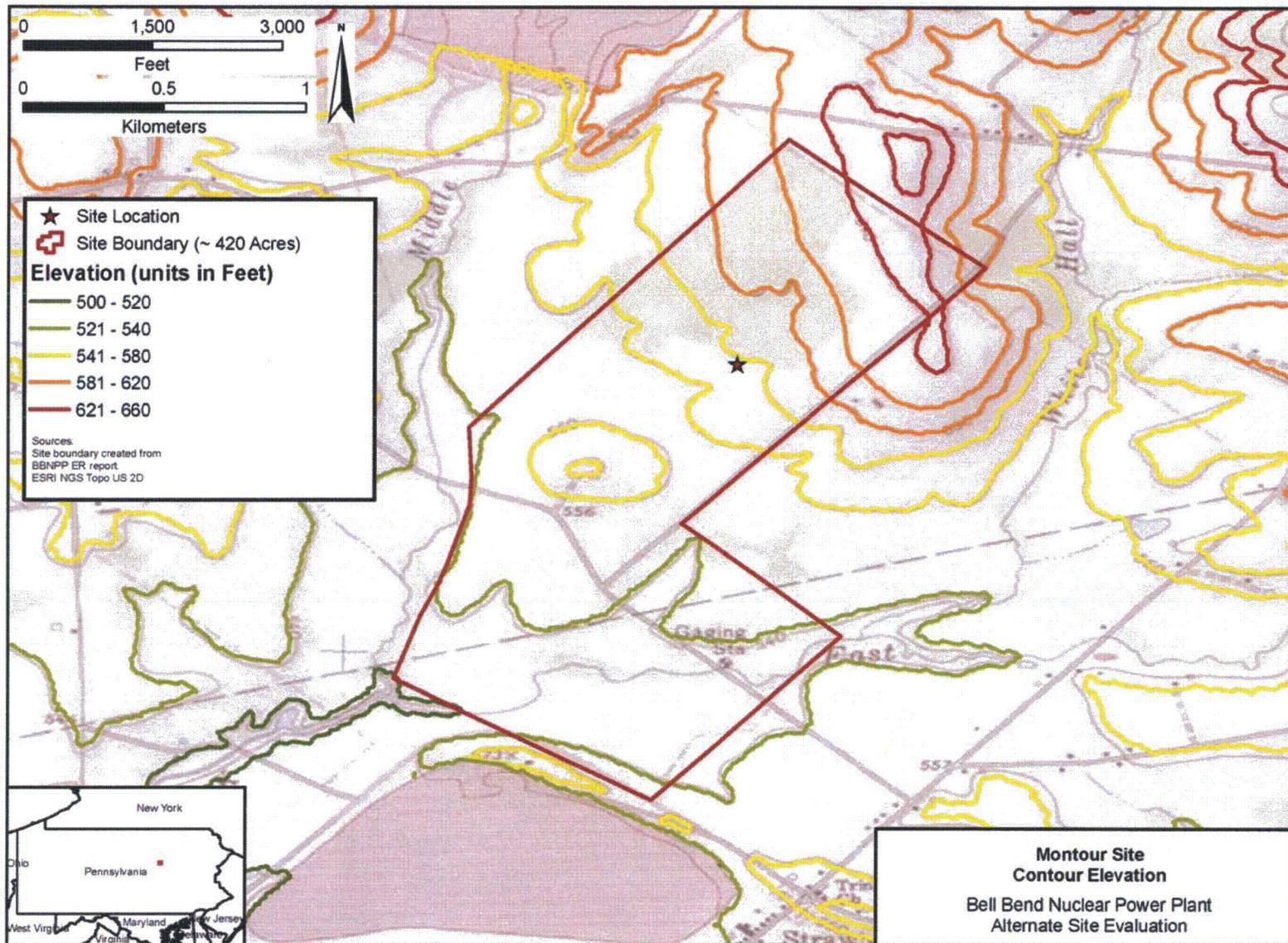
**Full Text (Supporting Information):** None.

**Response:**

As stated in Criterion 1e (Montour site) on page C-7 in Appendix C of the ASER and as shown in the attached figure, "This site has steep topography with approximately 132 feet (40 m) of relief across the site, although the steeper relief is concentrated on the southernmost and northernmost portions of the site." The preliminary placement of the power block was near the center of the site and the initial alternative site tour focused on this area. See also the response to RAI No. 5022 EIS 9.3-16 (BNP-2010-251).

**COLA Impact:**

No changes to the BBNPP COLA ER are required as a result of this RAI response.



**RAI No. 5022 EIS 9.3-18**  
**RAI No. 5022 EIS 9.3-19a**  
**RAI No. 5026 EIS USACE-16**  
**RAI No. 5036 EIS 9.3-32**  
**RAI No. 5036 EIS 9.3-33**

**RAI No. 5022 EIS 9.3-18**

**Summary:** *This RAI is related to the second alternative sites audit information need ALT-25.*

*Based on the SRBC's indications that alternative water sources will be required to augment low flow conditions in the Susquehanna River for plant operations at the BBNPP site, discuss the direct and indirect impacts of each alternative water source and address whether the low flow requirement would apply to the Humboldt and Seedco sites.*

**Full Text (Supporting Information):** None.

**RAI No. 5022 EIS 9.3-19a**

**Summary:** *This RAI is related to the second alternative sites audit information need ALT-27.*

*Identify (a) the cost of consumptive water use.*

**Full Text (Supporting Information):** None.

**RAI No. 5026 EIS USACE-16**

**Summary:** *This RAI is related to the second alternative sites audit information need H-11 (USACE-4).*

*Provide appropriate SRBC review and approval documentation for the consumptive water use for the BBNPP site. Provide any and all mitigation measures that SRBC will require for impacts to consumptive water use.*

**Full Text (Supporting Information):** The scoring/ranking study did not include criteria for consumptive water use, however, according to the March 1, 2010, letter from the SRBC, the consumptive water use of the BBNPP site (up to 31 mgd) appears to have the potential to adversely impact the Susquehanna River.

**RAI No. 5036 EIS 9.3-32**

**Summary:** *This RAI is related to the second alternative sites audit information need H-6.*

*Provide the basis for the bypass flow at the preferred and alternative sites.*

**Full Text (Supporting Information):** The SRBC states that the bypass flow anywhere on a river must be at least 10% of the 7Q10 flow, but also could require the generally higher minimum flow of 20% of Average Daily Flow. The outcome of this RAI response depends on the IFIM study and the applicant's resolution with SRBC over the need for augmentation flow.

**RAI No. 5036 EIS 9.3-33**

**Summary:** *This RAI is related to the second alternative sites audit information need H-7.*

*Provide contingency plans to supply water for bypass flow for each of the alternative sites and the preferred site. These plans should include (1) sources of bypass flow water, (2) their potential reliable yield during drought conditions for each source; and (3) diversions from other power plants or water consumers in the Susquehanna River basin necessary to supply bypass flow.*

**Full Text (Supporting Information):** Each of the alternative sites and the preferred site would withdraw water from Susquehanna River basins that are either fully committed during droughts, or would become so with the additional water needs for a new plant. In the absence of results from the ongoing IFIM study that would support additional withdrawals during droughts, augmenting flow to the river would be needed to provide bypass flow in the river; e.g., 10% of the 7Q10 flow. Outcome of this RAI response relies on completion of the IFIM study and finalization of plans for allocation of augmentation water.

**Response:** PPL Bell Bend (PPL) Consolidated Response to RAI No. 5022 EIS 9.3-18, RAI No. 5022 EIS 9.3-19(a)<sup>1</sup>, RAI No. 5026 USACE-16, RAI No. 5036 EIS 9.3-32, and RAI No. 5036 EIS 9.3-33

PPL has been working with SRBC to determine the optimum method or combination of methods for consumptive use mitigation for the Bell Bend project. These methods take two primary forms. First, PPL expects to take advantage of a corporate pool of mitigation resources, which will allow for sharing of water assets across numerous PPL facilities. PPL believes this pool will obviate the need for additional mitigation. Nevertheless, PPL and SRBC are also exploring other mitigation options. To that end, PPL is undertaking an aquatic (IFIM) study to determine potential impacts of the Bell Bend project to the receiving stream. This study will form the basis for additional PPL/SRBC discussions regarding more traditional forms of mitigation (such as in-lieu payments) in case it is needed. PPL does not anticipate final resolution of the form of mitigation for Bell Bend until 2012 (prior to SRBC approval action). Based on the guidance provided by NEPA-implementing regulations (as further described later in this response) this schedule should not create a delay in preparation of the draft EIS since the NRC can cooperate with, and rely on, the detailed environmental reviews being conducted by the SRBC which has both the jurisdiction and the expertise to impose mitigation requirements on Bell Bend and to oversee PPL's compliance with those requirements.

#### I. Corporate Pooling of Mitigation Resources

In a large-scale approach to consumptive use mitigation, PPL Generation is developing a corporate pool of mitigation resources that will be used for the combined benefit of PPL Generation subsidiaries and affiliates, including the Bell Bend project. PPL fully expects this corporate resource pool to sufficiently cover all of its consumptive use, both at Bell Bend and all other PPL Generation facilities in the Susquehanna River basin. As this corporate asset pool has independent utility from the Bell Bend project, and would be implemented with or without the Bell Bend project, it is not part of the NEPA analysis for Bell Bend. The pooled use of storage assets appears to offer the greatest possible benefit to both the Susquehanna River and the project.

---

<sup>1</sup> PPL will separately respond to EIS 9.3-19(b) by November 11, 2010.

In the event it is determined by PPL Generation or by the SRBC that this corporate pool is not feasible or is not sufficient to address all of PPL's consumptive use make-up requirements, then more traditional alternative mitigation measures, that will fulfill SRBC's requirements, will be implemented, as described below. (RAI No. 5022 EIS 9.3-18 & RAI No. 5036 EIS 9.3-33)

## II. SRBC Jurisdiction, General Requirements for Mitigation Measures and NEPA Regulations

SRBC has an established and rigorous project review process by which it evaluates each applicant's project involving consumptive use of water.<sup>2</sup> PPL initiated this review process by filing an application with SRBC on May 13, 2009. As the jurisdictional agency responsible for water use within the Susquehanna River basin, SRBC has implemented extensive regulations and guidance regarding mitigation and the related issue of potential passby flows. All projects involving consumptive use must implement mitigation measures. See 18 CFR § 806.22 (b). SRBC has "sole discretion" to "determine the acceptable manner of mitigation to be provided by project sponsors whose consumptive use of water is subject to review and approval." See 18 CFR § 806.22(c).

SRBC regulations further provide that mitigation may be achieved through one or a combination of a variety of specified approaches, including:

1. Monetary payment to SRBC, for annual consumptive use, in an amount and manner prescribed by SRBC;<sup>3</sup>
2. During low flow periods, reduction of withdrawal from the approved source(s), in an amount equal to the project's total consumptive use, and withdrawal of water from alternative surface water storage or aquifers or other underground storage chambers or facilities approved by SRBC, from which water can be withdrawn for a period of 90 days without impact to surface water flows;
3. During low flow periods, the release of water for flow augmentation, in an amount equal to the project's total consumptive use, from surface water storage or aquifers, or other underground storage chambers or facilities approved by the Commission, from which water can be withdrawn for a period of 90 days without impact to surface water flows;
4. The use, as a source of consumptive use water, of surface storage that is subject to maintenance of a conservation release acceptable to SRBC; and
5. Other alternatives approved by SRBC.

See 18 CFR § 806.22 (b).

---

<sup>2</sup> Information regarding the SRBC regulatory process and its passby flow guidelines and consumptive use regulations were provided in response to H 9.3-2 (H-6), H 9.3-3 (H-7) and ALT 9.3-25. PPL reiterates this information here to provide a more complete background regarding SRBC's comprehensive consumptive use and mitigation regulations.

<sup>3</sup> SRBC uses these payments in conjunction with payments by other consumptive users to acquire or build storage assets in the basin. Similar to the corporate pool, these storage assets have independent utility and are beyond the scope of the Bell Bend NEPA review process.

SRBC Policy No. 2003-01<sup>4</sup> provides further guidelines specifically related to passby flows. A passby flow is the minimum flow that must be left in a stream; removal of water must cease if the flow falls below the specified passby flow. Under the policy, projects whose consumptive use is less than 10% of the 7Q10 flow are considered to be "minimum" and not subject to a passby flow. If a passby flow is required, the passby flow is determined based upon the classification and quality of the stream, and may be determined by a study (such as PPL's, as described below). When a passby flow is warranted, the minimum passby flow is the 7Q10. For warmwater streams of unimpaired quality, the nominal passby flow is 20 percent of the Average Daily Flow (ADF). (RAI No. 5026 USACE-16)

These detailed regulations and procedures as well as SRBC's ongoing review of the Bell Bend project demonstrate that PPL's consumptive use mitigation strategies are being supervised by an experienced and responsible agency. PPL's compliance with these regulations and procedures should not delay the NEPA process. The CEQ's regulations implementing NEPA instruct all federal agencies to reduce delay in the NEPA process. 40 CFR § 1500.5. In particular, the agencies are instructed to reduce delay by eliminating duplication (1) with State and local procedures by providing for joint preparation of the EIS, and (2) with other Federal procedures by providing that an agency may adopt appropriate environmental documents prepared by another agency. See *id.* at § 1500.5(h). See also 10 CFR § 51.70(c) (requiring NRC to cooperate with State and local agencies to avoid duplication); 33 CFR Part 325, App. B, § 1 and § 4 (Army Corps regulations incorporating by reference CEQ's regulations regarding reductions in paperwork and delays and the elimination of duplication with State and local procedures). These regulations aim to prevent unnecessary extensive delays in the EIS process.

### III. Determining the Need for Alternative Mitigation Measures at Bell Bend

In its May 13, 2009, application to SRBC, PPL proposed to provide monetary payment to SRBC as mitigation, pending further study of potential consumptive use make-up water sources in the basin. A March 1, 2010, letter to PPL from SRBC made the following important points:

- "Before any project is approved for water withdrawal and consumptive use of significant magnitude, the project sponsor must demonstrate to the Commission that it has made a good faith effort to develop adequate measures to mitigate the consumptive water use." (Pg. 1)
- SRBC cited cumulative consumptive use (not mitigated by upstream releases or subject to passby flows) in and upstream from the Middle Susquehanna Subbasin as the basis for requiring an Instream Flow Study at the BBNPP in order to determine the "potential need" for a passby flow (Pg. 2), and
- "The PPL BB application proposes to use payment for mitigation of the consumptive water use; however, due to the magnitude of the BBNPP consumptive use, payment may not be a viable option." (Pg. 2)

In response to these comments, PPL began the aquatic (IFIM) study and is exploring other mitigation options that may be used to satisfy potential SRBC mitigation requirements. The

---

<sup>4</sup> "Guidelines for Using and Determining Passby Flows and Conservation Releases for Surface-Water and Ground-Water Withdrawal Approvals" (Policy No. 2003-01, SRBC, 2002).

IFIM study will evaluate stream impacts assuming no physical consumptive use mitigation. In addition, it will evaluate receiving stream impacts for various levels of physical consumptive use mitigation, up to and including full physical mitigation. If PPL provides physical consumptive use mitigation – either directly or indirectly, through the corporate storage asset – then there will be effectively no impact on the receiving stream during low flow periods. As a result, there will be no basis for a passby flow requirement. In other words, passby flows may not be necessary here, as they are not a required component of mitigation for all projects undertaken in the basin. Because the study has not been completed and the final form of physical mitigation has not been defined, SRBC has not yet made a determination that a passby flow will be required at Bell Bend. (RAI No. 5036 EIS 9.3-32 & RAI No. 5022 EIS 9.3-19a)

#### IV. SRBC Requirements at Alternative Sites

The attachment provides a summary of cumulative consumptive use in the Susquehanna River basin by watershed. SRBC consumptive use mitigation requirements apply equally to all potential alternative sites located in the Susquehanna basin. SRBC would be similarly involved in the planning and implementation of mitigation measures at those sites. (RAI No.5022 EIS 9.3-18)

With respect to potential passby flow requirements at alternative sites, as previously discussed in the response to H 9.3-3, the Humboldt site is located in the same sub-basin as Bell Bend (sub-basin 2050107, Upper Susquehanna-Lackawanna) where existing cumulative unmitigated consumptive use is 10.9% of 7Q10 as of March 2010, and would therefore be subject to the same SRBC passby flow requirements as Bell Bend (if any). The intake / discharge for the Seedco site has been relocated to sub-basin 2050107 and is now also in the same sub-basin as Bell Bend and Humboldt (see future response to RAI USACE-17). The Montour site is located in sub-basin 2050206 (Lower West Branch Susquehanna) where existing cumulative unmitigated consumptive use is 9.7% of 7Q10 as of March 2010. The addition of a new large consumptive use in sub-basin 2050206 (Montour location) would therefore also likely dictate SRBC consideration of the need for a passby flow at this site.

#### V. Conclusion

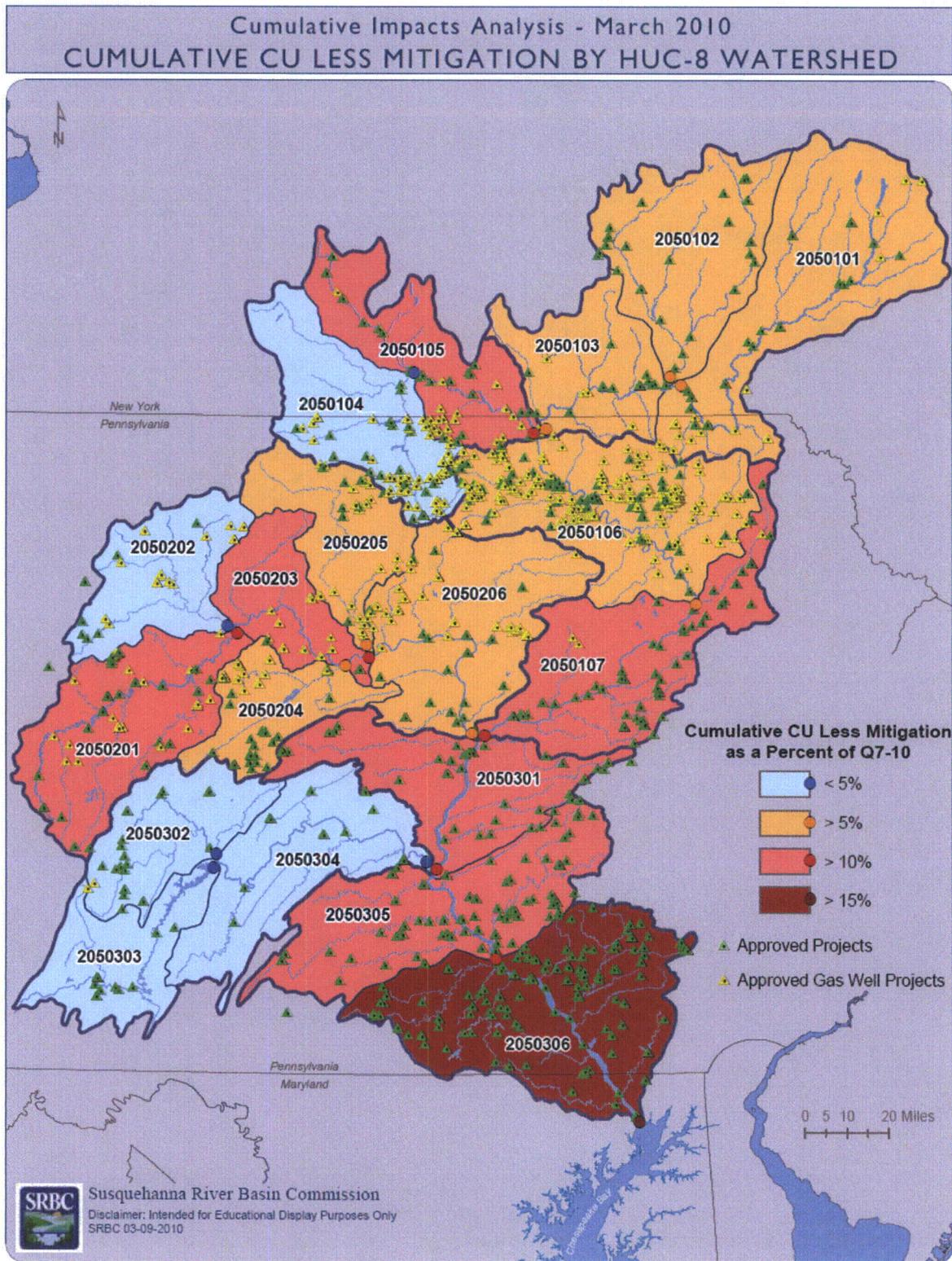
SRBC and PPL are jointly exploring options to satisfy SRBC's consumptive use mitigation requirements. PPL expects to fulfill these requirements through the global approach of a corporate pool of storage assets. As a contingency plan in case that expectation is not fulfilled, PPL and SRBC are also studying other potential mitigation options. Based on the currently available information, PPL has attempted to respond to the above RAIs as fully as possible in the interest of avoiding undue delays in the NEPA process. PPL believes this approach is in accordance with NEPA and its implementing regulations.

#### Attachment

Attachment (From H 9.9-3) - Susquehanna Basin Cumulative Consumptive Use (Source: SRBC).

**COLA Impact:**

No changes to the BBNPP COLA ER are required as a result of this RAI response.



**Susquehanna River Basin - Cumulative Impacts Analysis**  
Approved Consumptive Use By HUC-8

HUC-8	HUC-8 Name	Drainage (sq. mi.)	Cumulative Drainage (sq. mi.)	Cumulative HUC-8			Approved CU in HUC-8 (mgd)	Cumulative HUC-8 CU (mgd)	Cumulative CU as % of Q7-10
				Q7-10 (cfs)	Q7-10 (mgd)	10% Q7-10 (mgd)			
<i>Upper Susquehanna Subbasin</i>									
2050101	Upper Susquehanna	2,295	2,295	195	126	12.58	9.49	9.49	7.5%
2050102	Chenango River	1,577	1,577	148	96	9.56	5.21	5.21	5.4%
2050103	Owego-Wappasening	1,053	4,924	400	259	25.85	5.41	20.10	7.8%
<i>Chemung Subbasin</i>									
2050104	Tioga River	1,377	1,377	88	57	5.67	2.43	2.43	4.3%
2050105	Chemung River	1,210	2,587	106	68	6.82	5.99	8.43	12.4%
<i>Middle Susquehanna Subbasin</i>									
2050106	Upper Susq. - Tunkhannock	2,004	9,515	733	474	47.39	16.66	45.19	9.5%
2050107	Upper Susq. - Lackawanna	1,789	11,305	1,020	659	65.90	26.44	71.62	10.9%
<i>West Branch Susquehanna Subbasin</i>									
2050201	Upper West Branch Susq.	1,613	1,613	164	106	10.62	11.87	11.87	11.2%
2050202	Sinnemahoning Creek	1,045	1,045	21	14	1.38	0.15	0.15	1.1%
2050203	Middle West Branch Susq.	786	3,444	189	122	12.19	1.21	13.23	10.8%
2050204	Bald Eagle Creek	768	768	289	187	18.70	14.47	14.47	7.7%
2050205	Pine Creek	973	973	39	25	2.53	1.39	1.39	5.5%
2050206	Lower West Branch Susq.	1,822	7,006	696	450	44.97	14.70	43.79	9.7%
<i>Juntata Subbasin</i>									
2050302	Upper Juniata River	990	990	213	138	13.79	4.69	4.69	3.4%
2050303	Raystown Branch	947	947	86	55	5.55	0.98	0.98	1.8%
2050304	Lower Juniata River	1,469	3,405	399	258	25.77	3.16	8.84	3.4%
<i>Lower Susquehanna Subbasin</i>									
2050301	Lower Susquehanna - Penns	1,452	23,168	2,198	1,420	142.05	19.47	143.72	10.1%
2050305	Lower Susquehanna - Swatara	1,875	25,043	2,715	1,755	175.49	40.65	184.37	10.5%
2050306	Lower Susquehanna	2,477	27,520	2,868	1,854	185.39	193.21	377.58	20.4%

**Mitigated Values Removed From Table:**

- SSES - 40 mgd removed from 02050107
- Montour - 17 mgd removed from 02050206
- TMI - 18 mgd removed from 02050305
- Peach Bottom - 32 mgd removed from 02050306
- City of DuBois - 3 mgd removed from 02050201

**Last Revision: March 9, 2010 @ 3:00 PM**

FileSite# 57905