NOTE

Subject: EPA Comments on UGI Development Co – Hunlock Power Station, Lockbourne, OH
Round 10 Draft Assessment Report

To: File

Date: March 12, 2012

1. Please insert the pertinent figures and photos into the text so the reader is not moving to and from the text and the appendices. Keep the remainder of figures and photos in the appendices.

2. On p. i, "Executive Summary," the East and West Basins are assessed as **Low** Hazard structures. Given the proximity of the units, particularly the East Basin, to the Susquehanna River, it may be advantageous to include in the justification of **Low** hazard rating some mention of the proximity to the Susquehanna River and the continued basis given that proximity for the assessed hazard rating of **Low.**

3. Although there appears to be a discussion in sections 1.2.4 and 1.2.5 of the description of the unit and the materials in which it consists, it is requested that either in Appendix C- the checklist, or in sections 1.2.4 and 1.2.5 there be a specific statement made to address the following question: "Is any part of the impoundment built over wet ash, slag, or other unsuitable materials (like TVA)?"

4. Please do a global search and replace the terms "inspect" and "inspection" with "assess" and "assessment," respectively throughout the report.

5. On p. i and p. 2, in the following statement "(such that water can no longer impounded)" add "be" after "longer."

6. On p. 10, Section 3.1 "Assessments," it may be advantageous to include the lack of hydrologic and hydraulic studies from the facility.

7. There is no discussion of instrumentation at the site or lack there of in the text of the report. It is noted on the check list sheet, however. Please include in the text.

8. Section 3.3 should include the recommendation for the development of an emergency action plan.

9. In the last paragraph in section 3.5, last sentence, for the following statement: "the face that failure," replace "face" with "fact."

Pennsylvania Department of Environmental Protection's Division of Dam Safety
Comments On:

Draft Report – CCW Impoundments Inspection Report

Hunlock Creek Power Station

Luzerne County, Pennsylvania

Report has been prepared for the U.S. Environmental Protection Agency, Washington, D.C. by GZA GeoEnvironmental, Inc (GZA).

Comments per Section of the Report:
Comments are provided by Pennsylvania Department of Environmental Protection Division of Dam Safety (DDS).

Executive Summary
We disagree with the statement at the end of the third paragraph which reads "Note the PADEP, Division of Dam Safety does not recognize either Ash Basin impoundment as a dam structure." Although most of the basin volumes are from excavation, during the inspection with GZA, DDS agreed that various sections of embankment surrounding the impoundments were man made and therefore considered 'dams'. Most apparent is the embankment between the Susquehanna River and the East Basin. Other manmade sections include the drainage or 'decanting' sections of the impoundments as well as the steep uniform embankment between the West Basin and adjacent stream. According to Pennsylvania Code 105.3(a)(3), a dam is jurisdictional if "Any Dam storing fluids **or** semifluids other than water, the escape of which may result in air, water, or land pollution or in danger to persons or property". DDS does consider impoundments used for the storage of ash to meet this criterion.

Confusing this issue in the GZA report may be the fact that, until this inspection, DDS had not positively identified these impoundments as including dam structures. This is noted in Comment 1 from both basin's inspection checklist (included in GZA's report in Appendix C) which reads "Impoundment not on PADEP Dams Inventory and therefore is not inspected by PADEP Dam Safety Office". DDS does recognize that both impoundments do, in fact, have dam embankments associated with them and are jurisdictional dams in Pennsylvania.

1.2 Description of Project
DDS generally concurs with the description of the two ash basins that were assessed by GZA GeoEnvironmental, Inc. The basins are known as Basin 005 (West Basin) and Basin 003 (East Basin). It should be noted that the impoundments constitute a two stage system in which the west basin historically received bottom ash while the east basin received fly ash. While the excess CCW's are reported to being disposed of in a mine reclamation facility, it was noted that UGI said that at least some of the bottom ash was also being used for road anti-skid material.

2.0 Inspection
DDS concurs with the observations reported by GZA for the structures. The inspection report thoroughly documents the conditions on the date of the inspection and DDS has no further comments to add.

3.0 Assessments and Recommendations
GZA classifies the East and West Basins as Low Hazard Structures under the Environmental Protection Agency's hazard rating criteria. This is based on the fact that both basins are relatively small in size and that, if there was a failure, no loss of life would be expected and any environmental or economic damage due to failure would be minimal. Although the basins are considered as Low hazard, it should be noted that both impoundments have been given a poor condition rating. These condition rating were based on both visual inspection and the fact that no geotechnical analysis were available for either basin.

UGI, in cooperation with PADEP Division of Waste Management, is in the process of executing the decommissioning of both basins by removing all CCW's via excavation and loading into trucks for off-site disposal in a regulated mine reclamation facility. UGI indicated they anticipate obtaining official permanent closure status for the basins roughly two years from the date of GZA's inspection visit. UGI plans to follow up the decommissioning with the immediate breaching of the ash basin embankments and subsequent re-grading of the site to provide positive drainage.

Due to, both the small size of the impoundments and relative apparent stability of the existing dam embankments, combined with UGI's decommissioning efforts (in conjunction with PADEP's Division of Waste Management), DDS concurs with GZA's recommendation to limit remedial measures to only the recommended operation, maintenance, and minor repair activities. This includes, at a minimum, that all stop logs be removed from the decant outlet structures so as to limit maximum normal pool elevation to the top of weir elevation of 531.8 feet. This is contingent on UGI following the two-year decommissioning timeline as significant lapses in following this timeline could result in DDS requiring more involved "Remedial Measures" (which include the construction of emergency spillways and slope rehabilitation) outlined by GZA.

PADEP Action
DDS will assign dam numbers to the basins and will review a decommissioning plan when it is developed.

UGI CORPORATION

BOX 858 VALLEY FORGE, PA 19482 • 610-337-1000

July 9, 2012

VIA EMAIL AND US MAIL

Mr. Stephen Hoffman
US Environmental Protection Agency (5304P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Draft Report – Round 10 Dam Assessment
Ash Basin 003 (East Basin) & Ash Basin 005 (West Basin)
UGI Development Company – Hunlock Creek Power Station
Hunlock Creek, Pennsylvania

Dear Mr. Hoffman:

The following letter is in response to the Round 10 Dam Assessment Draft Report (the "Report") submitted to UGI Development Company ("UGI") via email link on May 29, 2012. The Report was completed by GZA GeoEnvironmental, Inc. ("GZA") for the US Environmental Protection Agency ("EPA") in an effort to provide a site specific inspection and structural assessment of the coal combustion waste ("CCW") impoundments at UGI's Hunlock Creek Power Station located in Hunlock Creek, Pennsylvania.

A site inspection was conducted by GZA representatives on May 19, 2011. The CCW impoundments identified as Ash Basin 003 (East Basin) and Ash Basin 005 (West Basin) were visually inspected, available design documentation was reviewed, and UGI personnel were interviewed. Based on the inspection, the East Basin was judged to be in fair condition; however, the EPA inspection criteria required it be deemed in poor condition since no geotechnical data was available. The West Basin was judged to be in poor condition based on the inspection and because there was no geotechnical data made available. Despite these ratings, GZA opined that the basins are Low Hazard potential structures.

The Report also provided a detailed technical evaluation and recommended actions, including minor repair and more extensive remedial measure recommendations. UGI has thoroughly reviewed the Report and its recommendations. UGI further reviewed its Closure Plan submitted to the Pennsylvania Department of Environmental Protection ("PADEP") and timeline for removal of the CCW from the ash basins. As discussed below, UGI respectfully requests that the EPA not require UGI to implement the GZA

recommendations as such action will not be necessary since the CCW is being timely removed and the potential for structural failure is low.

Hunlock Creek Power Station - Background

The Hunlock Creek Power Station operated as a coal fired generating station from approximately 1924 to May 2010. The East and West Basins were constructed sometime in the early 1960's to collect CCW from the onsite operations. The basins were dredged every two years and CCW was disposed offsite at a regulated facility or utilized as beneficial reuse in accordance with PADEP regulations. In May 2010, the facility ceased operating as a coal fired generating station and was redesigned to be fueled by natural gas. A Draft Fly Ash Basin Closure Plan, which includes the decommissioning of the East and West Basins, was submitted to the PADEP Division of Waste Management in June 2011. The PADEP submittal letter and Closure Plan are included as Attachment A.

East Basin and West Basin Decommissioning

As defined by the procedures in the submitted Draft Closure Plan, UGI initiated excavation and offsite disposal of CCM on May 2, 2011. The CCM is currently transported for beneficial reuse in accordance with PADEP regulations to a coal mine reclamation site owned and operated by the Susquehanna Coal Company. A copy of UGI's General Permit and the disposal approval letter from Susquehanna Coal Company are included as Attachment B.

To date, approximately 288,000 tons of CCM generated from the East Basin, West Basin and onsite stockpiles has been transported and disposed of offsite. Based on engineering estimates approximately 112,000 tons of CCM currently remains onsite. UGI expects the CCW disposal will be completed by May 2013.

Conclusions

UGI respectfully requests that it not be required to conduct the operation and maintenance, minor and major repair, and remedial measures as recommended in the Round 10 Dam Assessment Draft Report for the following reasons:

- Section 1.2.8 of the Round 10 Dam Assessment Draft Report states "*it is GZA's opinion that the East and West Basins are Low Hazard potential structures. The hazard potential rating is based on limited human habitation downstream, their small size, the fact that no loss of life would be expected if there was a failure and damage due to failure, environmental or economical, would be minimal.*"
- Section 3.5 of the Round 10 Dam Assessment Draft Report states "*However, we acknowledge that implementation of the above studies and analyses and remedial measures recommendations may not be critical given the nature of and current actions being undertaken to decommission the impoundments coupled with the face that failure of the impoundments, in our opinion, is unlikely to result in the*

loss of life and losses (economic or environmental) would be principally limited to the owner's property."

- Section 3.6 of the Round 10 Dam Assessment Draft Report states "*It must be noted however that full implementation of all of our recommendations should be undertaken if the time to obtain permanent closure status for the basins (in accordance with applicable engineering and regulatory requirements) is extended beyond UGI's expected two year time frame.*" UGI anticipates completing removal of CCM from the East and West Basins by May 2013.
- A Draft Closure Plan was submitted for approval to the PADEP Division of Waste Management in June 2011, which includes the removal of CCM and decommissioning of the East and West Basins
- Expeditious implementation of CCM removal activities (approximately 288,000 tons) as defined by the scope of work in the Draft Closure Plan began on May 2, 2011.
- Scheduled removal of the remaining 112,000 tons of CCM by May 2013 based on current engineering estimate and anticipated schedule

Accordingly, UGI requests that it not be required to implement the recommendations outlined in the GZA Report as the CCW will be removed from the site, thereby making such recommendations unnecessary. UGI appreciates the opportunity to respond to the GZA Report. Should you have any questions regarding this response, our submissions to the PADEP, or our timeline for CCW removal, we are available at your convenience.

Respectfully,

Michelle A. Bimson
Counsel

Pennsylvania Department of Environmental Protection

2 Public Square
Wilkes-Barre, PA 18711-0790
February 25, 2010

Northeast Regional Office

570-826-2511
Fax 570-826-5448

CERTIFIED MAIL NO.: 7008 3230 0002 4876 7407

Mr. David Stettler
UGI Development Company
390 US Route 11, PO Box 224
Hunlock Creek, PA 18621-0224

Re: Determination of Applicability of General Permit #WMGR116NE001
Hunlock Creek Borough, Luzerne County
APS# 706764

Dear Mr. Stettler:

The Department has determined that UGI Development Company may operate under the enclosed General Permit No. WMGR116NE001, per the October 26, 2009 Determination of Applicability submittal. The approval granted under this permit is contingent upon the facility's operation as described in the approved application, complying with the enclosed permit conditions, and complying with the applicable provisions of the Residual Waste Management Regulations.

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section 7514, and the Administrative Agency Law, 2 Pa. C.S., Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, PA 17105-8457, 717-787-3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800-654-5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in Braille or on audiotape from the Secretary to the Board at 717-787-3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.

Rec'd 3-1-10

IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717-787-3483) FOR MORE INFORMATION.

Sincerely,

William Tomayko

William Tomayko
Program Manager
Waste Management Program

Enclosure

cc: Hunlock Township
Luzerne County
Pottsville District Mining Office

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

General Permit
For
Processing/Beneficial Use of Residual Waste

Permit No. WMGR116NE001 **Date Amended** _____

Date Issued February 24, 2010 **Date Expires** October 27, 2017

The Department of Environmental Protection, Bureau of Waste Management, Division of Municipal and Residual Waste hereby approves the:

☒ Beneficial Use ☐ Processing prior to Beneficial Use ☐ Other

of: the resulting ash generated by co-firing approved alternate fuels (petroleum coke) with waste coal/coal in circulating and bubbling fluidized bed boilers and pulverized coal-fired boilers

for use as: coal ash (relating to the beneficial use of coal ash) at active or abandoned mine sites

This approval is granted to: UGI Development Company

Site Name: UGI Hunlock Creek Plant 390 US Route 11, PO Box 224

Hunlock Creek, PA 18621-0224

subject to the attached conditions and may be revoked or suspended for any project which the Department of Environmental Protection determines to have a substantial risk to public health, the environment, or cannot be adequately regulated under the provisions of this permit.

The processing of wastes not specifically identified in the documentation submitted for this approval, or the beneficial use of wastes not approved in this permit, is prohibited without the written permission of the Department.

This permit is issued under the authority of the Solid Waste Management Act (35 P.S. §§6018.101-6018.1003), The Pennsylvania Used Oil Recycling Act (58 P.S. §§471-480), The Clean Streams Law (35 P.S. §§691.1-691.1001), Sections 1905-A, 1917-A and 1920-A of the Administrative Code of 1929 (71 P.S. §§510-5, 510-17 and 510-20) and the Municipal Waste Planning, Recycling and Waste Reduction Act (53 P.S. §§4000.101-4000.1904).

This approval is granted: By: William Tomayko

☐ Statewide ☒ Regional Title: Environmental Program Manager

General Permit WMGR116
Beneficial Use of Alternative Fuels
for Circulating and Bubbling Fluidized Bed Boilers and Pulverized Coal-Fired Boilers
(CFB/BFB/PC)

A. Description.

This general permit authorizes the beneficial use of the following wastes as alternative fuels to be combined with waste coal/coal, hereinafter referred to as "combined or blended fuel," to produce specification fuel for CFB/BFB/PC facilities:

- petroleum coke;
- wood and paper and wood industry wastes comprised primarily of wood fibers except for Chromated Copper Arsenate (CCA) or Pentachlorophenol (PCP) pressure-treated wood and lead-painted wood;
- agricultural plant/animal wastes;
- non-hazardous coal tar and oil-contaminated waste;
- high carbon coal fly ash;
- tire-derived fuel (chipped or whole tires);
- biosolids; and
- waste asphalt shingles.

This general permit also authorizes the beneficial use of the resulting ash generated by co-firing the approved alternative fuels with waste coal/coal, hereinafter referred to as "ash," for the beneficial uses authorized for coal ash in accordance with 25 Pa. Code, §§287.661 – 665 (relating to beneficial use of coal ash) at active or abandoned mine sites.

B. Determination of Applicability Requirements.

Persons or municipalities that propose to operate under the terms and conditions of this general permit after the date of permit issuance must obtain a "Determination of Applicability" (DOA) from the applicable regional office of the Department of Environmental Protection's (DEP) Waste Management Program (see attached list) that has jurisdiction for waste-related activities in the county where the facility will be located. A completed Form 20 (Application for a Municipal or Residual Waste General Permit), along with the DOA application fee as specified in the residual waste regulations, must be submitted to the appropriate regional office of DEP's Waste Management Program. No activities shall commence unless authorized in writing by DEP.

C. Operating Conditions.

Petroleum coke, wood and paper and wood industry wastes comprised primarily of wood fibers (except for CCA/PCP pressure-treated wood and lead-painted wood), agricultural plant/animal wastes, non-hazardous coal tar and oil-contaminated waste, high carbon coal fly

ash, tire-derived fuel (chipped or whole tires), biosolids and waste asphalt shingles may be beneficially used, individually or in combination, as alternative fuels blended with waste coal/coal to produce fuel for CFB/BFB/PC if all of the following operating conditions are met:

1. The lower heating value of the alternative fuels, as combined or blended, must be sufficient to maintain continuous operation of the CFB/BFB/PC.

2. The combined or blended fuel contains no more than 50%, by weight, of the listed alternative fuels.

3. The permittee of a facility burning this combined or blended fuel meets the regulatory requirements of the Bureau of Air Quality, including the permitting requirements of 25 Pa. Code, Chapter 127.

4. The total combined quantity of biosolids and wood and asphalt shingles generated from municipal waste (including construction/demolition waste) that may be burned in the CFB/BFB/PC is limited to less than 50 tons/day.

5. When a new waste source or new fuel combination or blend is utilized, the permittee shall submit an analysis of a representative sample of the resulting ash from the burning of this combined or blended fuel to the applicable regional office of DEP's Waste Management Program and if used on an active or abandoned mine site, the applicable DEP district mining office(s) (see attached lists) to demonstrate that the ash meets the requirements of Condition C15 of this permit, no less than fifteen (15) days prior to beneficial use of the ash. For agricultural plant/animal alternative fuels, DEP may reduce or eliminate the testing requirements of this condition after two years if the ash has consistently met the requirements of Condition C15.

6. The ash shall not be stored in direct contact with or applied directly into the waters of the Commonwealth except as specifically approved by DEP.

7. Runoff from the ash storage areas shall not cause surface water pollution or groundwater degradation and shall be managed in accordance with The Clean Streams Law and regulations promulgated thereunder.

8. The permittee shall manage surface water and control erosion and sedimentation to meet the applicable requirements of 25 Pa. Code, Chapter 102 (relating to erosion and sediment control).

9. The permittee shall comply with the fugitive emissions standards adopted under 25 Pa. Code, Sections 123.1 and 123.2.

10. The storage, transportation and use of the ash and alternative fuels shall be done in a manner that will not create a nuisance or be harmful to the public health, safety or the environment and shall be in a manner that prevents the dispersal of ash by wind or water erosion.

11. Unless otherwise authorized by DEP in writing, storage of the resulting ash at any use location, as part of an "in-progress" project, shall be for no more than two (2) weeks after its receipt.

12. The ash produced from the co-firing of the alternative fuels approved in this general permit with waste coal/coal may be used for the following beneficial uses of coal ash as set forth in 25 Pa. Code §§287.661 – 287.665 in accordance with the conditions of this general permit as:

    a. The use of ash as structural fill provided the notice and regulatory conditions required for the use of coal ash as structural fill as set forth in 25 Pa. Code §287.661 (relating to use of coal ash as structural fill) are satisfied.

    b. The use of ash as a soil substitute or soil additive provided all the notice and regulatory conditions required for the use of coal ash as set forth in 25 Pa. Code §287.662 (relating to use of coal ash as a soil substitute or soil additive) are satisfied.

    c. The use of ash at mining activity sites provided all the conditions and operating requirements for coal ash as set forth in 25 Pa. Code §287.663 (relating to beneficial use of coal ash at coal mining activity sites as coal mining activities are defined in §86.1), or pursuant to an approved mining reclamation plan are satisfied.

    d. The use of ash at abandoned coal and non-coal surface mining sites provided all the conditions and operating requirements for coal ash as set forth in 25 Pa. Code §287.664 (relating to coal ash beneficial use at abandoned coal and abandoned noncoal surface mine sites) are satisfied.

    e. Other beneficial uses of ash provided all the conditions for similar uses of coal ash as set forth in 25 Pa. Code §287.665 (relating to other beneficial uses of coal ash) are satisfied.

13. When the ash is beneficially used as a soil additive in accordance with Section 287.662, ash-loading rates shall be determined by the pH of the existing soil, as follows:

pH of Existing Soil	Application Rate
4.5 - 5.5	10 - 15 tons/acre
5.5 - 6.5	5 - 10 tons/acre
6.5 - 7.5	2 - 5 tons/acre
> 7.5	No Application

14. When the ash is beneficially used as a soil additive in accordance with Section 287.662 to facilitate revegetation at permitted mine sites and abandoned mine sites under contract or otherwise approved by DEP, the maximum lifetime metal loading shall not exceed any of the following:

Constituent[1]	Limit (lbs./acre)
Arsenic	41
Cadmium	39
Chromium	3000
Copper	1500
Lead	300
Nickel	420
Selenium	100
Zinc	2800

15. The ash that is beneficially under this permit shall meet the following leaching analysis requirements. The leaching analysis, using the Toxicity Characteristic Leaching Procedure (EPA Method 1311) or the Synthetic Leaching Procedure (EPA Method 1312), on a representative sample of the ash indicates that none of the following are exceeded:

Constituent[1]	Leachable (mg/l)*
Aluminum	5.0
Antimony	0.15
Arsenic	0.25
Barium	50
Boron	3.15
Cadmium	0.125
Chromium	2.50
Chloride	2500
Copper	25
Iron	7.5
Lead	0.125
Manganese	2.5
Mercury	0.05
Molybdenum	4.38
Nickel	2.5
Nitrate	10
Selenium	1.0
Sulfate	2500
Zinc	50

* These determinations must be based upon the 90% upper confidence level using *"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods"* (EPA SW-846) as guidance for statistical treatment of data.

[1] Additional constituents may be added as needed based on the types and quantities of alternative fuels utilized.

16. The chemical analysis required in Condition C13, Condition C14 and C15 of this general permit shall be performed by a laboratory accredited or registered for accreditation under the Pennsylvania Environmental Laboratory Accreditation Act, 27 Pa. Code §§ 4101-4113.

D. Standard Operating Conditions.

1. Nothing in this permit shall be construed to supersede, amend or authorize a violation of any of the provisions of any valid and applicable local law, ordinance or regulation, providing that said local law, ordinance or regulation is not preempted by the Pennsylvania Solid Waste Management Act, 35 P.S. § 6018.101 et seq.; the Municipal Waste Planning, Recycling and Waste Reduction Act, 53 P.S. § 4000.101 et seq.; the Surface Mining Conservation and Reclamation Act, 52 P.S. § 1396.1 et seq.; or the Noncoal Surface Mining Conservation and Reclamation Act, 52 P.S. § 3301 et seq.

2. As a condition of this permit and of the permittee's authority to conduct the activities authorized by this permit, the permittee hereby authorizes and consents to allow authorized employees or agents of DEP, without advance notice or search warrant upon presentation of appropriate credentials and without delay, to have access and to inspect all areas or permittee-controlled adjacent areas where solid waste management activities are being or will be conducted. This authorization and consent shall include consent to collect samples of waste, water or gases; to take photographs; to perform measurements, surveys and other tests; to inspect any monitoring equipment; to inspect the methods of operation; and to inspect and/or copy documents, books and papers required by DEP to be maintained or produced. (See Section 608 and 610(7) of the Solid Waste Management Act, 35 P.S. Section 6018.608 and 6018.610(7)). This condition does not limit any other powers granted to DEP under the Solid Waste Management Act.

3. Failure of the measures herein approved to perform as intended, designed or in compliance with the applicable laws, rules and regulations and terms and conditions of this permit for any reason, shall be grounds for the revocation or suspension of the permittee's approval to operate under this permit.

4. The activities authorized by this permit shall not harm or present a threat of harm to the health, safety or welfare of the people or environment of this Commonwealth. DEP may modify, suspend, revoke or reissue the authorization granted in this permit if it deems necessary to prevent harm or the threat of harm to the public health, the environment or if the activities cannot be adequately regulated under the conditions of this permit.

5. The permittee shall inform the end-users that propose to receive the resulting ash for beneficial use, covered under this general permit, of all the conditions and limitations imposed on the beneficial use of resulting ash by DEP. This notification shall be satisfied by providing a copy of Appendix A (Acceptable Uses and Use Restrictions) of this general permit.

6. Any person who operates under the provisions of this permit shall immediately notify, in writing, the Solid Waste Manager in the applicable regional office of DEP's Waste Management Program of any changes in the name, address, owners, operators and/or responsible officials of the company; the location of mine reclamation sites; land ownership and the right to enter and operate on mine reclamation sites; the physical or chemical characteristics of the ash; the generator(s) of the ash; and the status of any permit issued by DEP or federal government under the environmental protection acts.

   a. For persons that operate under the provisions of this permit on permitted mine sites, the above notification must also be provided to the appropriate district mining office of DEP's Bureau of District Mining Operations.

   b. For persons that operate under the provisions of this permit on abandoned mine sites that are under contract, the above notification must also be provided to the appropriate district mining office of DEP's Bureau of Abandoned Mine Reclamation and any other governmental agency that is party to the contract or approved the beneficial use.

7. All activities conducted under the authorization granted in this permit shall be conducted in accordance with the permittee's application, except to the extent that the application conflicts with the regulations or governing statutes.

8. Any independent contractors or agents retained by the permittee in the completion of activities authorized under this permit shall be subject to compliance history review by DEP prior to the performance of activities as specified by the Solid Waste Management Act.

9. The permittee shall immediately notify DEP's Emergency Hotline by telephone at 800-541-2050 and the applicable regional office of DEP's Waste Management Program in the event of a discharge or spill of ash and shall take appropriate immediate action to protect the health and safety of the public and the environment.

10. Beneficial use of resulting ash may not commence on permitted mine sites unless specifically authorized by the appropriate DEP district mining office. Beneficial use of resulting ash may not commence on abandoned mine sites unless specifically authorized by DEP's Bureau of Abandoned Mine Reclamation or other governmental agency.

11. A person or municipality that plans to continue the beneficial use authorized under this general permit after the expiration date indicated on the approval for coverage page shall file a complete application for permit renewal at least 180 days before the expiration date

of this general permit unless permission has been granted by DEP for submission at a later date. The renewal application shall be made using "Form 20" (Application for a Municipal or Residual Waste General Permit).

In the event that a timely and complete application for renewal has been submitted and DEP is unable, through no fault of the permittee, to reissue the general permit or approval for coverage before its current coverage expiration date, the terms and conditions of the approved coverage will automatically continue and will remain fully effective and enforceable pending the issuance or denial of the renewal for permit coverage, provided the permittee is and has been operating in compliance with the terms and conditions of the general permit.

E. Special Wastes.

The ash shall not be mixed with other solid wastes, except as set forth in the application or as specifically approved in a reclamation plan.

F. Record Keeping.

Persons operating under this general permit shall record and maintain the following information at the CFB/BFB/PC facility. All records shall be maintained for a minimum of five (5) years and shall be made available to DEP upon request:

1. All analytical information relative to the testing of the ash to ensure compliance with this permit;

2. The locations where that ash has been beneficially used or the name and address of each person receiving the ash and its intended use;

3. The type of beneficial use (mine reclamation or soil additive);

4. The dates and weight or volume of ash delivered to each site where the ash is beneficially used;

5. When used as a soil additive, the ash application rate with the determination of the metal loading rate to date;

6. Project status, completion date or anticipated completion date;

7. The type, generator, date and weight or volume of waste delivered to the CFB/BFB/PC facility; and

8. An annual chemical analysis of the ash for the parameters listed in Condition C15.

APPENDIX A

ACCEPTABLE USES AND RESTRICTIONS
GENERAL PERMIT NO. WMGR116

The following "Acceptable Uses and Restrictions" apply to persons or municipalities (end-users) that receive and/or use the ash generated from facilities operating under WMGR116 for beneficial use purposes in lieu of submitting a determination of applicability to DEP to beneficially use the resulting ash under the terms and conditions of this general permit.

A. ACCEPTABLE USES.

1. The ash that is generated by co-firing the approved alternative fuels with waste coal/coal, hereinafter referred to as "resulting ash," in accordance with 25 Pa. Code, §287.661 – 665 (relating to beneficial use of coal ash).

2. The resulting ash must conform to the applicable engineering properties of any raw material for which it is substituted.

3. Unless otherwise authorized by DEP in writing, the storage of the resulting ash at any use location as part of an "in-progress" project shall be for no more than two (2) weeks after its receipt.

B. USE RESTRICTIONS.

1. The resulting ash shall not be placed or stored in direct contact with surface water or groundwater.

2. The resulting ash shall not be placed in a wetland or within 300 feet of a private or public water source.

3. Hazardous waste, municipal waste, special handling waste and other residual wastes may not be mixed, stored or beneficially used with the resulting ash.

4. Upon cessation of beneficial use activities, any excess resulting ash shall be removed and processed or disposed at a facility permitted under the Solid Waste Management Act.

5. The beneficial use of the resulting ash shall be done in a manner that will not create a nuisance or be harmful to the public health, safety or the environment.

6. Runoff from the resulting ash storage areas shall not cause surface water pollution or groundwater degradation and shall be managed in accordance with The Clean Streams Law and regulations promulgated thereunder.

7. The end-user shall immediately notify DEP's Emergency Hotline by telephone at 800-541-2050 and the applicable regional office of DEP's Waste Management Program in the event of a discharge or spill of resulting ash and shall take appropriate immediate action to protect the health and safety of the public and the environment.

8. Beneficial use of the resulting ash may not commence on permitted or abandoned mine sites unless specifically authorized by the applicable DEP district mining office. Beneficial use of resulting ash may not commence on abandoned mine sites unless specifically authorized by DEP's Bureau of Abandoned Mine Reclamation or other governmental agency.

Department of Environmental Protection

Regional Offices
(And Counties Served)

I. **Bucks, Chester, Delaware, Montgomery, Philadelphia**
Southeast Regional Office
2 East Main Street
Norristown, PA 19401
Phone: 484-250-5960
Fax: 484- 250-5961

II. **Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne, Wyoming**
Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 18711-0790
Phone: 570-826-2516
Fax: 570-826-5448

III. **Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, York**
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200
Phone: 717-705-4706
Fax: 717-705-4930

IV. **Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, Union**
Northcentral Regional Office
208 West 3rd Street, Suite 101
Williamsport, PA 17701
Phone: 570-327-3653
Fax: 570-327-3420

V. **Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington, Westmoreland**
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, PA 15222-4745
Phone: 412-442-4000
Fax: 412-442-4194

VI. **Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango, Warren**
Northwest Regional Office
230 Chestnut Street
Meadville, PA 16335-3481
Phone: 814-332-6848
Fax: 814-332-6117

Department of Environmental Protection
District Mining Offices
(And Counties Served)

I. **Adams, Bedford, Blair, Cambria, Cumberland, Franklin, Fulton, Huntindgon, Indiana, Juniata, Mifflin, Perry, Somerset**
The Cambria District Mining Office
286 Industrial Park Road
Ebensburg, PA 15931
Phone: 814-472-1900
Fax: 814-472-1898

II. **Allegheny, Armstrong, Beaver, Fayette, Greene, Washington, Westmoreland**
The Greensburg District Mining Office
Armbrust Professional Center
8205 Route 819
Greensburg, PA 15601
Phone: 724-925-5500
Fax: 724-925-5557

III. **Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango, Warren**
The Knox District Mining Office
White Memorial Building
P. O. Box 669
Knox, PA 16232-0669
Phone: 814-797-1191
Fax: 814-797-2706

IV. **Bradford, Cameron, Centre, Clearfield, Clinton, Lycoming, Potter, Snyder, Sullivan, Tioga, Union**
The Moshannon District Office
186 Enterprise Drive
Philipsburg, PA 16866
Phone: 814-342-8200
Fax: 814-342-8216

V. **Berks, Bucks Carbon, Chester, Columbia, Dauphin, Delaware, Lancaster, Lackawanna, Lebanon, Lehigh, Luzerne, Monroe, Montgomery, Montour, Northampton, Northumberland, Philadelphia, Pike, Schuylkill, Susquehanna, Wayne, Wyoming, York**
The Pottsville District Mining Office
5 West Laurel Boulevard
Pottsville, PA 17901-2454
Phone: 570-621-3118
Fax: 570-621-3110

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
POTTSVILLE DISTRICT OFFICE

April 26, 2011

NOTICE OF PERMIT CORRECTION

Susquehanna Coal Company
PO Box 27
Nanticoke, PA 18634

Re: Surface Mining Permit No. 40920102C11
Glen Lyon Operation
Newport Township, Luzerne County

Ladies and Gentlemen:

The above-referenced permit is hereby corrected per Application No. 40920102 C11 dated February 17, 2011. The purpose of this correction is to authorize UGI Hunlock Power Plant (General Permit No. WMGR116NE001) as an approved ash source for beneficial use of coal ash in the reclamation activities at the site.

Please be advised that you have a pending minor permit revision with the Department to update the existing Module 25. The information included with this application and approval should be incorporated into the pending application for completeness. In addition, upon approval of the pending Module 25 minor permit revision, the Part B Conditions or Requirements will be revised to list this approved ash source, as well as reflect the Department's updated Module 25 Coal Ash Special Conditions.

The enclosed information shall be considered an addendum to the original permit issued on December 8, 1994 and any subsequent revisions or corrections. This information is to be filed with your copy of the original permit and, in case of any conflicts with the original permit, shall take precedence over the original permit information.

Should you have any questions, please contact this office.

Sincerely,

Michael J. Menghini

Michael J. Menghini
District Mining Manager
District Mining Operations

Enclosures

cc: SMCIS, Thomas Flannery
SMCI, Joseph McCarthy
Consultant, Mining & Environmental Engineers
Municipality of Newport Twp.
County of Luzerne
File
MS1-Susquehanna (4-11)

NAH:CAK:pae

REPORT

To

Mr. William Tomayko
Waste Management Program
Pennsylvania Department of Environmental Protection
2 Public Square
Wilkes-Barre, PA 18711

For

Storage Impoundment Closure Plan

UGI Development Company
Hunlock Creek Energy Center
390 Route 11
P.O. Box 224
Hunlock Creek, PA 18621-0224

Quad3 Project No.: 9477.01

Prepared by:

Quad3 Architecture Engineering Environmental Science

72 Glenmaura National Boulevard
Moosic, PA 18507
Phone: 570.342.5200
Fax: 570.342.6083

Date: July 2011

Quad3 Architecture Engineering Environmental Services

Environmental Services

July 25, 2011

Mr. William Tomayko
Pennsylvania Department of Environmental Protection
Waste Management Program
2 Public Square
Wilkes-Barre, PA 18711

RE Storage Impoundment Closure Plan
UGI Development Company – Hunlock Creek Energy Center
390 US Route 11
Hunlock Creek, Luzerne County, Pennsylvania
Quad 3 Project Number: 9477.01

Dear Mr. Tomayko,

Quad Three Group Inc (Quad 3) has prepared the closure work plan, on behalf of UGI Development Company, for the Hunlock Creek Energy Center, US Route 11, Hunlock Creek, Luzerne County, Pennsylvania, for submittal to the Pennsylvania Department of Environmental Protection, Northeast Regional Office for review and approval.

The closure / work plan address the closure and final depletion of Storage Impoundment 003 and Storage Impoundment 005.

Should you have any questions, please call me at my office. Once again, Quad 3 thanks you for the opportunity to work with you on this project.

Sincerely,

QUAD THREE GROUP, INC.

David Fife
Environmental Scientist

L:\Projects\94\9477.01 UGI Fly Ash\IMPOUNDMENT CLOSURE\PADEP Cover Letter July 2011.Doc

Glenmaura Professional Center, Suite 105
Moosic, PA 18507
phone 570.342.5200
fax 570.342.6083
www.quad3.com

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Appendix

Background

Quad Three Group, Inc (Quad 3), Wilkes-Barre, Pennsylvania was contracted by UGI Development Company (UGID), a division of the UGI Corporation, to assist in the development of a closure plan for the Hunlock Creek Power Station. UGID operates the Hunlock Creek Energy Center (HCEC), located at 390 US Route 11, Hunlock Creek, Luzerne County, Pennsylvania.

The HCEC contains 70.0± acres and was constructed in the late 1920's. During the generating period, UGID operated a coal fired generating station, which used a wet-ash removal system as part of the pulverized coal fired boiler. As part of the operation, fly ash / top ash was generated.

UGID is currently in the process of renovating and retooling the HCEC. The shutdown of the coal fired generating station was complete in May 2010. Quad 3 has been contracted to develop a work plan to include the closure of the two surface impoundments.

Introduction

As part of the renovation process, UGID met with the Pennsylvania Department of Environmental Protection (PADEP) in May 2007. The meeting was held to inform the PADEP of the future plans for the generating facility.

On December 12, 2008, a second meeting was held at the PADEP Northeast Regional Office, Wilkes-Barre, PA concerning the renovation and transformation of the HCEC, from a coal burning electric generating plant into a natural gas electric generating plant. The meeting was attended by Quad 3 and UGID personnel along with members of the PADEP Staff.

During the meeting, Quad 3 and UGID introduced conceptual plans for the new process which included the location of the new generation building. Part of the renovation of the current plant required the HCEC to close both surface impoundments, associated ash storage areas and the coal zone storage areas. .

As part of the December 2008 presentation, Quad 3 and UGID present general plans and concepts on the closure of the surface impoundments and ash storage piles. The concepts included the use of treated ash generated from the HCEC to be used as backfill material in closing of the areas listed above.

Since January 2009, Quad 3 and UGID have performed site characterization activities which included soil borings across the existing property, including the surface impoundments, sample collection and analytical testing of the ash; surveying of the HCEC which included surface elevations; groundwater assessment activities which included monitoring well installations and ongoing groundwater monitoring; compaction testing of the ash; and bench scale analysis. On May 22, 2010, UGID ended electric generating activities utilizing the coal fired boilers. Both surface impoundments were dewatered and no longer operating.

As part of the ongoing closure activities, UGID submitted the necessary application; Coal Ash Beneficial Use Certification. On February 25, 2010, the PADEP Northeast Regional Office issued the Determination of Applicability of General Permit #WMGR116NE001. The permit was issued on February 24, 2010 and expires on October 27, 2017. The permit is for "beneficial reuse of the resulting ash generated by co-firing approved alternate fuels (petroleum coke) with waste coal/coal in circulating and bubbling fluidized bed boilers and pulverized coal fired boilers for use as coal ash (relating to the beneficial use of coal ash) at active or abandoned mine sites."

As part of the permit guidelines, the ash from UGID would have to be "qualified" under the Bureau of Mining and Reclamation. A letter dated May 26, 2010, from PADEP Representative Ms. Hill indicated that

"In accordance with the definition of coal ash in Chapter 287, ash that has been impounded is considered "disposed. In this case, a General Permit (GP) from the Bureau of Waste Management may deem this material as "beneficial"' but the material is not able to be **certified** under the mining program, which is reserved only for currently generated coal ash. This Bureau can instead **"qualify"** the material based on the GP and the certification standards".

In an effort to "qualify" the ash for beneficial reuse, a meeting was held on August 12, 2010, in the PADEP Office of Bureau of Mining and Reclamation (BMR), Pottsville, PA. The meeting involved several PADEP representatives from the Pottsville Office, Northeast Regional Office and the Central Office. Based on the outcome of the meeting, the PADEP verbally approved the beneficial reuse of the ash. The verbal approval was contingent upon UGID developing a sampling plan acceptable to the PADEP concerning the placement of the ash in its off site location.

A sampling plan was submitted to Ms. Sharon Hill in September 2010. On October 25, 2010, Ms. Hill requested additional information concerning the sampling plan. On February 4, 2011, UGID received permission from the BMR to reuse the ash. The BMR recognized and agreed the ash was deemed to have met the criteria in order to be approved at a beneficial use site under the General Permit.

On May 2, 2011, UGID began removing permitted ash to Susquehanna Coal Company, Newport Township, Luzerne County, PA. The ash was removed from the ash storage areas.

Project Description

As you are aware, UGID currently is operating the Hunlock Creek Power Station. UGID plans will no longer require various exterior operations, such as the coal storage zones, ash storage areas and the two surface impoundments. The closure plan addresses the shutting down of the various operations along with an estimated time schedule.

The closure plan includes site characterization / soil boring investigation information collected during at the facility, the most recent groundwater activities and sample collection, the closure procedures for the Coal Zones, Ash Storage Areas and the two Surface Impoundments.

A general site map of the facility can be found in Appendix A.

Surface Impoundment Construction

Based on the best available information, the surface impoundments were constructed in 1962. The elevation of Impoundments walls were constructed at a 1.5 to 1 slope with an average depth of 10 feet bgs. The surface impoundments were constructed utilizing existing materials which appear to be bottom ash / historic fill and earth. The two surface impoundments were identified as the East Impoundment known as Surface Impoundment 003 and the West Impoundment identified as Surface Impoundment 005. Both surface impoundments were constructed with an elevation of 535' along the surface impoundment walls and a bottom elevation of 525.5'.

As part of the investigation process, Quad 3 comparing the 1962 construction drawings with the current survey drawings generated during the investigation. Based on the findings, the surface impoundments remain in similar physical appearance to the construction in 1962. Based on the soil borings conducted in the surface impoundments, (discussed in this report) the soil borings generally identify top ash/fly ash from the surface to a varying depth of 10 feet, with some areas containing top ash/fly ash at deeper depths.

Each soil borings were extended to the natural clay found to exist in all soil borings with the exception of one soil boring.

According to Quad 3 surveyed estimates, the two surface impoundments contain a quantity of 204,400± cubic yards of top/fly ash.

Site Characterization / Soil Boring Investigation

From December 2008 through January 2009, a total of 133 soil borings were installed on the UGID property. The purpose of the soil borings was to establish / document the site-wide subsurface media composition as well as the surface impoundment liner integrity. All soil boring logs can be found on the disc attached. Soil boring locations, incorporating the soils profile encountered throughout the property is included in Appendix B.

Soil borings B-031 through B-061, with the exception of B-039 through B-042, were installed throughout the property, outside the surface impoundments. Soil Borings B-039 through B-042 and Soil Borings B-062 through B-163 were installed throughout both surface impoundments. The purpose of the soil borings was to generate information concerning the depth of the surface impoundments, establish the quantity of top ash / fly ash and the quantity of bottom ash / historic fill through physical examination and chemical analysis. Also the soil borings were used to determine the depth of the lining system within the surface impoundments.

In general, Quad 3 conducted the soil boring investigation using a Geoprobe with 4 foot long, 2 inch diameter sample tubes and disposable polyethylene macro liner. The on-site professional geologist prepared soil-boring logs, which included classification and structure, odor, soil moisture, soil texture and color. The classification of the surface impoundment samples included very fine grained Top Ash/Fly Ash, coarse grained Bottom Ash / Historic Fill and Clay.

As a general rule, a sample of the top ash, Bottom Ash / Historic Fill and Clay were collected from each boring. Each sample was analyzed for RCRA Metals, including Iron, Manganese and Mercury, TCLP Metals, Pesticides, Herbicides, Polychlorinated Biphenyl's (PCB), Semi-Volatile Compounds, and Volatile Compounds.

A total of 276 soil samples (3± per boring) were collected in laboratory supplied vials preserved with methanol, sodium bisulfate and unpreserved 4 ounce jars. Five grams of soil was measured for each preserved sample using disposable syringes. After the samples were collected they were placed in a cooler with ice and transported to Fairway Laboratories, Altoona, PA under a proper chain of custody. Samples were analyzed for RCRA Metals, including Iron, Manganese and Mercury, TCLP Metals, Pesticides, Herbicides, Polychlorinated Biphenyl's (PCB), Semi-Volatile Compounds, and Volatile Compounds. A summary of the test results can be found on the disc attached.

Site Characterization outside of surface impoundments

Of the samples obtained from the 31 borings outside of the surface impoundments (B-031 through B-061), none had parameters reported above the Statewide Health Standard (SHS) when compared to *Land Recycling and Environmental Remediation Standards Act, Act 2, Chapter 250, Appendix A, Table 4 – Medium Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil; A- Direct Contact Numerical Values; Non Residential MSCs, Subsurface Soil 2-15 feet,* and to *Appendix A, Table 4 – Medium Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil; B: Soil to Groundwater Numeric Value; Used Aquifers; TDS=2500; Non-Residential; Generic Value Table.*

Surface Impoundment 003

General / Physical Parameters

Of the 276 samples analyzed, a total of 130 samples were obtained from surface impoundment 003. Of the 130 samples analyzed from the surface impoundment 003, 43 were obtained from the Top Ash/Fly Ash, 44 were obtained from beneath the Surface Impoundment bottom, identified as Bottom Ash / Historic fill, and the remaining 43 samples were obtained from the existing Clay.

Top Ash/Fly Ash

Top Ash/Fly Ash was generally encountered from the surface to a depth of 10 feet bgs, with some soil borings identifying areas extending beyond 15 feet bgs, with the exception of Soil Boring B-142, where Top ash/ Fly Ash exceeded 30 feet bgs.

Bottom Ash / Historic

Based on the borings, Bottom Ash / Historic fill were generally encountered depth 11-feet to 25-feet bgs. Review of the laboratory data for the 44 samples obtained from Bottom Ash/Historic fill, it was evident that Pesticides, Herbicides, Polychlorinated Biphenyl's (PCB), Semi-Volatile Compounds, and Volatile Compounds were not present. When reviewing the parameters for the RCRA Metals along with Iron, Mercury and Manganese, it was evident based on the analytical results, metals were present (anticipated).

Clay

Clay was generally detected at a depth of 26 to 32 feet bgs. Review of the results of the 43 samples obtained from the Clay, it was evident that Pesticides, Herbicides, Polychlorinated Biphenyl's (PCB), Semi-Volatile Compounds, and Volatile Compounds were not present. When reviewing the parameters for the RCRA Metals along with Iron, Mercury and Manganese, it was evident that metals were present (anticipated).

Surface Impoundment 005

General / Physical Parameters

Of the 276 samples analyzed, a total of 143 samples were obtained from surface impoundments 005. Of the 143, 40 were obtained from the Top Ash/Fly Ash, 48 were obtained from Bottom Ash/Historic fill, and the remaining 55 were obtained from the Clay.

Top Ash / Fly Ash

Top Ash/Fly Ash was generally detected from the surface to a depth of 10 to 15 feet bgs. Review of the laboratory test results for the 40 samples obtained for Top Ash/Fly Ash, it was evident that Pesticides, Herbicides, Polychlorinated Biphenyl's (PCB), Semi-Volatile Compounds, and Volatile Compounds were not present. When reviewing the parameters for the RCRA Metals along with Iron, Mercury and Manganese, it was evident that metals were present (anticipated).

Bottom Ash /Historic

Bottom Ash/Historic fill was generally encountered from a starting depth of 11 feet to 25-feet bgs. Review of the laboratory results of the 48 samples obtained from the Bottom Ash / Historic Fill, it was evident that Pesticides, Herbicides, Polychlorinated Biphenyl's (PCB), Semi-Volatile Compounds, and Volatile Compounds were not present. When reviewing the parameters for the RCRA Metals along with Iron, Mercury and Manganese, it was evident metals were present (anticipated).

Clay

Clay was generally encountered at a depth of 17 to 28-feet bgs. Review of the laboratory results for the 55 samples obtained from the Clay, it was evident that Pesticides, Herbicides, Polychlorinated Biphenyl's (PCB), Semi-Volatile Compounds, and Volatile Compounds were not present. When reviewing the parameters for the RCRA Metals along with Iron, Mercury and Manganese, it was evident that metals were present (anticipated).

Current Status of Surface Impoundments 003 and 005

Currently at the Hunlock Creek Power Plant there are two inactive surface impoundments. They are identified as Surface Impoundment 003 and Surface Impoundment 005. Surface impoundment 003 is located along the east side of the power plant, closest to the Susquehanna River. Surface Impoundment 005 is located along the west side of the facility nearest to US Route 11.

Surface Impoundment 003 was dewatered in April 2009 as part of the operations plan for the renovation of the facility. The northern section (approximately 1.0 acres) of this surface impoundment was temporary backfilled. This backfilled section is currently being utilized as a temporary material storage area for the current renovation.

Surface Impoundment 005 was utilized up to the end of May 2010, when the facility shut down the coal power operation and to begin renovations on the turbine.

Both surface impoundments occupy a total of 9.43± acres and both have been dewatered.

Liner Integrity of Surface Impoundment 003 and 005

Surface Impoundment 003 and 005 were constructed in 1962, in accordance with engineering practices used at that time. Based on Quad 3 soil borings of both surface impoundments, it was determined that bottom ash/historic fill and earth was used to grade the Impoundments. The surface impoundment 003 (Surface Impoundment 003) was constructed to contain 71,300 cubic yards of top ash/fly ash. The bottom of the Impoundment had an average of 325.5 feet bgs. The surface area of surface impoundment 003 was constructed at 22,500 square yards, or 4.64± acres. The surface impoundment 005 (Surface Impoundment 005) was constructed to contain 73,500 cubic yards of top ash/fly ash. The bottom of the Impoundment had an average of 325.5 feet bgs. The surface area of Surface Impoundment 005 was constructed at 23,200 square yards, or 4.79± acres. The Impoundments are constructed from north to south; with surface impoundment 005 located along the west side of the acreage, running parallel to US Route 11. Surface impoundment 003 is located along the eastern side of the acres and runs parallel to the Susquehanna River.

As outlined in the December 2008 meeting with PADEP, UGID determined as part of the ongoing operations towards closure of the plant in May 2010, that surface impoundment 003 would no longer be in operation and dewatering of the impoundment would begin. Currently, surface impoundment 003 has been dewatered and is no longer currently in use. An area located near the northern section of this Impoundment has been temporarily backfilled with existing material (Top Ash/ Fly Ash) to provide a "temporary lay down area" for materials required for the plant conversion. In May 2010, surface impoundment 005 was shut down and dewatered.

As part of the site characterization, a total of 102 soil borings were installed utilizing a direct push and hollow stem auger drilling techniques. The soil boring logs of these borings can be found on the attached disc. Each of the 102 soil borings was advanced into the Clay with the exception of one soil boring which was terminated at 40 feet bgs. In general, the Top Ash/Fly Ash of each boring was found from the surface to a varying depth of 10 to 15-feet bgs.

Summary of Surface Impoundments Findings

- Dewatering of surface impoundment 003 started in April 2009 and surface impoundment 005 in May 2010.
- Both surface impoundments are dewatered.
- Surface Impoundment 005 has an average depth of 10 to 15 feet.
- Surface Impoundment 003 has an average depth of 10 to 15 feet.
- Soil Borings revealed an isolated area in surface impoundment 003, near monitoring well MW11, that the depth of the top ash/fly ash exceeds 30 feet.
- A total of 273 samples were obtained from both surface impoundments and delivered to an independent laboratory for analysis. The testing included Pesticides, Herbicides, Polychlorinated Biphenyl's (PCB), Semi-Volatile Compounds, Volatile Compounds and RCRA Metals along with Iron, Mercury and Manganese.
- Based on the soil borings from both impoundments, it appears the Clay is sloped slightly from Surface Impoundment 005 towards Surface Impoundment 003 and south towards the Susquehanna River. It appears based on the cross sections generated from the soil borings along the eastern side of surface impoundment 005 to the west side of surface impoundment 003, that the impoundments were created by utilizing existing fill materials present at the time of construction. This material is believed to be a mixture of bottom ash/historic fill and earth.

Top Ash / Fly Ash Storage Areas

As of May 2, 2011, UGID has been in the process of removing the top ash/fly ash from the surface storage areas to Susquehanna Coal Company, Surface Mining Permit No. 40920102, under the general permit issued to UGID by PADEP for the top ash/fly ash materials.

The ash material is staged as part of the dewatering procedure. Concrete barriers and hay bales are placed along the perimeters of the storage areas to address runoff potential. The material is stable and stored above ground.

Coal Zones

At the facility, UGID operated four coal zones. These zones are described as Zone I, Zone II, Zone III and Zone IV. Zone III has been closed and is part of the ongoing renovation project. The remaining Zones will be closed under this closure plan.

Coal Zone I - Zone II – Zone IV

Currently, Coal Zone I, Coal Zone II and a large portion of Coal Zone IV have been depleted of coal to the existing elevation. UGID will excavate and remove the remaining coal from all three zones. Following the practice used on Coal Zone III, UGID will remove the coal to the anticipated depth of 4 feet below grade. The coal will be transported off site. UGID will backfill the coal zones up to an acceptable grade with clean backfill material. The final grade of the coal zones have been incorporated into the grading plan for the closure of the impoundments.

Proposed Method of Closure of Surface Impoundments

As presented in the December 2008 meeting, UGID and Quad 3 were to develop an option of closing Surface Impoundment 003 and Surface Impoundment 005 utilizing the fly ash (Top and Bottom) currently in the impoundments as well as the ash located in the storage areas. The PADEP has agreed to consider this closure option based on the following Sequence of Work outlined during the December 2008 meeting.

As discussed earlier, the September 14, 2010 meeting conducted at the PADEP Pottsville Regional Office, UGID presented closure options of the surface impoundments involving the reuse of the fly ash/ top ash. UGID has proposed utilizing the ash as a beneficial reuse under the General Permit WMGR116, Beneficial Use of Alternative Fuels Circulating and Bubbling Fluidized Bed Boilers and Pulverized Coal-Fired Boilers (CFB/BFB/PC). UGID has received this permit from the Northeast Regional Office and has worked with the Bureau of Mining and Reclamation on "qualifying" the ash for reuse at a mine reclamation facility.

UGID intents on utilizing the beneficial reuse with the ash that qualifies as part of the closure of the surface impoundments.

UGID has outlined the a Sequence of Work that address the closure of the surface impoundments, the coal zones and the fly ash storage areas at the facility;

General Sequence of Work

- Dewater Impoundments
- Excavate top ash from surface impoundments and placed for further testing
- Quality Control and Quality Assurance on "qualifying" the ash for beneficial reuse
- Transport "qualified" ash off site for beneficial reuse
- Perform Attainment sampling of Impoundment
- Reshape Impoundment
- Treat "non-qualifying ash" for placement
- Quality Control and Quality Assurance on "non-qualifying ash" for placement
- Place "acceptable treated ash" into reshaped Impoundment
- Perform compaction testing on treated ash
- Place clean backfill from offsite source to reach acceptable contours and grades
- Off Site Disposal of "Unacceptable Ash Materials"
- Topsoil and Seed
- Sedimentation and Erosion Control
- Storm Water Management
- Continue Groundwater Monitoring Program

Dewater Impoundments

The first step in closing the Impoundments will be to dewater the Impoundment. Each Impoundment will be dewatered following past practices of removing the logs until the water is drained.

Dewatering of Surface Impoundment 003 started in April of 2009 and is complete. Surface Impoundment 005 was completed in May 2010 following past practices. In the event future dewatering is necessary, the water will be discharged through the permitted outfall.

Excavate top ash from surface impoundments and placed for further dewatering

Each impoundment will be segregated into smaller working areas. Top ash will be excavated by hydraulic machines and temporarily stockpiled outside the impoundments for Quality Control and Quality Assurance testing.

Quality Control and Quality Assurance on "qualifying" the ash for beneficial reuse

Appendix C of this plan contains the PADEP approved sampling protocol for the fly ash to be "qualified" under the general permit protocols. UGID will follow this approved procedure for the ash. Once the ash is "qualified" it will be transported offsite to the designated facility.

Transport "qualified" ash off site for beneficial reuse

Appendix C of this plan contains the PADEP approved sampling protocol for the fly ash to be "qualified" under the general permit protocols. The sampling protocol describes the method of shipping and tracking the beneficial reused ash to the mine facility. UGID will follow this approved procedure for transporting the ash.

Perform Attainment sampling of Impoundment areas

Once each area of the Impoundment is graded safe for access, attainment sampling following the PADEP random attainment sampling program for excavations will be performed. Review of Chapter 25, Section II, Remediation Standards, B. Statewide Health Standards, Determining Soils MSCs, it states "in determining the applicable soil standard, the remediator must compare the appropriate soil-to-groundwater numeric value to the direct contact numeric value for the corresponding depth interval within 15feet from the ground surface. The lower of the two values is the applicable MSC for soil." In determining the soil MSCs, UGID will compare the attainment sampling analytical results to the *Land Recycling and Environmental Remediation Standards Act, Act 2, Chapter 250,* Table 4 - Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil, Non Residential, Surface Soil 0-2 feet.

Based on the site characterization analytical results generated on both Impoundments, it is evident that Pesticides, Herbicides, Polychlorinated Biphenyl's (PCB), Semi-Volatile Compounds, Volatile Compounds are not present in the ash material. UGID and Quad 3 are recommending the samples be tested for the parameters listed in the above mentioned table. The testing protocol follows EPA Method 6010B.

Grid Attainment Areas

According to *§ 250.703 General Attainment Requirements for Soil,* (d) for statistical methods under § 250.707(b)(1)(i) (relating to statistical tests), the number of sample points required for each distinct area of contamination to demonstrate attainment shall be determined in the following way:

(1) For soil volumes equal to or less than 125 cubic yards, at least eight samples.

(2) For soil volumes up to 3,000 cubic yards, at least 12 sample points.

(3) For each additional soil volume of up to 3,000 cubic yards, an additional 12 sample points.

(4) Additional sampling points may be required based on site-specific conditions.

UGID and Quad 3 are proposing to segregate the impoundments into manageable working and sampling grids. Each grid will be divided into twenty thousand (20,000±) square foot grid areas which will be surveyed and staked. By applying the systematic random sampling method over a twenty thousand (20,000) square foot grid, using one (1) foot as a depth – the volume for that area would be equal to 740.7 cubic yards. UGID and Quad 3 propose obtaining a total of 12 samples from each grid. Once samples are obtained they will be placed on ice and transported under proper chain of custody to Fairway Laboratories, Inc. The samples will test for Total Arsenic and Total Selenium.

Based on UGID and Quad 3 survey, the impoundment work areas occupy 16.5± acres; which includes all excavation bottoms and side walls and road surfaces. The work area can be divided into 36 individual grids, each 20,000 square feet. UGID and Quad 3 anticipate obtaining 12 samples from each grid utilizing the systematic random sampling program found on the PADEP website. A total of 432 samples are anticipated. In an effort to keep each twenty thousand (20,000±) square foot grid segregated, each grid will be surveyed and staked. A site map showing the overlay of the 36 grids can be found in Appendix D.

The analytical results will be compared to the SHS in Appendix E. As per the sampling protocol, UGID and Quad 3 will compare the sample results to the 75%-10x rule. The rule states 75 % of the attainment sampling being reported below the stated limits, and no one sample exceeding 10x the stated limited can be exceeded. If the results meet this SHS, the working section of the Impoundment will be considered cleaned. If the results of the analytical testing are unacceptable, that section of the Impoundment will be re-excavated and the procedure repeated.

Appendix E of this work plan contains the PADEP Land Recycling and Environmental Remediation Standards Act, Act 2, Chapter 250,Table 4 - Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil, Non Residential, Surface Soil 0-2 feet.

Re-shape Impoundment

Once the ash material has been excavated and stockpiled outside the impoundment, the existing impoundment sidewalls and the impoundment bottom will be graded to engineer's acceptable grades and elevations. Once complete, the excavated area will be sampled following PADEP Attainment Sampling Act 2 Guidelines for excavations.

Treat "non-qualifying ash" for placement

UGID understands an unknown quantity of top ash/ fly ash will not "qualify" as material can be used for beneficial reuse at the Susquehanna Coal Company's property in Newport Township. The reason for the material to "not qualify" is for a failed SPLP test for Arsenic.

UGID is requesting the ash that does not "qualify" for beneficial reuse at the mine site; be treated with a lime source, tested, and used as a beneficial reuse on UGID property as backfill material. UGID proposes to mix the lime and fly ash mechanically using equipment such as a disc, conveyor belt, and heavy machinery. Based on previous bench testing conducted by UGID, lime will be added at a (1% ratio) - 1 ton of lime for every 100 tons of fly ash. If the lime and ash is to be mixed by disc or heavy machinery, then 1000 tons will be treated by segregating the 1000 tons into smaller workable portions. Using a scaled loader, 50 to 100 ton piles will be used. Lime will be spread out across the fly ash and mixed thoroughly. If conveyor belts are used, two belts will run concurrently, one carrying fly ash, the other, lime. Loading rates and belt speeds will be adjusted to ensure that the 1% lime to fly ash ratio is met.

Prior to the treatment of the "non-qualifying ash", the analytical results will be reviewed. The purpose of the review is to determine if the "non-qualifying ash" meets the parameters set forth in the PADEP Land Recycling and Environmental Remediation Standards Act, Act 2, Chapter 250,Table 4 - Medium-Specific Concentrations (MSCs) for Inorganic Regulated Substances in Soil, Non Residential, Surface Soil 0-2 feet. If the "non-qualifying ash" **fails** to meet these criteria, the ash will be transported off site for disposal at a licensed facility.

Once the treatment is complete, UGID will follow the testing requirements as approved in the Sampling Protocols. In the approved sampling protocols for "qualifying" the ash, a grab sample of every 250 tons of ash is obtained and one composite sample is formed after 1000 tons of material. The sample is composited in the laboratory and tested following EPA Method 1312, the Synthetic Precipitation Leaching Procedure (SPLP) for metals.

Based on the results of the ash after treatment, if the treated ash meets the standards listed in the PADEP Document 563-2112-224, titled Certification Guidelines for the Chemical and Physical Properties of Coal Ash Beneficially Used at Mines, coal ash proposed for beneficial use at mines may not exceed the leachate requirements listed in Table 1, then UGID and Quad 3 propose the treated material be used as part of the backfill material required to grade the surface impoundments. The backfill material will be placed as part of the grading plan for the surface impoundments.

Place "Acceptable Treated Ash Material" into Graded Impoundment Area

Material identified as acceptable will be placed into the section of the Impoundment that meets Act 2 Attainment sampling guidelines. The material will be placed utilizing heavy equipment in two (2) foot lifts and compacted following engineering recommendations.

As part of the closure, a grading plan has been developed and can be found in Appendix F of this work plan.

Compaction testing on Ash Material

Compaction testing will be performed on each two foot lift in accordance with the engineer's recommendation.

Off Site Disposal of "Unacceptable Ash Materials"

UGID realizes the closure process of the surface impoundments will generate "unacceptable ash materials". The "unacceptable ash materials" can be generated during three different closure procedures.

As described in the site characterization plan, there are identified areas within the surface impoundments that exceed the Certified Guidelines in Table 1 for Arsenic (exceeding 0.25 ppm) and material exceeding the Act 2 SHS for total Arsenic (53 ppm). This material is considered "unacceptable" and will be excavated and isolated following the "sampling Protocols procedures.

The second area "unacceptable ash material" can be generated is following the treatment process with lime for the "non-qualifying ash". In the event sampling results after treatment of the "non-qualifying ash" fails to meet the Certification Guidelines in Table 1, the material would be declared "unacceptable ash material". This material would be stockpiled in an isolated location and disposed of offsite.

Finally, the third area where "unacceptable ash materials" can be generated is after treatment of the "non-qualifying ash". If the treated "non-qualifying ash" meets the Certification Guidelines in Table 1, the treated ash can be declared "unacceptable ash material" if the analytical parameters exceed the Act 2 SHS for any parameter.

Topsoil and Seed

The ash material will be covered with 12 inches of topsoil and seed recommend by the engineer. Any topsoil brought in from an offsite source will be required to be certified as clean-fill.

Sedimentation and Erosion Control

Quad 3 and UGID will address the sedimentation and erosion control following the guidance set forth in the PADEP Erosion and Sedimentation Pollution Control Manual and designed by the engineer.

Storm Water Management

UGID and Quad 3 will implement engineering controls in an effort to control stormwater during remediation. Wherever possible, UGID will excavate water-diversion ditches to help prevent water from entering the excavated basin area. All water within the impoundments will be collected in the south end. In the event the water requires to be removed from the impoundments, the water will be pumped out through a sedimentation filter bag into the permitted discharge.

Continue Groundwater Monitoring Program

UGID and Quad 3 will continue to perform the recommendations agreed upon with the PADEP concerning the Remedial Groundwater Monitoring Plan developed from the findings and recommendations outlined in the Groundwater Assessment Plan.

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