pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NORTHWEST REGIONAL OFFICE
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET ADDENDUM

Application Type	**New/Renewal**	Application No.	**PA0235555**
Facility Type	**Industrial**	APS ID	**824547**
Major / Minor	**Minor**	Authorization ID	**1253693**

Applicant and Facility Information

Applicant Name	**Homer City Generation LP**	Facility Name	**Dixon Run Central Treatment Facility**
Applicant Address	1750 Power Plant Road	Facility Address	1054 Allen Bridge Road
	Homer City, PA 15748-8009		Indiana, PA 15701
Applicant Contact	Gary Cline	Facility Contact	Adam Ritts
Applicant Phone	(724) 479-6255	Facility Phone	(724) 479-6180
Client ID	298406	Site ID	618057
SIC Code	1222 (NAICS 212112)	Municipality	Cherryhill Township
SIC Description	Bituminous Coal Underground Mining	County	Indiana
Date Published in PA Bulletin	November 9, 2019	EPA Waived?	Yes
Comment Period End Date	December 8, 2019	If No, Reason	

Purpose of Application: Renewal of an NPDES permit for discharges of treated mine drainage from an underground deep mine.

Internal Review and Recommendations

The draft permit limits and major special conditions for Homer City Generation's ("HCG") Dixon Run Central Treatment Facility were published in the *Pennsylvania Bulletin* on November 9, 2019. By email dated December 5, 2019, HCG provided comments on the draft NPDES permit. The Department's responses to HCG's comments are provided below.

HCG Comment 1: HCG's rights and obligations with respect to the Dixon Run Central Treatment Facility are set forth in the Consent Order and Agreement by and between the Department of Environmental Protection, EME Homer City Generation, LP [predecessor to HCG], Utica Mutual Insurance Company, Blacklick Creek [W]atershed Association, and Lucinda Masterton, trustee for the Stanford Mining Company bankruptcy estate, dated June 1, 2006. The Consent Order is still in effect and has been incorporated by reference in previous versions of the Dixon Run Coal Mining Activity Permit (32131301) and NPDES permit (PA0235555). HCG requests that the Consent Order be included in the draft permit. The following special condition is proposed for addition to the permit:

> As required by Paragraph 3(c)(i) of the June 1, 2006 Consent Order and Agreement between, inter alia, permittee and the Department, permittee shall maintain the mine pool in the Dixon run No. 3 Mine at a maximum elevation of 1225 feet above mean sea level, or at whatever level is necessary in order to prevent the emergence of any pollutional seeps along the cropline at Two Lick Creek Reservoir. All other provisions of the Consent Order and Agreement relevant to the operation of the Dixon Run Central Treatment Facility are incorporated herein by reference.

DEP Response to HCG Comment 1: The Clean Water Program chose not to include any reference to the June 1, 2006 Consent Order and Agreement (2006 CO&A) in the draft NPDES permit or the previously issued Water Quality Management Permit No. 3218200, as amended, because those permits and the 2006 CO&A are separate documents that identify and assign rights and obligations independent of one another. For example, it is not necessary for the NPDES permit to require the mine pool in the Dixon Run No. 3 Mine to be maintained at a maximum elevation of 1225 feet because the 2006 CO&A already requires HCG (as EME's successor) to assure that condition is met. Similarly, any rights bestowed upon HCG by the 2006 CO&A are not encumbered by omitting them from the NPDES permit.

Approve	Return	Deny	Signatures	Date
✓			Ryan C. Decker, P.E. / Environmental Engineer	1/10/2020
✓			Michael E. Fifth, P.E. / Environmental Engineer Manager	1/10/2020

Internal Review and Recommendations

If for some reason the 2006 CO&A is terminated, then it may be appropriate to evaluate whether a continuation of some of the CO&A's rights and obligations in the NPDES permit and/or other legal document is warranted.

HCG Comment 2: Fact Sheet – Facility Contact Information. Please revise the Facility Phone Number from 724-479-6123 to 724-479-6180.

DEP Response to HCG Comment 2: This Fact Sheet Addendum is used to update any errors in the Fact Sheet. Both the Fact Sheet and the Fact Sheet Addendum should be read together to understand the full record of decision for the NPDES permit. The facility phone number is updated on the first page of this Addendum.

HCG Comment 3: Fact Sheet – New Water Quality Based Effluent Limits ("WQBELs"). The draft permit includes for the first time WQBELS for mercury and thallium. As described later in these comments, the Department's analysis concluding that these limits had to be added to the permit was based on erroneous data provided by HCG. When the correct data (included in this comment package) are considered, HCG does not believe that WQBELs should be required for either mercury or thallium. If these parameters are included on the permit they should be for "Monitor and Report Only." However, to the extent that WQBELs are imposed for either parameter, HCG requests a 3-year compliance schedule to ensure that we have adequate time to implement any additional measures to comply with these limits.

DEP Response to HCG Comment 3: Refer to DEP's Response to HCG Comment 8 in this Fact Sheet Addendum. WQBELs for mercury and thallium will be removed from the final permit. However, a reporting requirement for thallium will be imposed at Outfall 001 for the duration of the permit term.

HCG Comment 4: Homer City believes that a limit for Thallium is not necessary and requests that it be identified in the permit as a "Monitor and Report Only" parameter. The total Thallium effluent limit contained in the draft NPDES Permit and Fact Sheet has a monthly average of 0.381 µg/L and a daily maximum of 0.594 µg/L. The draft Fact Sheet provides information related to Toxics Screening Analysis – Outfall 001 for Thallium, which indicates the most stringent criterion of 0.24 µg/L was used to derive the water quality-based effluent limit (WQBEL) using the PENTOXSD modeling.

Although the 0.24 µg/L value is listed in 25 Pa. Code §93.8c, Table 5 as a Human Health Criteria for surface waters, the basis for this value is not provided. And, as indicated in the following table, this value appears overly restrictive in comparison to other thallium water quality and drinking water standards. In fact, all of the established human heath criteria and standards for surface waters and drinking water developed by the EPA are well above the 0.24 µg/L human health criteria published by PADEP.

Significantly, the PADEP water quality criteria of 13 µg/L and 65 µg/L in the table are indicated for protection of aquatic life. Neither the source of these values nor references for these values are provided. By contrast, EPA has published the Ambient Water Quality Criteria for Thallium" (EPA 440/5-80-074), which identifies water quality criteria for thallium of 13 µg/L and 48 µg/L, which are similar to the water quality criteria established for the protection of aquatic life by PADEP. However, the EPA water quality criteria for thallium are not for the protection of aquatic life but instead for the protection of human health. The 13 µg/L is established for the protection human health where both water and aquatic organisms (e.g., fish and shell fish) are consumed on a regular basis. The 48 µg/L is for routine consumption of water only. The toxic effect the criteria protect against in alopecia, or temporary hair loss. Based on the Ambient Water Quality Criteria, a thallium concentration of no more than 48 µg/L is adequate to protect human health where the water is directly consumed on a regular basis, a definition of drinkable water.

EPA also has developed Drinking Water Standards (i.e., treated potable water) for thallium where water consumption is continuous and long term. Three EPA values are contained in Table 1, which are: 1) the HAL of 7 µg/L for consumption of 1 L per day for 7 years for an early developing child; 2) the MCL of less than 2 µg/L that represents an enforcement level above which removal or control is required in potable treatment to protect human health; and 3) the MCLG of less than 0.5 µg/L that represents the a non-enforceable goal level for potable waters.

DEP Response to HCG Comment 4: Refer to DEP's Response to HCG Comment 8. Thallium WQBELs will be removed from the final permit with only thallium reporting required at Outfall 001. However, since thallium WQBELs may be applicable to the Dixon Run facility at some point in the future, the Department's responses to HCG's comments regarding the derivation and applicability of Pennsylvania's thallium water quality criteria are provided below.

Internal Review and Recommendations

Chapter 93 does not state the bases for any of Pennsylvania's promulgated water quality criteria, so it is not unusual that 25 Pa. Code § 93.8c omits the bases for the thallium criteria.

The basis for the 0.24 µg/L thallium human health criterion was given in the Environmental Quality Board's Chapter 93 Proposed Rulemaking in Volume 38, Issue 2 of the *Pennsylvania Bulletin* dated January 12, 2008 (see 38 Pa.B. 240). The criterion took effect on May 16, 2009 (39 Pa.B. 2531). As stated in the proposed rulemaking at 38 Pa.B. 238-240:

> Many of the human health criteria in the ''EPA National Recommended Water Quality Criteria: 2002 (EPA- 822-R-02-047, November 2002)'' compilation have been revised based on the EPA's new methodology for deriving human health criteria (Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000), EPA-822-B-00-004, October 2000) or based on new scientific data not previously available for calculating water quality criteria.
>
> The National recommended water quality criteria revisions include a compilation of: previously published criteria that are unchanged, criteria that have been recalculated from earlier criteria and newly calculated criteria based on peer-reviewed assessments and data. […]
>
> The following revised human health criteria incorporate the EPA's new human health criteria methodology from October 2000. A new National default fish consumption rate of 17.5 grams/day replaces the previous 6.5 grams/day fish consumption rate, to adequately protect the general population of fish consumers.
>
> [B]ecause these toxics [thallium included] can also be found in other media (such as in food, air and the like), the Federally-recommended criterion contains a relative source contribution (RSC) to account for nonwater sources of exposure.

Pennsylvania's 0.24 µg/L thallium human health criterion is the same as EPA's National Recommended Water Quality Criterion for thallium, which EPA updated on December 31, 2003 (68 FR 75510). Links to the *Pennsylvania Bulletin* and *Federal Register* sections cited above are provided below:

- *Pennsylvania Bulletin*, Vol. 38, No. 2, January 12, 2008:
  http://www.pacodeandbulletin.gov/secure/pabulletin/data/vol38/38-2/38-2.pdf
- *Pennsylvania Bulletin*, Vol. 39, No. 20, May 16, 2009:
  http://www.pacodeandbulletin.gov/secure/pabulletin/data/vol39/39-20/39-20.pdf
- *Federal Register*, Vol. 68, No. 250, December 31, 2003:
  https://www.govinfo.gov/content/pkg/FR-2003-12-31/pdf/03-32211.pdf
  https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table

Pursuant to 25 Pa. Code § 93.4(a), Table 2, all surface waters of the Commonwealth are protected for "Potable Water Supply" and "Fishing" uses as statewide water uses. Exceptions to this are given in the "Designated Water Uses and Water Quality Criteria" tables in §§ 93.9a – 93.9z, which identifies deleted protected water uses for specific streams. The "PWS" and "F" protected uses for Allen Run and Two Lick Creek are not deleted in Chapter 93 so human health criteria developed for water and fish consumption (including the 0.24 µg/L thallium criterion) apply to those waters.

HCG Comment 5: Fact Sheet – Upstream and Downstream Monitoring. Monitoring water quality upstream and downstream from the discharge outfall is a requirement of the mining regulations. HCG does not object to the requirement to continue monitoring these locations, but requests that mercury and thallium not be added to the list of parameters to be monitored at these locations. Monitoring for these parameters is not warranted, especially if the correct effluent characterization data demonstrate that WQBELs are not needed for mercury and/or thallium.

DEP Response to HCG Comment 5: Pursuant to the Department's authority under 25 Pa. Code § 92a.61(b), monitoring for ambient background stream concentrations is appropriate when WQBELs are imposed for a pollutant. DEP generally assumes a background stream concentration of zero when site-specific data are not available. If WQBELs are imposed for a pollutant, then it is appropriate for the Department to determine whether its assumptions are correct and whether the full assimilative capacity of the receiving water is available to a discharger.

Internal Review and Recommendations

As explained in DEP's Response to HCG Comment 8, mercury and thallium WQBELs will be removed from the final permit. Therefore, the requirements for upstream and downstream analyses for mercury and thallium also will be removed from the permit. Note that, if thallium WQBELs are imposed in the future, analyses to determine the ambient background concentrations of thallium in the receiving water may be required.

HCG Comment 6: Permit – Net Alkalinity Limit on Outfalls 001 and 002. The draft permit imposes a "Net Alkalinity" instantaneous maximum limit of 0.0 on outfalls 001 and 002 and defines Net Alkalinity as "the sum of Total Alkalinity and Total Acidity." This is different from the Fact Sheet, which specifies the Net Alkalinity limit as a monthly average and defines Net Alkalinity as "the sum of alkalinity (+) and acidity (-)". The regulatory requirement is simply "alkalinity greater than acidity" with this parameter applicable at all times. 25 Pa. Code § 89.52(c). The current NPDES permit includes the language from the regulation as a condition. HCG requests that the draft permit be revised to replace the instantaneous maximum limit with the condition "alkalinity must exceed acidity at all times," as is the case with the current permit. At the very least, the draft permit and the Fact Sheet should be revised to be consistent; with the Fact Sheet definition of Net Alkalinity being used as it is more accurate than the definition in the draft permit.

DEP Response to HCG Comment 6: The Department assumes that HCG will comply with the "alkalinity greater than acidity" requirement at all times because HCG is capable of complying with the requirement. Therefore, whether 'alkalinity greater than acidity' is implemented as a numerical limit or a general permit requirement should not matter to HCG because HCG must comply either way.

Given the Department's limited resources and the federally-mandated shift to electronic reporting, the Department opted to implement the "alkalinity greater than acidity" requirement as a numerical limit. This is appropriate (and has been done in other permits) because the requirement can be implemented in the Department's eDMR system and doing so simplifies compliance determinations for the Department. There currently is no way for permittees to report in eDMR that they comply with a general permit requirement that allows for an automated determination of compliance.

Based on a literature review conducted by the Department in response to HCG's comment, there are a few ways to calculate 'net alkalinity'.[1] Therefore, Footnote 3 will be modified to require that HCG use a theoretically accurate method to determine net alkalinity. This will give HCG flexibility in how it determines net alkalinity. HCG must still report a numerical value for net alkalinity and use EPA-approved analytical methods to determine the concentrations of parameters used to calculate net alkalinity.

HCG Comment 7: Permit – Outfalls 001, 002 instantaneous maximum limit for iron. HCG requests that the proposed instantaneous maximum limit for iron be changed from 3.75 mg/L to the current limit of 3.8 mg/L. This is essentially the same limit, but to two significant figures, which is appropriate for this parameter. The proposed limit would require the laboratory to employ a more sensitive analysis to report results to the hundredth of a mg/L.

DEP Response to HCG Comment 7: Instantaneous maximum (IMAX) limits for aluminum, iron, and manganese will be removed from the permit. IMAX limits are generally only used by the Department to spot-check compliance using grab samples. However, if a permit imposes both maximum daily limits and IMAX limits and requires grab sampling (as HCG's previous permit required), then the IMAX limits are functionally unnecessary because the maximum daily limits will control for any individual analytical result. That is, the result for one grab sample will be both a maximum daily and instantaneous maximum and the maximum daily limit is more stringent. IMAX limits are only useful when both maximum daily limits and composite sampling are specified. The Department is not requiring composite sampling because the Dixon Run Central Treatment Facility is operated intermittently for varying lengths of time.

IMAX limits for TSS will be imposed because they are required by Chapter 89.52(c), but HCG will not need to report against those limits because maximum daily limits are imposed and because grab sampling is specified.

For the record, omitting water quality-based IMAX limits for aluminum, iron, and manganese complies with EPA's anti-backsliding requirements at 40 CFR § 122.44(l) because, as explained above, IMAX limits are superseded by the more stringent maximum daily limits for both regular DMR reporting and spot-check sampling by the Department.

---

[1] Kirby, Carl S., Cravotta III, Charles A. "Net alkalinity and net acidity." *Applied Geochemistry*, Volume 20, Issue 10, October 2005, pp.1920-1964.

Internal Review and Recommendations

On a related note, an IMAX limit of 3.75 mg/L for iron would be appropriate. The Department reviewed proposed permit limits in all issues of the 2019 *Pennsylvania Bulletin* for mining-related discharges to capture a random sampling of how limits are imposed in those permits. IMAX limits for total iron at facilities with the same average monthly and maximum daily iron limits as Dixon Run (1.5 mg/L and 3.0 mg/L) are variously reported as 3.5 mg/L, 3.7 mg/L, 3.75 mg/L, and 3.8 mg/L. To the extent that IMAX limits are imposed for iron and there is inconsistency in how the Department rounds IMAX values calculated using the 2.5x average monthly limit multiplier, 3.75 mg/L is the best option because there is no rounding that introduces inconsistency. Also, HCG would not need to employ a lab that uses a more sensitive analytical method. HCG's contracted laboratory, Environmental Service Laboratories' (the lab HCG used for the Dixon Run application) reporting limit for total iron is 20 µg/L. The IMAX limit for iron would be 3,750 µg/L. Environmental Service Laboratories can report results for iron at any concentration equal to or greater than 20 µg/L, so its results would be usable.

HCG Comment 8: Effluent characterization data - As previously described to you in a telephone conference on November 15, 2019, HCG discovered several errors in the data it provided to the department. First, sample results for untreated influent samples were combined with results for treated effluent. Second, some data were incorrectly reported as actual values, when the laboratory reports indicate they were actually estimated ("J" flagged) values for concentrations below the QL but above the MDL (e.g., thallium, where all 3 effluent samples were below the QL of 0.5 ug/L, but were estimated at concentrations just above the MDL of 0.16). In addition, incorrect QL's were reported for several pollutants that have non-detect results. Lastly, several unit conversion errors were discovered. As a result, incorrect values were used in the reasonable potential analysis which may have improperly triggered requirements to establish discharge limits in the permit (e.g., selenium reported as <6.6 ug/L, when the actual results were <0.66 ug/L). The data have been corrected and properly identified as influent or effluent samples on the attached table. Revised analysis results tables are also provided for the separate influent and effluent samples. Also included are a summary table of the results and the laboratory analysis.

DEP Response to HCG Comment 8: The Department evaluated reasonable potential using the revised analytical results provided with HCG's comments. Based on that evaluation, mercury WQBELs will be removed from the permit. As HCG explained in its comment, thallium was reported at estimated values, but the reporting limit achieved by HCG's laboratory (0.5 µg/L) is more sensitive than the Department's target quantitation limit for thallium (2.0 µg/L). Also, all estimated thallium concentrations (0.22 µg/L at the highest) were reported at estimated concentrations less than the most stringent thallium WQBEL (0.381 µg/L). Based on this information and notwithstanding the screening recommendation for thallium in the Toxics Screening Analysis spreadsheet (see attachment to this Addendum), the permit will only include a reporting requirement for thallium at Outfall 001. Reporting of thallium concentrations will generate data on the long-term magnitude and variability of thallium concentrations in the effluent, which can be used to evaluate the potential for Outfall 001's discharges to cause or contribute to violations of the thallium water quality criteria in Allen Run.

Since WQBELs for mercury and thallium will not be imposed, Condition II in Part C of the permit regarding the reporting of results for parameters with WQBELs below the Department's target quantitation limits also will be removed from the permit.

No other comments were received on the draft NPDES permit. Due to the substantial changes to the permit made in response to HCG's comments, the permit will be drafted for a second 30-day comment period.

TOXICS SCREENING ANALYSIS – OUTFALL 001
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.7

Facility: **Homer City Dixon Run Central Trtm. Fac.** NPDES Permit No.: **PA0235555** Outfall: **001**

Analysis Hardness (mg/L): **170** Discharge Flow (MGD): **0.044** Analysis pH (SU): **7**

Stream Flow, Q_{7-10} (cfs): **0.04**

Parameter	Maximum Concentration in Application or DMRs (µg/L)		Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Pollutant Group 1						
Total Dissolved Solids		928000	500000	Yes		
Chloride		6680	250000	No		
Bromide		46	N/A	No		
Sulfate		571000	250000	Yes		
Fluoride		369	2000	No		
Pollutant Group 2 – Metals						
Total Aluminum		286	750	No		
Total Antimony		0.76	5.6	No		
Total Arsenic	<	1.5	10	No (Value < QL)		
Total Barium		4	2400	No		
Total Beryllium	<	0.3	N/A	No		
Total Boron		213	1600	No		
Total Cadmium	<	0.2	0.401	No (Value < QL)		
Total Chromium		0.9	N/A	No		
Hexavalent Chromium	<	5	10.4	No		
Total Cobalt		2	19	No		
Total Copper	<	2	14.7	No (Value < QL)		
Total Cyanide	<	2	N/A	No		
Total Iron		193	1500	No		
Dissolved Iron		83	300	No		
Total Lead	<	1	6.3	No (Value < QL)		
Total Manganese		47	1000	No		
Total Mercury	<	0.04	0.05	No (Value < QL)		
Total Molybdenum	<	2	N/A	No		
Total Nickel		5	81.7	No		

Parameter	Maximum Concentration in Application or DMRs (µg/L)		Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Total Phenols (Phenolics)	<	5	5	No (Value < QL)		
Total Selenium	<	2	5.0	No (Value < QL)		
Total Silver	<	0.5	9.4	No		
Total Thallium		0.22	0.24	Yes	0.381	Establish Limits
Total Zinc		5	187.8	No		
Pollutant Group 7 – Additional Parameters						
Osmotic Pressure (mOs/kg)		9	50	No		