

**Rolling Hills Generating, LLC
OhioEPA 401 Water Quality Certification Application
Attachment A**

8a. Overall Activity

Rolling Hills Generating, LLC (RHG) is proposing to convert the current Rolling Hills Generating Station facility located at 43111 State Route 160, Wilkesville OH (RHG site) in Vinton County from a simple cycle electric generating facility to a combined cycle electric generating facility. The current generating facility utilizes a simple cycle combustion process via five natural gas-fired combustion turbines. The conversion will require expansion and redevelopment of the current generating facility, adding four heat recovery steam generators (HRSGs) and two steam generators to four of the combustion turbines. This equipment must be installed immediately adjacent to the existing generating facility. One combustion turbine will remain as a simple cycle unit. This conversion project will permanently impact 0.601 acres of wetlands and 1,928 linear feet of ephemeral streams and stormwater ditches at the RHG site. These water features are currently located just outside the power block fence line and will be permanently impacted to accommodate the expanded footprint required for the conversion. Also, RHG will temporarily extend the Flatlick Run culvert currently under State Route 160 a maximum of 100 feet to the west to provide a temporary north-south access road. This will allow safe equipment movement at the site without utilizing State Route 160. After construction, the culvert extension will be removed and this area of Flatlick Run will be returned to pre-construction conditions.

Soils from excavation at the RHG site will be used for earth balance where possible. Remaining soils will be deposited in areas on-site, including land owned by RHG north of Flatlick Run and east of State Route 160. No wetlands, streams or water features will be impacted from deposition of soils and all soils will be properly stabilized to prevent erosion or sedimentation into wetlands or other waters.

The current generating facility requires approximately 80,000 gallons per day of process water obtained from the Leading Creek Conservancy District, Rutland OH. The current generating facility is permitted to discharge up to 50,000 gallons of industrial wastewater per day over a time frame of at least 8 hours to Flatlick Run. The converted generating facility will require an estimated 12 million gallons per day (MGD) for steam capabilities from the Ohio River. An estimated 2 MGD of effluent (predominantly from the cooling towers) will be returned to the Ohio River. A 17-mile water pipeline(s) easement for intake and effluent water pipelines from the converted generating facility to the Ohio River will cross 99 streams, temporarily impacting 80 of those streams. The remaining 19 streams will either be avoided or bored and not be impacted. Also, four (4) wetlands will be temporarily impacted. All impacts to streams and wetlands within the proposed water pipeline(s) easement will be temporary and returned to pre-construction conditions after installation of the pipelines.

The converted generating facility will require outfall and intake structures at the Ohio River. Installation of a pump station and access road near the outfall and intake structures will not impact any wetlands or water features. Installation of the intake structure will require dredging and placement of rip-rap and will permanently impact approximately 0.12 acres below the ordinary high water mark (OHWM) of the Ohio River. Annual maintenance dredging at the intake structure will be required. Installation of the outfall structure will not impact any wetlands or water features.

To ensure current and future integrity of the shoreline at the outfall and intake locations, approximately 605 linear feet of shoreline (parallel to the shoreline) will be armored with rip-rap along the property owner's entire shoreline. This will require placement of 0.77 acre (approximately 2,900 cubic yards) of rip-rap below the Ohio River OHWM.

The Project Area, shown in Figure 1 (Appendix A), is collectively defined as the RHG site, the proposed water pipeline(s) easement, and the proposed outfall and intake structure locations on the Ohio River. The "Delineation of Wetlands and Waterways" report prepared by Stantec Consulting Services, Inc. for the Project Area is provided as Attachment B.

8b. Purpose, Need, and Intended Use

In Ohio, the Ohio Power Siting Board (OPSB) is authorized to issue certificates of environmental compatibility and public need (CECPN) for the construction, operation, and maintenance of major utility facilities. In June 2012, RHG filed an application with the OPSB to amend the original CECPN to convert the current 'peaking' generating facility to a 'base load' generating facility. In May 2013, the OPSB approved RHG's amended application.

The purpose, need, and intended use is to convert the current electric generating facility from a 'peaking' power plant to a 'base load' power plant in accordance with the approved amended OPSB CECPN. The current generating facility provides electricity to the wholesale power market in Ohio during times of peak demand, primarily on hot summer days. The converted generating facility will be capable of providing base load power to those same Ohio markets. The project is needed to support Ohio's electric utilities and customers by providing a reliable source of power supply in the future to meet growing demands.

The conversion of the facility will require expansion and redevelopment of the current facility, the installation of pipelines, and the installation of outfall and intake structures at the Ohio River. Construction is anticipated to begin in 2015 and commercial operation of the converted facility is expected to begin in 2017.

8c. Discharge of Dredged or Fill Material

Details of Permanent Impacts at the RHG Site

Figure 2 (Appendix A) provides the US Army Corps of Engineers (USACE) jurisdictional determination (JD) of the RHG site, identifying the water features that will be permanently impacted by the conversion. Figure 3 (Appendix A) provides a conceptual view of the proposed converted electric generating facility.

Table 1 (below) identifies all water features at the RHG Site and identifies those water features that will be permanently impacted along with fill depths and volumes:

Table 1: Water Features Identified and Proposed Permanent Impacts at RHG Site
Note: gray-shaded features will not be impacted

Feature Name	Classification	Linear Footage (ft)	Linear Acreage (ac)	Non-Linear Acreage (ac)	Feature Width (ft)	Avg. Fill Depth (ft)	Est. Fill Volume (yds ³)
Wetland 1	Palustrine Emergent	--	--	0.46	--		
Wetland 2	Palustrine Emergent	--	--	0.54	--		
Wetland 3	Palustrine Emergent	--	--	0.192	--		
Wetland 4	Palustrine Emergent	--	--	0.143	--		
Wetland 5	Palustrine Emergent	--	--	0.011	--	N/A	N/A
Pool 1	Palustrine Emergent	--	--	0.014	--	N/A	N/A
Stream A	Ephemeral	340	0.018	--	2.3		
Stream B	Perennial	403	0.045	--	4.9		
Stream C	Perennial	2,382	0.235	--	4.3		
Stream/Wetland D	Intermittent/Palustrine Emergent	967	0.044	0.292	2.0		
Stream E	Ephemeral	267	0.028	--	4.6		
Stream F1	Ephemeral	302	0.021	--	3.0	N/A	N/A
Stream F2	Ephemeral	430	0.028	--	2.8	N/A	N/A
Ditch G	Ephemeral	318	0.037	--	5.0		
Ditch I	Ephemeral	381	0.022	--	2.5		
Ditch J	Ephemeral	502	0.029	--	2.5		
Ditch K	Ephemeral	490	0.028	--	2.5		
Ditch/Wetland L	Ephemeral/Palustrine Emergent	283	0.026	0.076	4.0	1.0	143.6
Ditch/Wetland M	Ephemeral/Palustrine Emergent	620	0.050	0.087	3.5	1.0	180.6
Basin N	Palustrine Emergent	--	--	0.338	--	1.0	545.3
Ditch O	Ephemeral	142	0.003	--	1.0	1.0	4.8
Ditch/Wetland P	Ephemeral/Palustrine Emergent	151	0.007	0.010	2.0	1.0	27.3
Ditch/Wetland Q	Ephemeral/Palustrine Emergent	156	0.026	0.029	7.2		
Basin R	Palustrine Emergent	--	--	1.016	--		
Basin S	Palustrine Emergent	--	--	0.065	--	1.0	104.9
Basin T	Palustrine Emergent/Scrub Shrub	--	--	0.045	--		
Basin U	Palustrine Emergent/Scrub Shrub	--	--	0.031	--		
Wetland V	Palustrine Emergent	--	--	0.141	--		
TOTAL All Features		8,134	0.647	3.490			
TOTAL Impacted Features		1,928	0.135	0.601	TOTAL Est. Fill		1006.5

Wetland 5, Pool 1, Stream F1, and Stream F2 will be excavated, not filled. Therefore, “Avg. Fill Depth” and “Est. Fill Volume” are listed at “N/A”.

Ditch/Wetland L, Ditch/Wetland M, Basin N, Ditch O, Ditch/Wetland P, and Basin S are man-made, constructed linear and non-linear water features located outside the current power block fence line for stormwater management. These water features will be filled with materials that are either obtained on-site from excavated areas or consist of clean, commercial fill material. Because of their close proximity to Flatlick Run, construction methods and measures will be taken to prevent discharge of material into this stream.

Details of Permanent Impacts at Proposed Intake Structure and Shoreline Protection

Figure 4 (Appendix A) illustrates the location of the proposed easements for the water pipeline(s), outfall and intake structures, pump station, and access road. No water features above the Ohio River OHWM will be impacted (temporarily or permanently) at the location of these structures. Figure 4 also illustrates the approximate location of the proposed permanent impacts below the Ohio River OHWM for installation of the intake structure. Fill material will be clean and compatible to the riverbed.

Table 2 (below) provides details of the proposed permanent impacts below the Ohio River OHWM for installation of the intake structure:

Table 2: Proposed Permanent Impacts for Proposed Water Intake Structure

Feature	Size (acre)	Average Dredge Depth (feet)	Dredge Volume (cubic yards)
Ohio River Below OHWM	0.12	5.0	1,150
		Average Fill Depth (feet)	Fill Volume (cubic yards)
		2.0	250

Figure 5 (Appendix A) illustrates and Table 3 (below) provides details of the proposed permanent impacts at the Ohio River for installation of the rip-rap shoreline protection below the Ohio River OHWM, where necessary. Rip-rap will be clean, sized, and placed to prevent erosion. No dredging is proposed for installation of the shoreline protection.

Table 3: Proposed Permanent Impacts for Proposed Shoreline Protection at Ohio River

Feature	Size (acre)	Average Dredge Depth (feet)	Dredge Volume (cubic yards)
Ohio River Below OHWM	0.77	0	0
		Average Fill Depth (feet)	Fill Volume (cubic yards)
		2.0	2,900

Details of Temporary Impacts at the RHG Site

Figure 6 (Appendix A) illustrates the temporary extension of the Flatlick Run culvert currently under State Route 160. This culvert will be extended a maximum of 100 feet to the west to provide a temporary north-south access road. This will allow safe equipment movement at the site without utilizing State Route 160. After construction, the culvert extension will be removed. Within the highway right-of-way, the stream and bank will be returned to pre-construction conditions. West of the right-of-way, the stream will be restored to original contours and a 75-foot vegetative buffer will be installed on both the north and south banks of the stream.

Details of Temporary Impacts Along Water Pipeline(s) Easement

A 17-mile water pipeline(s) easement is proposed for the intake and effluent water pipelines from the converted generating facility to the Ohio River. Within the water pipeline(s) easement, 99 streams and four wetlands were delineated. Temporary impacts are proposed for 80 streams totaling 2,952 linear feet and the four wetlands totaling 0.105 acre. The remaining 19 streams will either be avoided or bored and will not be impacted. All impacts to streams and wetlands within the proposed water pipeline(s) easement will be temporary and returned to pre-construction conditions after installation of the pipelines. Table 4 (below) provides the length and acreage of all 90 streams and four wetlands identified within the proposed water pipeline(s) easement. The temporary impacts, length and acreage, for the 80 streams and four wetlands to be impacted are also provided. Note that the gray-shaded streams in the table will not be impacted. Figure 7 (Appendix A) provides map tiles showing the location of the 90 streams and four wetlands along the proposed water pipeline(s) easement.

Table 4: Water Features Along Proposed Water Pipeline(s) Easement

Note: gray-shaded streams will not be impacted

Feature ID	Total Estimated Max Stream Impact Length, in Feet	Total Estimated Max Stream Impact Acreage, in Acres	Feature Classification	Stream Width	Linear Footage of Feature in Easement	Acreage of Feature in Easement	HHEI Score	Scoring Method
Stream S107MK	35.0	0.003	Intermittent	4	94.6	0.009	52	HHEI
Stream S02MK	46.0	0.005	Intermittent	5	102.7	0.010	37	HHEI
Stream S104MK	41.6	0.003	Ephemeral	3	91.6	0.006	11	HHEI
Stream S06MK	56.1	0.010	Perennial	8	78.7	0.014	58	QHEI
Stream S05MK	43.9	0.004	Intermittent	4	97.2	0.009	33	HHEI
Stream S04MK	35.8	0.002	Intermittent	3	80.4	0.006	33	HHEI
Stream S03MK	34.3	0.002	Ephemeral	3	81.5	0.006	11	HHEI
Stream S07MK	22.0	0.004	Intermittent	8	130	0.024	54	HHEI
Stream S08MK	0.0	0.000	Ephemeral	3	41.6	0.003	23	HHEI
Stream S105MK	0.0	0.000	Ephemeral	1	1.6	0.000	12	HHEI
Stream S09MK	34.4	0.005	Intermittent	6	91.2	0.013	45	HHEI
Stream S48MK	33.2	0.003	Intermittent	4	76.8	0.007	40	HHEI
Stream S47MK	21.8	0.003	Intermittent	5.9	183.1	0.025	63	HHEI

Feature ID	Total Estimated Max Stream Impact Length, in Feet	Total Estimated Max Stream Impact Acreage, in Acres	Feature Classification	Stream Width	Linear Footage of Feature in Easement	Acreage of Feature in Easement	HHEI Score	Scoring Method
Stream S46MK	45.9	0.002	Ephemeral	1.5	98.1	0.003	18	HHEI
Stream S45MK	0.0	0.000	Ephemeral	2.5	101.7	0.006	20	HHEI
Stream S44MK	0.0	0.000	Ephemeral	3	108.3	0.007	20	HHEI
Stream S108MK	10.8	0.001	Perennial	5.2	57.5	0.007	60	HHEI
Stream S16MK	5.7	0.001	Perennial	6	27.1	0.004	75	HHEI
Stream S15MK	21.8	0.003	Intermittent	5.5	112.5	0.014	38	HHEI
Stream S14MK	32.2	0.001	Ephemeral	2	74.3	0.003	14	HHEI
Stream S13MK	36.0	0.002	Ephemeral	2	83.4	0.004	14	HHEI
Stream S12MK	49.8	0.003	Ephemeral	2.5	105	0.006	23	HHEI
Stream S11MK	49.5	0.001	Ephemeral	1	122	0.003	13	HHEI
Stream S10MK	32.9	0.005	Intermittent	6	77.5	0.011	38	HHEI
Stream S76MK	54.3	0.005	Intermittent	4	142.4	0.013	33	HHEI
Stream S77MK	0.0	0.000	Intermittent	5.2	590.4	0.070	64	HHEI
Stream S78MK	0.0	0.000	Intermittent	4.5	154	0.016	48	HHEI
Stream S79MK	0.0	0.000	Ephemeral	2.3	75.5	0.004	28	HHEI
Stream S80MK	0.0	0.000	Intermittent	5.2	92.4	0.011	44	HHEI
Stream S81MK	21.4	0.001	Ephemeral	1.3	208.4	0.006	11	HHEI
Stream S82MK	34.1	0.002	Ephemeral	2	79.1	0.004	37	HHEI
Stream S83MK	32.5	0.002	Ephemeral	3	75.2	0.005	11	HHEI
Stream S75MK	32.6	0.003	Intermittent	3.6	75.5	0.006	42	HHEI
Stream S74MK	37.6	0.001	Ephemeral	1.6	80.1	0.003	11	HHEI
Stream S73MK	0.0	0.000	Ephemeral	1	119.9	0.003	11	HHEI
Stream S72MK	72.0	0.004	Ephemeral	2.6	151.8	0.009	11	HHEI
Stream S71MK	33.1	0.001	Ephemeral	1.3	101.8	0.003	11	HHEI
Stream S70MK	33.8	0.002	Ephemeral	2	77.7	0.004	12	HHEI
Stream S69MK	34.0	0.002	Ephemeral	3	79.5	0.005	15	HHEI
Stream S68MK	45.5	0.001	Ephemeral	1.3	109.7	0.003	11	HHEI
Stream S67MK	40.9	0.001	Ephemeral	1.5	91.7	0.003	12	HHEI
Stream S66MK	32.3	0.003	Ephemeral	3.5	75.1	0.006	33	HHEI
Stream S65MK	54.2	0.001	Ephemeral	1	32.4	0.001	11	HHEI

Feature ID	Total Estimated Max Stream Impact Length, in Feet	Total Estimated Max Stream Impact Acreage, in Acres	Feature Classification	Stream Width	Linear Footage of Feature in Easement	Acreage of Feature in Easement	HHEI Score	Scoring Method
Stream S64MK	99.0	0.003	Ephemeral	1.5	107.5	0.004	12	HHEI
Stream S63MK	33.7	0.001	Ephemeral	1	57.5	0.001	14	HHEI
Stream S62MK	17.0	0.000	Ephemeral	1	39.3	0.001	12	HHEI
Stream S43MK	36.2	0.005	Perennial	5.9	84.8	0.011	58	HHEI
Stream S42MK	39.2	0.004	Intermittent	4	93.1	0.009	39	HHEI
Stream S40MK	0.0	0.000	Ephemeral	3	190.9	0.013	17	HHEI
Stream S41MK	0.0	0.000	Ephemeral	1.5	87.2	0.003	17	HHEI
Stream S39MK	27.5	0.001	Ephemeral	2	45.2	0.002	15	HHEI
Stream S38MK	35.1	0.003	Ephemeral	3.5	75.9	0.006	21	HHEI
Stream S37MK	37.8	0.002	Ephemeral	2	99.2	0.005	20	HHEI
Stream S36MK	0.0	0.000	Ephemeral	3	81	0.006	21	HHEI
Stream S34MK	0.0	0.000	Ephemeral	3	77.7	0.005	24	HHEI
Stream S35MK	0.0	0.000	Intermittent	4	57.5	0.005	34	HHEI
Stream S33MK	0.0	0.000	Ephemeral	3	235.7	0.016	24	HHEI
Stream S103MK	36.8	0.003	Ephemeral	3	89.7	0.006	16	HHEI
Stream S102MK	38.8	0.002	Ephemeral	2.6	92.8	0.006	20	HHEI
Stream S101MK	32.0	0.001	Ephemeral	1.6	78.8	0.003	11	HHEI
Stream S100MK	0.0	0.000	Ephemeral	1	25.6	0.001	11	HHEI
Stream S29MK	73.6	0.014	Intermittent	8	94.4	0.017	44	HHEI
Stream S25MK	18.8	0.001	Ephemeral	2	88	0.004	23	HHEI
Stream S24MK	33.1	0.002	Ephemeral	2	76.2	0.003	23	HHEI
Stream S23MK	37.1	0.003	Ephemeral	3	108.6	0.007	17	HHEI
Stream S22MK	37.9	0.001	Ephemeral	1.5	84.2	0.003	17	HHEI
Stream S21MK	38.9	0.004	Intermittent	4	90.5	0.008	36	HHEI
Stream S20MK	54.5	0.005	Intermittent	4	153	0.014	38	HHEI
Stream S19MK	36.4	0.002	Ephemeral	2.5	92.4	0.005	17	HHEI
Stream S18MK	20.3	0.001	Ephemeral	2.5	43.4	0.002	14	HHEI
Stream S17MK	34.4	0.002	Ephemeral	2.5	78.1	0.004	27	HHEI
Stream S87MK	37.8	0.001	Ephemeral	1.3	87.4	0.003	13	HHEI
Stream S88MK	34.5	0.001	Ephemeral	1	78.1	0.002	17	HHEI

Feature ID	Total Estimated Max Stream Impact Length, in Feet	Total Estimated Max Stream Impact Acreage, in Acres	Feature Classification	Stream Width	Linear Footage of Feature in Easement	Acreage of Feature in Easement	HHEI Score	Scoring Method
Stream S89MK	33.3	0.002	Ephemeral	3	76.4	0.005	31	HHEI
Stream S49MK	13.3	0.000	Ephemeral	1	47.9	0.001	23	HHEI
Stream S50MK	58.3	0.005	Intermittent	4	119.9	0.011	42	HHEI
Stream S51MK	34.3	0.001	Ephemeral	1	79.1	0.002	23	HHEI
Stream S94MK	32.3	0.001	Ephemeral	1.3	75.6	0.002	20	HHEI
Stream S95MK	32.3	0.002	Ephemeral	2.6	81.3	0.005	24	HHEI
Stream S96MK	52.7	0.002	Ephemeral	2	178.3	0.008	18	HHEI
Stream S97MK	34.4	0.002	Ephemeral	3	83	0.006	23	HHEI
Stream S98MK	34.3	0.002	Ephemeral	2	78.9	0.004	17	HHEI
Stream S99MK	36.5	0.001	Ephemeral	1.6	93.5	0.003	18	HHEI
Stream S55MK	55.4	0.010	Perennial	7.9	75.6	0.014	30	QHEI
Stream S54MK	64.0	0.004	Ephemeral	2.5	112.7	0.006	23	HHEI
Stream S52MK	29.6	0.003	Intermittent	5	494.5	0.057	60	HHEI
Stream S53MK	0.0	0.000	Ephemeral	0.7	3	0.000	17	HHEI
Stream S93MK	0.0	0.000	Intermittent	2.6	29.2	0.002	42	HHEI
Stream S92MK	33.2	0.002	Ephemeral	2	78.4	0.004	13	HHEI
Stream S91MK	40.4	0.002	Ephemeral	2.5	91.2	0.005	24	HHEI
Stream S56MK	51.0	0.002	Ephemeral	1.3	90.1	0.003	23	HHEI
Stream S57MK	29.6	0.002	Ephemeral	3	305.6	0.021	17	HHEI
Stream S58MK	34.5	0.003	Intermittent	4	98.3	0.009	48	HHEI
Stream S59MK	35.0	0.001	Ephemeral	1	86.2	0.002	22	HHEI
Stream S90MK	13.6	0.001	Ephemeral	3	76.4	0.005	26	HHEI
Stream S86MK	38.1	0.003	Intermittent	3	87.9	0.006	48	HHEI
Stream S61MK	0.0	0.000	Perennial	6	28.4	0.004	61	QHEI
Stream S84MK	12.5	0.001	Intermittent	2	81.9	0.004	32	HHEI
Stream S85MK	16.0	0.001	Ephemeral	4	86.1	0.008	21	HHEI
TOTAL Streams, Max Impact	2,952.0	0.206	TOTAL Streams, Linear Footage & Acreage in Easement		9,964.1	0.747		
Wetland W01MKC	NA	NA	PEM	NA	NA	0.037		
Wetland W01MKA	NA	NA	PEM	NA	NA	0.037		

Feature ID	Total Estimated Max Stream Impact Length, in Feet	Total Estimated Max Stream Impact Acreage, in Acres	Feature Classification	Stream Width	Linear Footage of Feature in Easement	Acreage of Feature in Easement	HHEI Score	Scoring Method
Wetland W01KAM	NA	NA	PEM	NA	NA	0.001		
Wetland W01KAL	NA	NA	PEM	NA	NA	0.030		
				TOTAL Wetlands, Impacted Acreage		0.105		

Temporary impacts to streams and wetlands will consist of trenching activities to install the water pipelines as well as construction equipment crossings of these water features. Figures 8-01 through 8-12 (Appendix A) illustrate the typical perpendicular construction methods for pipeline installation and equipment water feature crossings along the water pipeline(s) easements, where perpendicular will be as close to a 90 degree angle as possible, but will not exceed twice the width of the water feature at the location of crossing. Figures 9-01 through 9-12 (Appendix A) illustrate construction methods that will be used to trench or bore the proposed pipelines where typical perpendicular construction methods may not be feasible due to the alignment of the water pipeline(s) easements relative to existing streams. These alternative construction methods are typically employed where a relatively non-perpendicular crossing of a stream is required. All in-water work will be completed expeditiously and in low flow conditions whenever feasible. It is anticipated that most equipment crossings will be above the OHWM of the stream.

During the process of siting the water pipeline(s) easement route in the field from the RHG site to the Ohio River, high quality water features were avoided and stream crossings were minimized. Table 5 (below) provides a list of the water features which will be avoided along the proposed water pipeline(s) easements.

Table 5: Water Features To Be Avoided Along Water Pipeline(s) Easement

Feature ID	Classification	Width
Stream S01MK	Intermittent	3.5
Stream S32MK	Ephemeral	1
Stream S31MK	Ephemeral	2.3
Stream S30MK	Ephemeral	3
Stream S28MK	Ephemeral	2
Stream S27MK	Ephemeral	3
Stream S26MK	Ephemeral	3
Stream S60MK	Ephemeral	1
Stream S113MK	Perennial	6.6

Feature ID	Classification	Width
Stream S114MK	Ephemeral	3.0
Stream S109MK	Perennial	25.0
Potential Wetland 11	PFO	NA
Wetland W01MKB	PEM	NA
Potential Wetland 10	PFO	NA
Potential Wetland 9	PEM	NA
Potential Wetland 8	PFO	NA
Wetland W01MKD	PEM	NA
Wetland W01KAN	PEM	NA
Potential Wetland 5	PEM	NA
Potential Wetland 6	PEM	NA
Potential Wetland 4	PEM	NA
Potential Wetland 3	PSS	NA
Wetland W01KAK	PEM	NA

9. Location of Waterbodies

Figures 1, 2, 4, and 7 provide the location and identification (if applicable) of affected waterbodies:

- Figure 1 Project Area Map: provides overall location of the project in Vinton, Meigs, and Gallia counties.
- Figure 2 RHG Site USACE JD: provides location and impacts to wetlands and streams at the RHG site.
- Figure 4 Proposed Property Easements; Proposed Intake Structure Impacts to Ohio River: provides location and impacts associated with the intake structure at the Ohio River.
- Figure 7 Proposed Water Pipeline(s) Easement: provides locations of all temporary impacts along the proposed pipeline(s) easements.

10. Antidegradation

10 a. Description of Construction Work, Fill, or Other Structures to Occur In or Near Surface Waters

Preferred Design: the construction work, fill, and structures to occur in or near surface waters for the proposed project are described in Items 8a. and 8c.

At the RHG site, a total of 3,490 acres of wetlands and 8,134 LF of streams were delineated; 82.8% (2,889 acres) and 76.3% (6,206 LF) will not be permanently impacted, avoiding permanent impacts to the perennial streams at the RHG site.

Along the pipeline(s) easement route, 99 streams totaling 9,964.1 LF were delineated within the easement; 70.4% (7,012.1 LF) will not be temporarily impacted.

Minimal Degradation Alternative(s): a variety of factors were considered regarding avoidance and minimization of impacts to the environment, including wetlands and streams:

1. RHG Site

By expanding and converting the existing facility, RHG does not require additional real estate for expansion, which avoids potential impacts associated with construction of an entirely new facility. Also, the converted facility will utilize its current close proximity to existing electric transmission lines and current natural gas fuel supply line infrastructures.

The geography of the existing RHG site limits expansion options. To the east is State Route 160. To the south are mitigated wetlands from the original construction. To the north is Flatlick Run and an additional mitigated buffer along Flatlick Run from the original construction. Therefore, the expansion is limited mostly to the west.

The expansion, by design, will avoid all permanent impacts to Flatlick Run. The majority of water features to be permanently impacted are man-made, constructed water features for the on-site stormwater control system installed during original construction. No wetlands, streams or water features will be impacted from deposition of soils. All soils will be properly stabilized to prevent erosion or sedimentation into wetlands or other waters.

2. Water Supply

RHG reviewed a number of water supply options:

- a. Current Water Supplier, Leading Creek Conservancy District (District), Rutland OH:
 - i. The District's current water supply is from groundwater sources in the Hocking River Aquifer. The District has the capacity to treat and supply 1 MGD. In order to supply RHG with 12 MGD, a substantial expansion of the District's capabilities would need to be accomplished, including sourcing additional water supplies, routing water to the District's water treatment facilities, expansion of the District's water treatment facilities, and routing water from the District to RHG. At a minimum, this would require pipeline(s) installations greater than the proposed 17-mile water pipeline(s) easement from the Ohio River to RHG. This has the potential to have a greater impact to the environment (and wetlands) than the currently proposed activities.

This is not a feasible option.

- b. Water Treatment Facilities – the following water treatment facilities were reviewed:
 - i. City of Lancaster; 2 plants with 16 MGD design capacity; approximately 50 miles away
 - ii. City of Portsmouth; 15.5 MGD design capacity; approximately 40 miles away
The City of Lancaster and City of Portsmouth facilities appear to have the design capacity to provide 12 MGD to RHG, but would need to review their

current and future customer base to determine if expansion may be required. Also, both cities would be required to install an extensive water supply pipeline to RHG. An expansion of either city's treatment facilities and installation of a water supply pipeline to RHG would likely have a greater impact to the environment than the proposed 17-mile water pipeline(s) easement from the Ohio River to RHG.

- iii. Various small municipalities, such as City of Jackson, City of Wellston, City of Chillicothe, City of Athens, Gallia County Rural Water, and Jackson County Water do not have capacity to meet the 12 MGD requirement and would require extensive expansion to provide that capacity.

These are not feasible options.

- c. Use of Wastewater Effluent – the following wastewater treatment plants were reviewed:

- i. City of Lancaster; 10 MGD design capacity; approximately 50 miles away
- ii. City of Portsmouth; 10 MGD design capacity; approximately 40 miles away
The City of Lancaster and City of Portsmouth wastewater treatment plants would require expansion in order to provide the required 12 MGD to RHG. Also, both cities would be required to install an extensive water supply pipeline to RHG. An expansion of either city's facilities and installation of a water supply pipeline to RHG would likely have a greater impact to the environment than the proposed 17-mile water pipeline(s) easement from the Ohio River to RHG.
- iii. Various small municipalities, such as City of Jackson, City of Wellston, City of Gallipolis, and City of Athens do not have capacity or the customer base to meet the 12 MGD requirement.

These are not feasible options.

- d. Surface Water – the following surface water sources were reviewed and determined feasible (12 MGD for 30 years) as a water supply source:

- Ohio River, approximately 15 miles away
- Hocking River, approximately 21 miles away
- Scioto River, approximately 28 miles away
- Muskingum River, approximately 43 miles away

It was determined that Raccoon Creek experienced times of minimal or no flow and is not a feasible water supply source. It was also determined that Paint Creek did not have enough data for review.

Obtaining water from the Ohio River is the closest option and avoids construction of additional pipeline lengths to the other rivers. Also, pipeline routes to the other rivers would require routing around developed and urbanized areas.

3. Effluent Water Management

RHG reviewed a number of effluent water management options:

- a. Current Effluent Water Discharge – Flatlick Run on the RHG site:
 - i. Flatlick Run has periods of low or no flow and would not be able to assimilate the 2 MGD effluent water discharge.

This is not a feasible option.

b. Wastewater Treatment Facilities:

- i. The same municipal wastewater treatment facilities which were reviewed as potential water suppliers were also reviewed for wastewater treatment. These same facilities may require an expansion to treat 2 MGD in order to meet their discharge permit limitations. Installation of an effluent water line from RHG to any of these facilities would also be required. An expansion of any of the treatment facilities and installation of an effluent water line from RHG to any of these facilities would likely have a greater impact to the environment than the proposed 17-mile water pipeline(s) easement from RHG to the Ohio River.

This is not a feasible option.

c. Provide Effluent to CONSOL Energy, Inc.:

- i. CONSOL Energy, Inc. operates a mining facility approximately 4 miles east of Wilkesville OH. Preliminary discussions with CONSOL indicated that they were interested in obtaining the effluent water from RHG as a means to ease their treatment process for their acid mine drainage. However, upon additional evaluation, CONSOL would not be able to utilize the entire 2 MGD over a 20- to 30-year timeframe.

This is not a feasible option.

d. Surface Water – the following surface water streams within a 10-mile radius of the RHG site were reviewed as potential effluent water discharge locations:

- Strongs Run
- Hog Run
- Zinns Run
- Dexter Run
- Parker Run
- Robinson Run
- North Folk
- Brush Folk
- Raccoon Creek
- Little Raccoon Creek
- Elk Fork
- Campaign Creek
- Leading Creek

Most of these streams have periods of low or no flow throughout the year. Also, most of these streams are not gauged; and therefore, reliable data is not available. Therefore, discharge to any of these streams is not a feasible option.

After a thorough evaluation of numerous options for both water supply and effluent water management, it was determined that the Ohio River would be the most feasible option. Additionally, a pipeline route utilizing one trench (where feasible) would also minimize impacts to the environment, including wetlands.

4. Pipeline(s) Easement Route

During the process of siting the water pipeline(s) easement route in the field from the RHG site to the Ohio River, high quality water features were avoided and stream crossings were minimized. Table 5 (below) provides a list of the water features which will be avoided along the proposed water pipeline(s) easements.

Table 5: Water Features To Be Avoided Along Water Pipeline(s) Easement

Feature ID	Classification	Width
Stream S01MK	Intermittent	3.5
Stream S32MK	Ephemeral	1
Stream S31MK	Ephemeral	2.3
Stream S30MK	Ephemeral	3
Stream S28MK	Ephemeral	2
Stream S27MK	Ephemeral	3
Stream S26MK	Ephemeral	3
Stream S60MK	Ephemeral	1
Stream S113MK	Perennial	6.6
Stream S114MK	Ephemeral	3.0
Stream S109MK	Perennial	25.0
Potential Wetland 11	PFO	NA
Wetland W01MKB	PEM	NA
Potential Wetland 10	PFO	NA
Potential Wetland 9	PEM	NA
Potential Wetland 8	PFO	NA
Wetland W01MKD	PEM	NA
Wetland W01KAN	PEM	NA
Potential Wetland 5	PEM	NA
Potential Wetland 6	PEM	NA
Potential Wetland 4	PEM	NA
Potential Wetland 3	PSS	NA
Wetland W01KAK	PEM	NA

Also, as a function of siting the water pipeline(s) easement route in the field from the RHG site to the Ohio River, stream crossings were mapped as perpendicular as possible for the pipeline(s) crossing. Of the 99 stream within the pipeline(s) easement, 19 streams will either be avoided or bored. In order to avoid the remaining 80 streams within the pipeline(s) easement, they would all require boring at a total cost of over \$4M. In addition, boring under these intermittent and ephemeral streams would result in significant adverse impacts to the surrounding upland which supports the boring equipment, increasing the risk of drilling mud blowouts. This is not a feasible option.

5. Property Outfall and Intake Structures Location

A number of factors and parameters were taken into consideration in reviewing locations during the initial siting of the outfall and intake structures:

- Avoid drinking water intakes within 0.5 miles, as required by the OhioEPA.
- Avoid existing industrial and waste water treatment plant effluent outfalls within 0.5 miles:
 - To reduce the influence of these existing effluents on incoming water quality; and,
 - To eliminate the OhioEPA requirement that the water quality of all effluents within 0.5 miles must be considered when establishing effluent limitations in discharge permits.
- Reduce and minimize impacts to known locations of federal and / or state threatened and endangered (T&E) species.

RHG has sited the outfall and intake structures and pump station at the Thompson riverfront property (Meigs County property tax ID 1401493000) at Ohio River Mile 255 for the following reasons:

- The size and location of this proposed property allows siting of the outfall and intake structures on the same property, which provides shared access to both facilities for operation, maintenance, etc.
- The location of this proposed property is directly adjacent to State Highway 7, allowing easy access to the facilities. The existing access road from State Highway 7 to the property requires minimal improvement, reducing environmental impacts to the property.
- No wetlands or water features will be temporarily or permanently impacted on this proposed property other than the Ohio River below the OHWM.
- No structures reside on this proposed property.
- RHG has been able to obtain the necessary easements for the pipeline(s), outfall and intake structures, and pump station from the landowner of the proposed property.

Figure 10 (Appendix A) illustrates the proposed property and the following two alternate locations:

Village of Middleport (Meigs County property tax ID 1501984000):

- This property is upriver of the proposed property location (Thompson), which would require an extension of the currently proposed water pipeline(s) easement around the Middleport Wastewater Treatment Lagoons. This extended route would also need to avoid a number of high quality wetlands, a railroad line junction, a gas station with underground storage tanks, and a number of business and residential

structures.

- This location increases the potential of drawing water into the intake structure from Leading Creek. Leading Creek is impaired for TDS, salinity, and pathogens from mining and agricultural activities. Use of this impaired water would require additional process water treatment prior to use of this water at the generating facility compared to process water treatment required for the proposed outfall and intake structure location.
- Several overhead and under riverbed utilities traverse the Ohio River from this property. These utilities restrict the location of the outfall and intake structures and pump station locations on this property

This is not a feasible option.

Price (Meigs County property tax ID 1501036000):

- This property is upriver of the proposed property location (Thompson) and the other alternative property (Village of Middleport), which would require an extension of the currently proposed water pipeline(s) easement around the Middleport Wastewater Treatment Lagoons. This extended route would also need to avoid a number of high quality wetlands, a railroad line junction, a gas station with underground storage tanks, and a number of business and residential structures.
- The extension of the water pipeline(s) easement to this property would require boring/jacking under Leading Creek.
- Structures on this property would need to be removed and/or relocated.

This is not a feasible option.

6. Intake Structure Options

RHG has developed three (3) water intake structure design alternatives. These alternatives were reviewed and evaluated for engineering, operations, and maintenance feasibility considering factors such as obstruction to navigation, permanent and temporary impacts, constructability, operations and maintenance, and a relative cost comparison. The alternatives are discussed individually below:

Preferred Design: Riverbank Intake, Figures 11-01 through 11-03 (Appendix A):

- A concrete chamber to house the water intake equipment would be located at the Ohio River riverbank to receive waters under low pool conditions. This will require excavation of the shoreline and an associated dredged channel connecting the concrete chamber to the low pool elevation.
- Allows for direct land access without special equipment, watercrafts, or underwater equipment for operation and maintenance access to the concrete chamber and intake equipment.

- Provides the greatest distance from the navigational sailing line during construction and as installed.
- The most cost effective option based on a construction and maintenance cost analysis.

Alternative 1: River Bottom Intake

- A T-screen would be located approximately 200 feet horizontally and perpendicular to the Ohio River OHWM and located vertically such that the uppermost portion of the T-screen is 14 feet below the low pool elevation. The depth of the T-screen was established such that a safe under keel clearance was provided for ship and barge passage; thereby, avoiding the potential for navigational collisions.
- Based on available bathymetry from the USACE, providing the under keel clearance would require excavation of and protection of a basin surrounding the T-screen. Initial construction, annual maintenance dredging, and associated rip-rap protection would permanently impact approximately 2,850 square feet and temporarily impact approximately 2,100 square feet due to the T-screen's offshore location.
- Initial construction and annual maintenance of this intake structure would involve a floating fleet positioned close to the navigational sailing line. Access to the T-screen structure for maintenance activities would require underwater equipment and trained divers.

During pre-application discussions, the USACE - Huntington District stated that this alternative was not a feasible intake structure option due to its close proximity to the navigational sailing line.

Alternative 2: Off Shore Intake

- A concrete chamber housing the intake equipment would be located approximately 50 feet off shore. This alternative would be located substantially within the same general footprint of the Riverbank Intake (proposed action).
- Construction of a 60-foot pipeline extending from the Ohio River OHWM to the low pool elevation would temporarily impact approximately 1,100 square feet. A dredged channel would not be required.
- A series of protective pilings extending from the Ohio River OHWM and surrounding the concrete chamber are necessary to protect the concrete chamber from barges that could stray from the navigational sailing line. These pilings would require periodic visual monitoring and maintenance for de-snagging.
- The concrete chamber and the protective pilings would permanently impact approximately 250 square feet.
- Initial construction and annual maintenance of this alternative would involve a floating fleet, the presence of which may affect, and at times impede, commercial navigation. Access to this intake structure for maintenance may require underwater

equipment and trained divers.

- This alternative is more costly to construct and maintain than the Riverbank Intake (preferred design).

This intake structure alternative is not a feasible option due to a number of unsatisfactory navigational, operational and maintenance issues compared to the proposed Riverbank Intake alternative.

Non-Degradation Alternative(s): the conversion of the RHG site from a simple cycle electric generating facility to a combined cycle electric generating facility requires the addition of steam turbines and steam generators. This addition of steam capabilities requires water; therefore, this project is water-dependent. The only alternative to avoid impacts to surface waters is a no-build alternative.

10 b. Magnitude of Proposed Lowering of Water Quality

Preferred Design: Any impact to surface waters has the potential to lower water quality:

RHG Site: A total of 3,490 acres of wetlands and 8,134 LF of streams were delineated; 82.8% (2,889 acres) and 76.3% (6,206 LF) will not be permanently impacted. The impacted water features are currently located just outside the power block fence line and will be permanently impacted to accommodate the expanded footprint required for the conversion. The preliminary design of the converted facility, by design, avoids impacts to the two perennial streams onsite and previously mitigated wetlands.

Pipeline(s) Easement Route: At total of 99 streams totaling 9,964.1 LF were delineated within the easement; 70.4% (7,012.1 LF) will not be temporarily impacted. During the siting of the pipeline(s) route, 11 streams [including two (2) perennial streams] and 12 wetlands were avoided and are not in the pipeline(s) easement route.

Ohio River: The location of the intake and outfall structures on the riverfront property provides the least impact to wetlands and streams compared to two alternative upstream riverfront properties. Also, in consultation with the USACE regarding the placement of the intake structure in the Ohio River, RHG is required to avoid the shipping navigational channel. Efforts to avoid/reduce erosion along this outer-curve bank were also considered in the preliminary design and siting of the intake structure.

During construction, RHG will be required to comply with all applicable construction stormwater regulations and permits, which should assist in reducing the potential for lowering water quality both during and after construction.

Also attached:

- “Wetlands and Waters Delineation” report for all water features at the RHG site and pipeline(s) easement route. This report contains data sheets, photos, as well as the USACE JD for water features at the RHG site (Attachment B).

U.S. Fish and Wildlife Service (USFWS)

Based on communications with the USFWS Ohio Field Office and the USFWS Section 7 Consultation website (February 25, 2013), the following Federally-listed species may be present in the project area:

- Indiana bat (*Myotis sodalis*)
- American burying beetle (*Nicrophorus americanus*)
- Bald eagle (*Haliaeetus leucocephalus*)
- Fanshell (*Cyprogenia stegaria*)
- Pink mucket pearly (*Lampsilis orbiculata*)
- Sheepnose (*Plethobasus cyphus*)
- Snuffbox (*Epioblasma triquetra*)

A threatened and endangered species habitat assessment was necessary to determine the potential presence of suitable habitat for any Federally listed species within or directly adjacent to the project area. A request for an informal consultation for the project area was sent to the USFWS on March 01, 2013 in compliance with Section 7 of the Endangered Species Act (ESA) and The Fish and Wildlife Coordination Act. This request consisted of an overview of the habitat assessment and any species related surveys that were completed for each federally listed species that may be present in the project area. In a response dated March 18, 2013, the USFWS provided the following endangered species comments.

Indiana Bat (Federally Endangered)

The project area lies within the range of the Indiana bat. A summer mist-net survey for Indiana bats was conducted in 2012. Mist-net survey results concluded that no Indiana bats were detected. A fall portal study utilizing acoustic bat detectors was also conducted to determine the level of bat usage of nearby coal mine portals. No significant usage by bats was documented. USFWS concurred with the mist-net survey results. According to the USFWS, the mist-net survey results, along with the habitat information, document the likely absence of Indiana bats in the project area.

Federally Endangered Mussel Species

The project area lies within the range of the fanshell, pink mucket pearly, sheepnose, and snuffbox mussels. A freshwater mussel survey was completed for the project area in 2012. No federally listed mussels were found during the survey. Based on the results of this survey, USFWS concurred that the project is not likely to adversely affect any federally listed mussels.

American Burying Beetle (Federally Endangered)

The project area lies within the range of the American burying beetle. Due to the project type, size, and location, the USFWS determined that the project should not impact this species.

Bald Eagle (Federal Species of Concern)

The project area lies within the range of the bald eagle. Due to the project type, size, and location, the USFWS determined that this project should not impact this species.

See the attached 5-page email and letter dated March 01, 2013 from Rolling Hills Generating, LLC requesting the informal consultation with the USFWS and the attached 2-page letter dated March 18, 2013 from the USFWS providing their consultation, titled "RHG OhioEPA 401 WQC

App Attachment C USFWS Correspondences”.

Ohio Department of Natural Resources (ODNR)

Based on communications with ODNR Division of Wildlife (DOW), the following species may be present in the project area:

- Indiana bat (*Myotis sodalis*)
- American burying beetle (*Nicrophorus americanus*)
- Eastern spadefoot toad (*Scaphiopus holbrookii*)
- Timber rattlesnake (*Crotalus horridus*)
- Blue corporal (*Ladona deplanata*)
- Black bear (*Ursus americanus*)
- Bobcat (*Lynx rufus*)
- Bald eagle (*Haliaeetus leucocephalus*)
- Eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*)
- Ohio lamprey (*Ichthyomyzon bdellium*)

And numerous freshwater mussels, including:

- Butterfly (*Ellipsaria lineolata*)
- Clubshell (*Pleurobema clava*)
- Fanshell (*Cyprogenia stegaria*)
- Little spectaclecase (*Villosa lienosa*)
- Long-solid (*Fusconaia maculata maculata*)
- Monkeyface (*Quadrula metanevra*)
- Ohio pigtoe (*Pleurobema cordatum*)
- Pink mucket pearly (*Lampsilis orbiculata*)
- Sheepnose (*Plethobasus cyphus*)
- Snuffbox (*Epioblasma triquetra*)
- Washboard (*Megaloniaias nervosa*)
- Yellow sandshell (*Lampsilis teres*).

The ODNR DOW completed a review of the project area and provided comments through email correspondence dated February 16, 2012. ODNR requested that a habitat assessment be conducted on habitats throughout the project area.

In this email correspondence, ODNR DOW concluded that the project would likely not impact the American burying beetle (state endangered), black bear (state endangered), bobcat (state endangered), and bald eagle (state threatened) due to project location, habitat requirements for these species, mobility of the species, and/or no records of species presence near the project area.

A request for coordination of the project area was sent to the ODNR DOW on March 01, 2013 in compliance with The Fish and Wildlife Coordination Act. This request consisted of an overview of the habitat assessment and any species related surveys that were completed for each state and federally listed species that may be present in the project area. In an email response dated April 15, 2013, the ODNR DOW provided the following endangered species comments.

Indiana bat (state endangered)

Although no Indiana bats were detected during mist-net surveys, the ODNR DOW recommends seasonal clearing of potential habitat trees occur between October 1 and March 31.

Eastern Spadefoot (state endangered)

ODNR DOW recommended that habitat surveys for the Eastern spadefoot toad be conducted by a herpetologist approved by the ODNR DOW and that a mitigation / avoidance plan be submitted to the ODNR DOW for review and comment. This work is in progress.

Timber rattlesnake (state endangered)

If timber rattlesnakes are encountered during construction, work should immediately be stopped and the ODNR DOW is to be contacted.

State Endangered Mussel Species

The ODNR DOW recommended that an alternative location be evaluated for the water intake structure that would avoid the potential taking of mussels. If this was not possible, the ODNR DOW recommended that a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project area. State endangered mussel species were observed along the entire Ohio River areas being evaluated for the water intake structure. Also, the distribution of these species was fairly uniform at all areas. Therefore, the potential taking of mussels cannot be avoided. Potential relocation sites for mussels are under review and future coordination with ODNR DOW will occur in an effort to minimize impacts to these species during the construction phase.

See the attached 3-page email dated February 16, 2012 from the ODNR providing initial comments regarding the project, the attached 7-page email and letter dated March 01, 2013 from Rolling Hills Generating, LLC requesting coordination with the ODNR, and the 3-page email and attachment dated April 15, 2013 from the ODNR providing their comments, titled "RHG OhioEPA 401 WQC App Attachment C ODNR Correspondences"

RHG will comply with all USFWS and ODNR requirements and recommendations.

Minimal Degradation Alternative(s): As with the *Preferred Design*, any impact to surface waters has the potential to lower water quality:

RHG Site: Due to physical constraints on the property as described above, there are no known *Minimal Degradation Alternative(s)* for the preliminary design of the converted facility. Therefore, impacts to surface waters at the RHG site would not differ from the *Preferred Design*.

Pipeline(s) Easement Route: At total of 99 streams totaling 9,964.1 LF were delineated within the easement. A *Minimal Degradation Alternative* would be to bore all 99 streams, which would eliminate all temporary impacts to these streams, reducing the likelihood of lowering the water quality of these streams. However, the cost of this alternative will likely exceed \$4M and was determined not be a feasible option.

Ohio River: Regarding the riverfront property, the other two alternative upstream locations would impact more wetlands and streams compared to the *Preferred Design*. Regarding the placement of the intake structure in the Ohio River, one alternative (River Bottom Intake) would not be permitted by the USACE; the second alternative (Off Shore Intake) would not permanently impact as much of the Ohio River as the *Preferred Design*, but would temporarily impact the same footprint in the riverbed during

construction as the *Preferred Design*. Therefore, during construction, the overall water quality of the Ohio River would not differ between the *Preferred Design* and the Off Shore Design. During operation, it is likely that the Off Shore Intake would not impact water quality as much as the *Preferred Design* as periodic maintenance dredging will be required with the *Preferred Design*. However, overall costs associated construction, operation, and maintenance with the Off Shore Intake compared to the *Preferred Design* and was determined not to be a feasible option. Also, the Off Shore Intake alternative is further out into the Ohio River and has a greater risk of being damaged by boats and barges compared to the *Preferred Design*.

The project area for the *Minimal Degradation Alternative* would not differ from the *Preferred Design*. Therefore, impacts to aquatic life and wildlife, including threatened and endangered species, also would not change.

Non-Degradation Alternative(s): Not applicable; the only non-degradation alternative is a no-build alternative.

10 c. Costs, Technical Feasibility, Availability, and Reliability

Preferred Design: This design is technically feasible, available, and reliable. From the OPSB CECPN application, the anticipated cost to construct the project is \$865M.

Minimal Degradation Alternative(s):

- Boring all stream crossings along the pipeline(s) easement route is technically feasible, available, and reliable and would cost an additional \$4M, minimum. In addition, boring under these intermittent and ephemeral streams would result in significant adverse impacts to the surrounding upland which supports the boring equipment, increasing the risk of drilling mud blowouts.
- The Off Shore Intake is technically feasible, available, and somewhat reliable. Any damage to the intake structure from boats and barges could require the intake structure to shut down, which would shut down electric generating capabilities at RHG. Maintenance activities may require the use of underwater divers, a safety concern for anyone in navigable waters. The Off Shore Intake alternative would cost an additional \$0.5M to construct and an additional \$1M to operate and maintain.

Non-Degradation Alternative(s): Not applicable; the only non-degradation alternative is a no-build alternative.

10 d. Regional Sewage Collection and Treatment Facilities

Preferred Design, Minimal Degradation Alternative(s), and Non-Degradation Alternative(s): Not applicable.

10 e. List/Describe Government and/or Privately Sponsored Conservation Projects

Preferred Design and Minimal Degradation Alternative(s):

- The main conservancy group working on the Ohio River is the Ohio River Foundation (ORF). This group was founded in 2000 and states that its mission is “. . . to protect and

improve the water quality of the Ohio River and all waters in its watershed for the benefit and enjoyment of current and future generations.” ORF partners include both private and government conservation groups throughout the Ohio River watershed. The group promotes its mission statement through education and conservation projects. The conservation projects are mainly focused on stormwater and non-point source discharges within the watershed.

- The Ohio Water Resources Council (OWRC) was permanently established in 2001 and its membership includes an Executive Assistant to the governor as well as the heads of nine Ohio state agencies, including the OhioEPA and ODNR. OWRC is a forum for policy development, coordination among state agencies, and strategic direction with respect to state water resources. OWRC’s Strategic Plan 2010-2014 Action Items focus on education and outreach, watershed management, and ground water quality management to protect the sustainability of Ohio’s water resources.
- The Ohio River Valley Water Sanitation Commission (“ORSANCO”) was established in 1948 and its membership includes nine states along the Ohio River and the federal government. ORSANCO utilizes monitoring programs for pollutants and toxins, conducts special studies to improve water quality, and coordinates emergency response activities for spills and accidental discharges.

Non-Degradation Alternative(s): Not applicable; the only non-degradation alternative is a no-build alternative.

10 f. Water Pollution Control Costs

Preferred Design and Minimal Degradation Alternative(s):

RHG Site: costs for controlling water pollution, including the development of a construction stormwater pollution prevention plan (SWPPP) have not yet been determined. These costs are typically determined during the final design of the facility, which includes final grading plans and construction schedules. Because a *Minimal Degradation Alternative* is not available for the RHG site, costs would not be determined for any other alternatives.

Pipeline(s) easement route: costs for controlling water pollution, including the development of a construction SWPPP, have not yet been determined. These costs are typically determined during the final design of the pipeline installation, which includes final trenching/boring plans and construction schedules. In-water work will take place as expeditiously as possible (an average of 8 hours) with back/soil stabilization to begin soon after in-water work is complete. Overall, it is not anticipated that these costs will differ greatly between the *Preferred Design* and the *Minimal Degradation Alternative*. Also, refer again to Figures 08-01 through 08-12 which illustrate the typical perpendicular construction methods for pipeline installation and equipment water feature crossings along the water pipeline(s) easements, where perpendicular will be as close to a 90 degree angle as possible, but will not exceed twice the width of the water feature at the location of crossing. Also, refer again to Figures 9-01 through 9-12 which illustrate construction methods that will be used to trench or bore the proposed pipelines where typical perpendicular construction methods may not be feasible due to the alignment of the water pipeline(s) easements relative to existing streams. These alternative

construction methods are typically employed where a relatively non-perpendicular crossing of a stream is required.

Ohio River: costs for controlling water pollution, including the development of a construction SWPPP, have not yet been determined. These costs are typically determined during the final design of the intake structure installation, which includes a final grading plan, final dredging plan, and construction schedules. Overall, it is not anticipated that these costs will differ greatly between the *Preferred Design* and the *Minimal Degradation Alternative*.

Non-Degradation Alternative(s): Not applicable; the only non-degradation alternative is a no-build alternative.

10 g. Human Health Impacts

Preferred Design and Minimal Degradation Alternative(s):

It is anticipated that the overall impacts on human health related to water quality will be minimal:

RHG Site: the majority of the wetlands and streams at the site will not be impacted. Wetlands and streams that will be impacted will be mitigated to similar performance and function.

Pipeline(s) easement route: all impacts along the route will be temporary. In-water work will be completed as expeditiously as possible, generally in less than one work day. In-stream work will be limited to low flow conditions when feasible. Bank/soil stabilization will begin soon after in-stream work is complete.

Ohio River: installation of an intake structure will not limit recreational or commercial use of the river.

The conversion of RHG from a simple cycle electric generating facility to a combined cycle electric generating facility will provide base load power to support Ohio's electric utilities and customers. It is anticipated that the overall impacts on human health of this project will be positive by providing a reliable source of power supply to meet growing demands.

Non-Degradation Alternative(s): The no-build alternative could provide a negative impact on human health. An unreliable source of power could cause 'black-outs' and 'brown-outs' during times of peak customer demand, which often occurs during times of weather/temperature extremes. During summer months, the young, elderly, and ill could suffer health affects if a black-out occurs during daytime peak temperatures when air conditioners and fans are needed. Similarly, during winter months, the young, elderly, and ill could suffer health effects if a black-out occurs during extreme cold spells when furnaces are needed. Also, water pipes can freeze causing property damage.

10 h. Jobs Created and Revenues Gained

Vinton County overall job loss from 2002 to 2012 was 20.3% compared to 5.4% for the same timeframe in the State of Ohio. The average unemployment rate in Vinton County for the past decade is 9.7% compared to 7.1% for the same decade in the State of Ohio. The median household income for Vinton County is \$34,663 compared to \$44,612 for the State of Ohio.

Preferred Design and Minimal Degradation Alternative(s): The project will employ more than 400 construction and trade workers at peak construction. The length of the construction project is projected to be 30 months. RHG would secure an EPC (engineering, procurement, and construction) firm to design and construct the plant, and that firm would hire the construction workers. RHG's managers have a solid record of working with EPC contractors to encourage them to hire locally, when possible. After construction is complete, the expanded facility will create approximately 25 more well-paying jobs, bringing the total to 33 employees.

Currently, RHG is the largest taxpayer in the Vinton County Local School District. For 2010, the plant provided more than \$1 million in support for the school district, Vinton County and Wilkesville Township through a Payment in Lieu of Taxes (PILOT) program. Through salaries and payments to vendors, more than \$2 million is added to the area economy. RHG currently provides support to youth programs, the local food pantry, American Red Cross, the Christmas Giving Tree, and Feed-A-Family. In 2009, RHG made a contribution towards the purchase of a fire truck for the Wilkesville Fire Department. In 2011, a \$30,000 commitment from RHG made it possible for the Wilkesville Fire Department to build a new fire station in Wilkesville.

Non-Degradation Alternative(s): The no-build alternative would not provide the jobs, both construction and permanent, to RHG and the area. Although RHG would remain the largest taxpayer in Vinton County without this project, the area would not benefit from the increased tax payments, salaries, and payments to vendors.

10 i. Jobs and Revenues Lost

Preferred Design, Minimal Degradation Alternative(s), and Non-Degradation Alternative(s): No loss of jobs or revenue are anticipated due to this project. It is not anticipated that there will be no affects to commercial or recreational use of any water resources; no affects to recreation, tourism, or aesthetics.

10 j. Environmental Benefits Lost or Gained

Preferred Design and Minimal Degradation Alternative(s): As previously described in Question 10 b., it is anticipated that the lowering of water quality will be minimal. Also, it is anticipated that aquatic life, wildlife, and threatened or endangered species will likely not be affected.

Non-Degradation Alternative(s): Not applicable; the only non-degradation alternative is a no-build alternative.

10 k. Mitigation Techniques