Hillsboro Energy, LLC
Deer Run Mine, Refuse Disposal Area No. 2

National Pollutant Discharge Elimination System (NPDES) Permit

Responsiveness Summary

Regarding

June 4, 2014 Public Hearing

Illinois Environmental Protection Agency
Office of Community Relations
February 3, 2015

Hillsboro Energy, LLC

Deer Run Mine, Refuse Disposal Area No. 2

National Pollutant Discharge Elimination System (NPDES) Permit Responsiveness Summary

Table of Contents

Illinois EPA Permit Decision 3

Pre-hearing Public Outreach 3

Public Hearing of June 4, 2014 4

Background of Facility Owner 5

Responses to Comments, Questions and Concerns

- **NPDES Permit 6**
- **Water Quality Standards Antidegradation Assessment 21**
- **Groundwater Issues 29**
- **Enforcement/Compliance Issues 33**
- **Issues Outside the Scope of the NPDES Permit 34**

Acronyms and Initials 36

Distribution of Responsiveness Summary 37

Who to Contact for Answers 37

Final February 3, 2015

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

Hillsboro Energy, LLC.
Deer Run Mine, Refuse Disposal Area No. 2
New Permit
Permit Number IL0080039

ILLINOIS EPA PERMIT DECISION

On February 3, 2015, the Illinois Environmental Protection Agency approved a new NPDES permit for Hillsboro Energy, LLC.

PRE-HEARING PUBLIC OUTREACH

The notice of the NPDES permit public hearing was published in *The Journal News* on April 14, 21, and 28, 2014.

The hearing notice was mailed or e-mailed to:

a) The hearing officer list of those requesting to be notified of water hearings;
b) Montgomery county officials;
c) Municipal officials in: Hillsboro as well as state and federal representatives;
d) Illinois' Attorney General, Illinois Chapter of the Sierra Club, Prairie Rivers Network and the Environmental Law and Policy Center (hearing requestors).

The hearing notice was posted on the Illinois EPA website:
http://www.epa.state.il.us/public-notices/2013/hillsboro-energy-deer-run/hearing-notice.pdf

Hearing notices were posted at the Illinois EPA headquarters in Springfield and in the Marion Regional Office.

June 4, 2014 PUBLIC HEARING

Hearing Officer Dean Studer opened the hearing June 4, 2014, at 5:04 p.m. at the Hillsboro High School Gymnasium located at 522 East Tremont Street, Hillsboro, Illinois.

Illinois EPA Hearing Participants:

Stefanie Diers, Assistant Counsel, Bureau of Water
Bob Mosher, Standards Section, Bureau of Water
Amy Zimmer, Groundwater Section, Bureau of Water
Larry D. Crislip, Permit Section Manager, Mine Program, Bureau of Water

Comments and questions were received from the audience.

Hearing Officer Dean Studer closed the hearing at 7:05 p.m. on June 4, 2014.

Illinois EPA personnel were available before, during and after the hearing to meet with elected officials, news media and concerned citizens.

Approximately 40 persons representing neighbors, local government, businesses, miners, elected officials, environmental groups, interested citizens, and Hillsboro Energy, LLC., participated at and/or attended the hearing. A court reporter prepared a transcript of the public hearing which was posted on the Illinois EPA website http://www.epa.state.il.us/public-notices/2013/hillsboro-energy-deer-run/hearing-transcript.pdf

The hearing record remained open through July 3, 2014.

BACKGROUND OF Hillsboro Energy, LLC.
Deer Run Mine, Refuse Disposal Area No. 2

The Illinois EPA Bureau of Water has prepared a draft new National Pollutant Discharge Elimination System (NPDES) permit for Hillsboro Energy, L.L.C. for Deer Run Mine, Refuse Disposal Area No. 2. The address of the discharger is Hillsboro Energy, LLC, 925 South Main Street, Hillsboro, IL 62049. The facility is in Montgomery County, 1 mile southeast of Hillsboro, Illinois.

The subject facility has applied for an NPDES permit for a new refuse disposal area associated with the existing underground coal mine (SIC 1222). Mine operations result in the discharge of alkaline mine drainage. Application is made for two (2) new discharges which are located in Montgomery County, Illinois.

The following information identifies the discharge points, receiving streams and stream classifications:

Outfall	Receiving Stream	Latitude (North)	Longitude (West)
008	Unnamed Tributary to Shoal Creek. Watershed structure No. 5 tributary to Middle Fork Shoal Creek	39° 08’ 19”	89° 27’ 56”
009	Unnamed Tributary to Shoal Creek. Watershed Structure No. 5 tributary to Middle Fork Shoal Creek	39° 08’ 47”	89° 27’ 60”

Responses to Comments, Questions and Concerns

Comments, Questions and Concerns in regular text
Illinois EPA responses in bold text

NPDES Permit

1. How is the membrane lining installed?

   In the case of the Deer Run Mine, HDPE Geo-membrane synthetic liners are being installed and utilized for Refuse Disposal Area No. 2 and Sedimentation Basins 008 and 009. Basic liner construction and installation specifications have been incorporated under Condition No. 12 contained in Construction Authorization No. 5197-13. However, as noted specifically in Condition No. 12(e), the Illinois EPA relies on and requires that the HDPE Geo-membrane liner be installed in accordance with manufacturer's requirements.

2. When the liner goes in, will it be at the bottom of the impoundment?

   An HDPE Geo-membrane synthetic liner is being installed beneath Refuse Disposal Area No. 2 and Sedimentation Basins 008 and 009. Also, please refer to response to Item No. 1 above.

   Final reclamation of the refuse disposal area will consist of covering with four (4) feet of earthen material which has been demonstrated by modeling to adequately protect local groundwater resources. Please refer to Item No. 53 for additional information regarding groundwater protection.

3. Will there be a liner on the bank or barrel of the coal refuse that the dam is being constructed of?

   The synthetic liner to be installed will underlie the refuse disposal area and sedimentation basins only. By locating and installing the liner in this manner, the need for installation of a liner on the sloped embankment of the course refuse is eliminated. Any and all seepage will be contained and treated within surrounding Sedimentation Basins 008 and 009.

   Also, please refer to the response to Item Nos. 1 and 2 above.

4. The internal drainage system would take care of the head pressure increase of the impoundment. Is this piping to take care of the leakage and drain off line?

The compacted coarse refuse embankment has been designed in accordance with Mine Safety and Health Administration (MSHA) regulations to safely impound the combination of fine coal and water (slurry). This embankment as designed also includes an internal drainage system to reduce the phreatic or internal embankment water surface to increase the stability of the structure while controlling head pressures and minimizing seepage through the structure. Any discharge from the internal drainage system will be directed to Basin 008 and 009.

5. How is water discharge from an anaerobic system different what is regulated discharge from the impoundment at the mine site?

   The type of treatment provided by a septic system and that provided for runoff from a coal mine or coal refuse disposal area are completely different types of treatment and processes and are covered by different regulations.

   In this case the Illinois EPA can only apply regulations specific to mine discharges. For more information on smaller residential systems please contact the Illinois Department of Public Health or one can consult the USEPA website at www.epa.gov for more information on anaerobic systems.

6. I have a fax sheet that was taken from the Illinois DNR website concerning the different mines that the EPA is supposedly checking, and just briefly of the 72 coal mines operating with a water pollution discharge permit only 12 have had inspections by the Illinois EPA in the last five years, over 35 have self-reported non-compliance with permits. How does the Illinois EPA go about inspecting a mine after a permit has been issued?

   Based on comments and concerns from the public the Illinois EPA has changed its protocol by implementing a plan to inspect active mine facilities annually (once per year), facilities for which only reclamation activities are being performed bi-annually (once every 2 years), and facilities for which reclamation has been completed and only reclamation productivity efforts are being performed once during the 5-year NPDES permit cycle.

   The Hillsboro Deer Run Mine facility, which includes both NPDES Permit Nos. IL0078727 and IL0080039 (RDA No. 2 Area), has been inspected three times in the past five years. These inspections were performed on June 6, 2011, June 25, 2013 and August 11, 2014.

   During the past five years, 93 inspections of 76 different mining operations have been performed.

7. I have some concerns about RDA2 and the run off and associated water that would be dealt with in the NPDES permit. Specifically my concerns relate to the method of construction of the liner installation and how potential runoff would be treated or

where it would be directed as part of the NPDES. I am also concerned about the impacts that some now out of service mines might have on some of the areas within the impoundment and how it might affect construction with the liner action retention of the runoff, et cetera.

The stability analysis performed for the Refuse Disposal Area (RDA) No. 2 considered the abandoned underground mine works located in the northwest portion of the RDA No. 2 area. As designed, the construction of Refuse Disposal Area No. 2 is not proposed or anticipated to result in any subsidence of the abandoned room-and-pillar underground mine which would result in undue stress being applied to the synthetic liner being installed.

Hillsboro Energy does not propose to conduct long wall mining operations beneath Refuse Disposal Area No. 2. The RDA No. 2 area is located outside the angle-of-draw or area of influence of subsidence related to the longwall mining operations. Therefore, the longwall mining operations are not anticipated to apply any outside stresses to the synthetic liner being installed beneath RDA No. 2 and Sedimentation Basins 008 and 009.

Based on the information provided in the original application and supporting and supplemental information, no settlement or subsidence is anticipated that will stress or deform the Geo-membrane liner such that the integrity of the liner would be threatened.

8. Has the Illinois EPA looked into the impact on all of the wildlife that this water is going to be discharging and the quality of the water and who is watching the quality of the water that is going to be discharged and how often it is going to be checked?

   The NPDES permit limits dictate that these effluents must not contain concentrations of any substances that will harm wildlife. Permit limits for sulfate and chloride are set at levels that will not cause any issue for wildlife that may drink water from Central Park Creek or the impoundments upstream. Metals in the effluent are present at very low concentrations that will not harm wildlife. The mine must monitor and report on a monthly basis as conditions of the permit. Illinois EPA will periodically inspect the mine and may take effluent samples for analysis at our laboratory on those occasions. A facility related stream survey has been scheduled for September, 2014 wherein Illinois EPA biologists will collect samples of Central Park Creek stream water for chemical analysis and will evaluate the stream for quality of aquatic life.

9. What about the impact on wildlife, like fish, game that drinks out of the creeks? I would like to know if you have had a chance to look at the impact on the animals, which a lot of people around here rely on for food and other substance.

   Water quality standards are developed to protect aquatic life in streams and wildlife that may drink from streams or eat aquatic life. Permit limits for mine

effluents are set at these water quality standards thereby ensuring that compliance with the permit limits will lead to protective conditions in the receiving waters. There are no fish consumption advisories specifically in place on the Middle Fork Shoal Creek below the confluence of Central Park Creek nor are there any in Shoal Creek below the confluence of the Middle Fork Shoal Creek. However, the statewide methylmercury fish consumption advisory exists for all streams in the state and recommends that women of childbearing age and children age 15 and under limit the consumption of predatory fish to one meal per week. This advisory is not due to mine discharges.

10. Has the Illinois EPA done a study that has checked the wildlife to see if their livers are spotted or if they have any kind of intestinal diseases?

    Given the constituents found in the discharge, there is no reason to conduct such a study. The levels of substances found in the mine effluent are not likely to cause harm to wildlife.

11. Does the Illinois EPA check for arsenic and all of the dangerous things? Will that information be available to the public?

    Arsenic was measured in the Outfall 005 effluent in March 2013 and the results were included in the material submitted to Illinois EPA in the permit application. The arsenic result was reported as below the laboratory detection level (<0.025 mg/L). Also included in this sample were results for metals and selenium. Many of the metals were also not detected and of those that were, none of the results exceeded the acute water quality standard.

12. In relation to the concerns for the shallow ground water level there is no discharge in this permit on the northeast corner that would be the upper edge, you can look at the map that is the upper edge. However, as a lay person my understanding is that there is watershed that drains into Middle Fork Creek on the northeast side and then connects to old lake Hillsboro for Hillsboro that if there was some break or something that would happen with this permitted area I'm concerned about the potential for mine pollution to drain into the areas or getting into Middle Fork Creek which feeds the backup reservoir for Hillsboro and I wonder if that is anything that has been looked into? There is not a discharge point there but the concern is that the structure will be over that part of the drainage. It's a different drainage going to the structure number five.

    The potential for a mine effluent discharging to the old Hillsboro Reservoir, which is a back-up water supply for the City, was investigated when the mine was originally planned. Illinois EPA discouraged such a discharge and the mine was designed to have all effluents flow away from this watershed. This continues to be the case as no effluent can flow in the direction of the old Hillsboro Reservoir. Gravity will take all effluent discharges to the Watershed

Structure No. 5 impoundment and then to Central Park Creek and the Middle Fork Shoal Creek.

As designed, all runoff from the east and northeast sides of the refuse impounding structure will be collected by the upper cells of Sedimentation Basin Nos. 008 and 009. As indicated on the Sedimentation Pond Nos. 8 and 9 Profile and Typical Sections Drawing (Drawing No. B10-059-E14), an elevation difference of approximately 5 to 6 feet is proposed from normal pool elevation of the various basin cells to the proposed top of ditch (basin) berm. This design allows for the sediment basin cell to collect the storm event runoff and convey such runoff to the next downstream cell while maintaining sufficient freeboard above the design storm elevation to preclude the possibility of overtopping the ditch (basin) berm. To summarize, based on the current sedimentation basin designs there is no potential for overtopping of the ditch (basin) berm on the northeast side of RDA No. 2 that would result in an unauthorized discharge to Old Hillsboro Lake.

13. Is it true that the IEPA only goes out and inspects facilities every five years?

Please refer to the response to Item No. 6 above.

14. On this data sheet, compliance quarter starts on this list on January 2011 goes through October 2013 list 300 percent over the limit for solids in January 2011. There is a whole list here. In almost every area there are exceedances. It's like they have gone over there permit limit on a whole bunch of items, PH, chloride, sulfate, iron. I'll submit this as an exhibit.

There are no current outfalls at this site, so it is assumed that the information in this comment is in regards Permit No. IL0078727, which is for the main Deer Run Mine site. The Illinois EPA requested that the Applicant review and summarize past excursions and provide a detailed discussion of the various actions that may have been taken to address or mitigate the excursions. The following is a short summary of the detailed information provided by the Applicant:

From available information the majority of excursions appear to have occurred in 2010 and 2011 which was during the early stages of facility construction and development at a time when the greatest area of freshly disturbed soils were exposed to weathering. This was prior to re-establishment of vegetative cover as well as prior to placement of the liners beneath the coal stockpiles, within the sedimentation basins and within the drainage control structures (ditches) conveying stormwater runoff affected by coal related materials. Following placement of required liners and re-vegetation of exposed soils and soil stockpiles, these initial excursions were eliminated from continuing.

It is also noted that several of the cited excursions were exceedances of the 30-day monthly average permit limit based on only a single sample collected during the 30-day period. The few remaining excursions were addressed in a timely manner by the Applicant on a case-by-case basis. The detailed discussion of excursions provided by the Applicant is maintained in the Illinois EPA records under IEPA Log No. 4543-14 and is available for review upon request.

Although the Illinois EPA did not issue a violation for the excursions cited in this comment, the Illinois EPA has issued Violation Notice (VN) Nos. W-2010-30248 and W-2014-50161 dated August 10, 2010 and August 25, 2014, respectively. Violation Notice No. W-2010-30248 was issued for failure to submit Discharge Monitoring Reports (DMR's) while VN No. W-2014-50161 was issued for unauthorized discharge, discharge of contaminants, offensive conditions and failure to comply with the NPDES permit.

The NPDES permit as issued contains water quality based permit limits for all outfalls to insure that the water quality standards in the receiving waters are met.

15. Is it typical for a mine in Illinois to have no discharge?

Yes, this is quite typical of sedimentation basins located at coal mine facilities in Illinois. Many of the basins located at coal mines receive only runoff from watershed areas; therefore, these basins will only discharge in response to a precipitation event. In such cases, during dry periods of little to no rainfall, there will likely be no discharge from such basins.

16. I don't know whether there is a 100year storm event that is set up for drain in the moats where it won't overflow, but does IEPA have any current modelling for any issues regarding changes in extreme rains when they apply permits?

When reviewing mine permit applications and drafting NPDES permits the Illinois EPA relies on precipitation or rainfall information from published data. The specific source of reference is the *Rainfall Distributions and Hydro climatic Characteristics of Heavy Rainfall in Illinois* (Bulletin 70), Huff, F.A. and J.R. Angel, 1989, Illinois State Water Survey. This published data was developed based on historical data for the specific area in question.

17. The NPDES permit should not be approved because it does not protect surface water from potential contamination and does not provide evidence of compliance with the Clean Water Act. This permit number IL0080039 adds to discharge outfalls to the already existing seven outfalls. All nine discharges empty into the Shoal Creek Watershed Structure Five that overflows into Central Park Creek that continues to Middle Fork Shoal Creek. Coal dust from the mine ends up in surface water and surrounding land. For the following reasons this permit should be denied:

a. There is not adequate testing of air and water samples at Deer Run Mine to determine the exposure of the community to particulate matter and harmful chemicals in surface waters.

Data exists for this mine and for recent coal mines in Illinois in general that allows the conclusion that substances in concentrations harmful to aquatic life, wildlife and human health are not discharged in the Deer Run Mine stormwater effluents. Sulfate, chloride and metals concentrations are low in the effluents and well below any applicable water quality standards.

Please refer to the response in Items 17(h) and 62 for information regarding air emissions and testing.

b. There were water discharge violations in the first 5 years of operation of Deer Run Mine. This was acknowledged by IDNR/Office of Mines and Minerals in the Permanent Program Finding for Permit Application #424 not by the IEPA. The dysfunction of the regulatory process by IDNR/OMM and IEPA is well illustrated by the difficulty to get factual answers. IDNR's insistence that they cannot enforce the Clean Water Act or the Clean Air Act and thereby abdicating all monitoring of air and water to IEPA ends up blocking citizens' ability to know what is happening in their environment.

The referenced discharge violations occurred under NPDES Permit No. IL0078727 which covers the Deer Run Mine main site facilities including Refuse Disposal Area No. 1. Approximately two years ago, several effluent samples for Outfall 005 were found to exceed the daily maximum permit limit for chloride. Several other exceedances of sulfate, chloride and pH standards occurred sporadically in two other outfalls, none being classified as significantly non-compliant.

Illinois EPA did meet with mine officials to review the effluent results and to obtain an explanation of the higher than allowable chloride levels. The mine officials explained that although slurry pond decant water is intended to be recycled back to the coal washing system, wastewater from inside the slurry pond had occasionally overflowed into sedimentation pond 005 due to water levels in the slurry pond being maintained at a high level and storm events causing an overflow. Illinois EPA explained that this practice was not acceptable and that slurry pond water should be 100% recycled, not discharged. The mine agreed to reroute wastestreams that would control the slurry pond water level such that it would not continue to discharge. Since the rerouting was accomplished, no further exceedances of the chloride limit have occurred.

To address the issues discussed above for the main Deer Run Mine site, NPDES Permit No. IL0078727 will be modified after public notice to incorporate a new Special Condition No. 14 to disallow any decant water from the fine coal refuse (slurry) disposal area from entering or being directed to Sedimentation Basin 005 or any other NPDES permitted outfall covered under the referenced NPDES permit.

To avoid situations similar to that discussed above for the main mine site, NPDES Permit No. IL0080039 which covers Refuse Disposal Area No. 2 and which is the subject of this Responsiveness Summary, includes a discussion of coal processing water handling limitations on Page 5 in Construction Authorization No. 5197-13. This discussion specifically states that decant or clarified water from the slurry disposal operation shall be pumped back to the preparation plant for reuse in the closed circuit coal preparation process and shall not be directed to allowed to enter either Sedimentation Basin 008 or 009. These limitations were imposed on the operation of Refuse Disposal Area No. 2 to avoid issues similar to what occurred in the past with Basin and Outfall 005 as discussed above.

c. What is the process for handling water analyses of samples from Deer Run Mine? Who gets the lab results? Who files violation? How often is Deer Run Mine required to submit samples for analyses? Where is the information posted?

The mine is responsible for the collection and analysis of effluent samples as directed by the NPDES permit. Mines are required to use a labatory that follows USEPA regulations for labatory analysis found at 40 CFR 136. The lab results are returned to the mine and mine personnel forward the data to the Illinois EPA periodically in DMRs (Discharge Monitoring Reports). DMR data is uploaded into the USEPA ICIS (Integrated Compliance Information System) and from there the data is evaluated for compliance with permit limits.

If a violation is determined and the enforcement of such violation are warranted, the Illinois EPA follows the enforcement procedures outlined in Section 31 of the Illinois Environmental Protection Act.

d. According to statements at public hearing and the responsiveness summary from the original on page 13 prior to the five year renewal of this permit there would be an extended list of analysis that include toxic metal and samples of Central Park Creek. I submitted a Freedom of Information Request to Illinois EPA for the Central Park Creek five year renewal analysis and this request was basically ignored. I also asked for the exceeded in the five years of Deer Run Mine but was sent a denial of Illinois based on unwarranted invasion of

personal privacy for Deer Run Mine. I am submitting a copy of my Freedom of Information Request and the denial.

The Illinois EPA reviewed the FOIA request and addressed the request in a letter dated February 14, 2014. A substantial portion of the information was provided; however, some of the requested information was withheld pursuant to 5 ILCS 140/7(1)(c), because it was deemed personal information contained within public records and such disclosure would constitute an unwarranted invasion of privacy.

e. The surface monitoring of discharge mine water is inadequate to show the amounts and types of chemicals found in coal to which the community is exposed. The application for NPDES permit filled out by Hillsboro Energy asked if it believed, I use quotation marks because that was the word used, believed certain chemicals are present and if marked present must either submit one analysis or briefly describe the particulars of the pollutant expected to being discharged. On page V3 of the application Hillsboro Energy believed only mercury to be present in coal but denied arsenic, beryllium, lead, zinc. These metals are known to be present in coal and are considered health risk upon exposure. The assumption that the compounds only be leached from the coal in acidic conditions and only in a rare occurrence is not valid, and even if it were cannot be maintained in receiving streams. A major problem is that the quantity of metal being discharged is unknown and biomagnification that occurs is not considered.

Illinois EPA has been reviewing and evaluating water quality data from this mine and others over recent years. Given that coal is a natural material, all elements may be expected to occur in coal and in water encountering coal and the rock layers associated with coal.

With respect to the data the Illinois EPA has reviewed, which included all mercury collected by Illinois coal mines from the inception of the mercury monitoring requirements in 2009 through 2011, mercury virtually never exceeds the human health water quality standard of 12 ng/L in coal mine effluents. Other metals generally meet the acute water quality standards – the standards that are of concern in stormwater driven effluents based on the IEPA's review of metals data generated at several Illinois coal mines and submitted with permit renewal applications. Of the data that exist for this mine, the Illinois EPA has found no concentrations of concerns.

Illinois EPA has increased the amount of monitoring for metals in mine permits over that previously required. Although not expected to be detected at concentrations of concern, this permit includes a special condition, which requires bi-annual (twice annually) monitoring of 13 metals, and Phenols, throughout the 5-year term of the permit.

f. Hillsboro Energy also denied in the application on page V6 and V7 the presence of Polycyclic Aromatic Hydrocarbons known as PAHs, capital P, capital A, capital H-s, that are known to be present in coal. Some PAHs are thought to be carcinogenic. The acidic PAHs and sedative PAHs and coal dust are not analyzed for the PAHs or toxic metals. This is unacceptable exposure of toxic materials to residents via air and water.

Organic materials such as PAHs will typically remain bound to the coal rather than to dissociate and enter water as dissolved substances. The permit requires the mine to minimize coal particles in effluent through sedimentation ponds and best management practices that reduce the amount of coal fines that enter wastewater.

g. Does Illinois EPA know the quantities and types of harmful chemicals discharged into Central Park Creek and Middle Fork Shoal Creek? How can you agree to NPDES permit without knowing the existing conditions resulting from five years of operations?

The previous permit required monitoring of several parameters in Central Park Creek immediately below Watershed Structure No. 5. For the two parameters monitored with water quality standards, chloride and sulfate, no exceedances of the standards were recorded.

h. Does Illinois EPA know the actual emissions emitted from Deer Run Mine? There are daily infractions of Rule 35 Ill. Adm. Code 212.301, which provides that emission of particulate matters shall not be visible from any process, including handling or storage activity. The 2012 and 2013 air report by Hillsboro Energy to Illinois EPA states that it did not use saturated tubes because air standards met without their use. A copy of the report is submitted for the record or will be submitted. The present system to control air emissions is not working for the community. Coal dust is a persistent problem along with fumes from smoldering coal. There is no monitoring or testing on or off site. The calculated reported to Illinois EPA are not any indication of the amount of coal dust that residents are exposed to.

Hillsboro Energy is not required to perform particulate testing and there is no requirement to do so under the air permit. Air emissions are controlled at the facility under the air permit by a limitation on the facility coal production, which is 12 million clean tons per year and/or 20 million raw tons per year. Inspections at the facility are performed by a third party to ensure that all emission controls features of the operation are in place and functioning properly pursuant to the requirements of the air permit.

As for the coal dust issue, personnel have indicated that various approaches to reducing and/or minimizing fugitive dust from the mining operation and coal storage are being investigated. The initial method investigated was a spray applied to the coal stockpile that would bind the smaller particles to prevent them from becoming airborne. It is the Illinois EPA's understanding that this approach was marginally successful. The second method of reducing fugitive dust being investigated is the use of specialized fencing or curtains. The Applicant has informed the Illinois EPA that they have been in contact with manufacturers of such products and research into these products is continuing. The electricity for the water spray system was installed in late September and the system is now functional. The mine submitted a purchase order to its corporate office for the wind fencing and will begin building the structure as soon as the order is approved and the materials are available. The mine hopes that the wind fence will be installed before winter.

i. Is the Illinois EPA aware of the health risk to the community that chronic exposure to coal dust contaminated surface water and invasion from a failed high rise slurry threatening the residents?

With the exception noted in responses to comments 17(b), 33 and 46 data for this mine and other operating coal mines in Illinois indicate that in general, water quality standards are met in storm water effluents. Sulfate, chloride and metal concentrations are low and will not harm aquatic life, wildlife or human health.

18. Where is the decant water going to go, where is the leachate water going to go? Will the construction permit mean that the Deer Run Mine's existing permit number 78727 will need to be changed to allow discharges from RDA2?

The leachate water from the internal drains within the coarse refuse embankment will discharge into Sedimentation Basin Nos. 008 and 009.

Decant water from the slurry disposal operation within the coarse refuse embankment will be maintained within the closed circuit coal preparation process. No decant water from the slurry disposal area will be directed to any sedimentation basin with a NPDES permitted outfall.

NPDES Permit No. IL0078727, which covers the main site at the Deer Run Mine complex, will not be modified as a result of NPDES Permit No. IL0080039 for this Refuse Disposal No. 2 area. NPDES Permit No. IL0080039 is a "stand alone" permit and has no effect on the outfalls located in the adjacent NPDES permitted area.

19. Shouldn't IEPA log number 5197-13 be a part of the permit?

Information from the referenced log number was used to prepare the discussion included in Construction Authorization No. 5197-13 as well as the requirements for liner installation beneath RDA No. 1 and Sedimentation Basins 008 and 009. In addition, previously submitted documents identified as IEPA Log Nos. 8189-10 and 8361-10-A were referenced and utilized to develop Condition No. 12 of Construction Authorization No. 5197-13 which outlines liner installation specifications and procedures.

Other proposed commitments regarding liner installation contained in the cited documents are incorporated into the NPDES permit by reference of the project log numbers. Due to the sheer size or volume of the referenced projects, it is impractical to include these documents as integral parts of the NPDES permit; however, these documents or projects are available for public review under the Freedom of Information Act.

20. Is the construction of new refuse disposal area covered by the permit we are discussing tonight or will it be covered by a separate IEPA construction permit, and when I look at this draft permit there are no limits on total suspended solids at all discharge positions. Given that essentially they are going to be building something, construction activity, I would think that we should have limits on suspended solids at all discharges if this is the only permit that is going to govern that.

NPDES Permit No. IL0080039 covers both the construction and operation of Refuse Disposal Area No. 2, Sedimentation Basins 008 and 009 and all associated activities within the permit boundary. However, it is noted that Permit No. ILR10S818 (General Stormwater Permit for Construction Activities) was issued for initial construction activities to commence in advance of NPDES Permit No. IL0080039.

The NPDES permit for this operation that includes Outfalls 008 and 009 does in fact include monitoring for Total Suspended Solids (TSS) under Discharge Condition Nos. I and IV. These discharge conditions are defined as base flow conditions. In accordance with 40 CFR 434 and 35 Ill. Adm. Code 406.110, discharges occurring under Discharge Condition No. II will be monitored for Settleable Solids (SS) rather than Total Suspended Solids. Discharges under Discharge Condition No. III are not subject to monitoring for either TSS or SS pursuant to the cited regulations.

21. Which way does the water runoff of the coal slurry impoundment, north, south, east or west?

The outer slopes of the coarse refuse embankment face in all of the cited directions. Runoff from the entire perimeter of the embankment will flow into

either Sedimentation Basin 008 or 009 and discharge through the respective outfall.

22. Which direction will the water run after it gets collected in the sediment basins from the subsoil? Has there been a study on that?

    The sedimentation basins surrounding the refuse disposal area may be viewed as "moat" structures consisting of various cells. Each cell that collects runoff from a given section of the coarse refuse embankment will convey this runoff to the next downstream cell of the basin. All runoff will eventually be conveyed around the refuse disposal structure to the west side where the treated runoff will be discharged from either Outfall 008 or 009.

23. Will the moats that convey the water to the discharge area be lined and with the same thickness liner as the rest of the impoundments? Will this liner accommodate any extraordinary discharge that the water will not exceed the height of the liner?

    Yes, a 40-mil synthetic liner will be utilized in both Sedimentation Basins 008 and 009 ("moats") as well as beneath the refuse disposal area. This synthetic liner will extend up the sedimentation basin side slopes to a point above the maximum design storm elevation to insure all affected area drainage is retained within the liner protected area prior to discharge following treatment.

24. Once the NPDES permit is renewed, yet it has not been finalized as of this date, will there be any type of public hearing? Was the five year extended analysis done as written in the record and presented at the public hearing for a five year extension where they would do the tests for metals that exist in some of the surface waters?

    Although this question appears to be relative to NPDES Permit No. IL0078727 which covers the adjacent main Deer Run Mine site, the following information is provided:

    A review of the records for the renewal of NPDES Permit No. IL0078727 revealed that a metals scan analysis was submitted for the discharge from Outfall 005. As the discharges from this outfall were indicated as being similar to other outfalls under the cited NPDES permit, the analysis for the discharge from Outfall 005 was considered to be representative of all other site discharges.

25. The NPDES application says settleable solids are monitored only as a result of a discharge due to precipitation of the 24 hour duration or snow melt, so does that mean those are not measured as a regular basis? When do they measure the settleable solids?

    As indicated by the table on Page 2 of the Permit, Settleable Solids are only monitored during a discharge event under Discharge Condition No. II. In

accordance with the footnote defining Discharge Condition No. II of the permit, Settleable Solids are only monitored for a discharge resulting from a precipitation event (or snowmelt of equivalent volume) within any 24-hour period of less than or equal to 4.65 inches.

26. If the settleable solids in the footnote and we have a huge rain in the northeast corner causing an overflow so that the water from the sides of this gigantic impoundment and part of that corner the sides run down but they don't go on the moat they go over the moat, they start draining to where, the lake?

    These basins are designed to contain and safely convey and discharge precipitation event of 5.59 inches of rainfall occurring in a 6 hour period. This design precipitation is defined as the 100 year, 6 hour, design storm. The design of the sedimentation basins is such that sufficient "freeboard" is provided above the predicted maximum storm elevation to prevent overflow that could possibly be tributary to old Hillsboro Reservoir. However, should a catastrophic event occur that would result in water exiting the northeast corner of Basin 009, this would be considered an unauthorized discharge and a violation of the permit. Any unauthorized discharge on the northeast corner of Basin 009 would in fact be tributary to old Hillsboro Lake.

    Also, refer to the response to Item No. 12 above.

27. If this permit is not denied, it is respectfully requested that IEPA add special conditions as part of this NPDES. The first is to request this permit be contingent on the Disposal Area being capped with a layered, HDPE and other impermeable membrane type capping system such as are used at landfills. Keeping moisture out of this Disposal Area would be in the best interests for the long-term protection of the watershed and shallow groundwater.

    The four (4) foot soil cover proposed for Refuse Disposal Area No. 2 is in compliance with applicable State and Federal regulations. Computer modeling performed to evaluate the post-mining performance of the proposed soil cover demonstrated that compliance with the groundwater quality standards will be achieved.

28. The location and the potential for runoff of the proposed Deer Mine Refuse Disposal Area No. 2 (RDA2), located just east of their facilities that are already in place southeast of the City of Hillsboro could reach the city's secondary water supply, thereby polluting that water supply, we request that the Mine's request for an NPDES permit be denied, and that the RDA2 be moved to a different location where impacts from runoff would be reduced.

    The Refuse Disposal No. 2 area as well as the adjacent main Deer Run Mine facility has been designed and operated to prevent any disturbed area drainage or mine discharges from entering or affecting Hillsboro Lake. As this

refuse disposal area has been designed in accordance with applicable State and Federal regulations, there is currently no basis for denial of the Permit or for requiring relocation of the proposed disposal area.

Also, please refer to the responses to Item Nos. 12 and 26 above.

29. We believe that the liner proposed for the moat around RDA2 is planned to go up the sides of the moat as is needed. The liner of RDA2 itself needs to also go up the sides of refuse area as protection as water levels in impoundment rises.

    The synthetic liner is proposed to extend from beneath the fine coal refuse (slurry) disposal area, under the coarse refuse embankment and through both sedimentation basins to an elevation above the basin design storm elevation. Any seepage into the coarse refuse embankment that is collected by the internal drainage system will still be retained within the sedimentation basins and within the liner area for treatment prior to discharge in accordance with the NPDES permit. Due to the proposed liner placement location, the Illinois EPA finds that is would not be necessary to place a liner on the inside slopes of the coarse refuse embankment.

30. Please also review Hillsboro Energy's application for these new discharges and make sure that all contaminants known to be found in coal waste (See http://www.sludgesafety.org/what-coalslurry/ chemicals-found-coal-sludge-and-slurry) have been reported, including arsenic, beryllium, lead, zinc, and polycyclic aromatic hydrocarbons and revise the NPDES permit to reflect their presence.

    The monitoring and limitation of various parameters in coal mine permits is a composite of federal requirements and guidelines along with those dictated by state water quality standards as well as through insight gained from many years of study at the state level. Iron, manganese, suspended solids and pH are dictated by federal requirements. Sulfate and chloride are dictated by state water quality standards. Mercury must be monitored to access whether a permit limit is necessary to comply with the water quality standards. This permit also has a condition to monitor heavy metal, which address concerns with respect to metals. The results of these conditions are supplying the Illinois EPA with information that will dictate the future conditions for these permits. PAHs are not suspected to be present in coal mine effluents. Therefore, Illinois EPA determined that monitoring of PAH's is not necessary.

    Also, please refer to the response to Item. 17(f).

Antidegradation Assessment/Water Quality Standards

31. Can the City of Hillsboro be copied on monitoring that is done at the mine?

    The monitoring data sent to Illinois EPA by the mine is entered into the ICIS system maintained by USEPA. The public has access to this data through a system called ECHO (Enforcement and Compliance History Online). The website for ECHO is https://echo.epa.gov/facilities/facility-search?redirect=page. Using the NPDES permit numbers (IL0078727 and IL0080039) ECHO will provide information on compliance and enforcement. Illinois EPA cannot provide this information on a monthly basis to the City or any other entity given our reliance on the ICIS system as staff time is devoted to maintaining the input to the system rather than servicing requests that could be satisfied within the system. Also, a Freedom of Information Act (FOIA) request may be filed with Illinois EPA. Instructions for filing a FOIA request are found on the Illinois EPA website http://www.epa.state.il.us/foia/.

32. The mine is not planning on the huge waste impoundment which is permit 424 to be a temporary structure as required by federal law. It will be 60 feet high and 240 acres if you include the ditches around it. Discharges from the impoundment could contaminate the Middle Fork Shoal Creek, which is one of the few biological streams left in the State of Illinois. Why are we destroying it? When we increase a load of pollutants we all know that has an effect on the life in Middle Fork Shoal Creek, and it isn't monitored very often, is it?

    The Middle Fork Shoal Creek is not listed as a Biologically Significant Stream by the Illinois Department of Natural Resources. Shoal Creek, located approximately ten miles downstream is listed as a Biologically Significant Stream. The Middle Fork Shoal Creek is monitored approximately every five years by Illinois EPA for biological condition, water chemistry and physical habitat. The causes of impairment in the draft Illinois Integrated Water Quality Report for 2014 are manganese, dissolved oxygen and total phosphorus. This impairment is attributed to the Hillsboro Sewage Treatment Plant discharge and agriculture. The Illinois EPA's antidegradation assessment review concluded that the increase in pollutant loading from the two new outfalls at the Deer Run Mine would not cause harm to aquatic life or other uses of the receiving streams.

33. Since the mine is already exceeding permit levels, why should more be permitted? They are not following the regulations, why are we allowing more pollutants?

    There are no current outfalls at this site, so it is assumed that the information in this comment is in regards Permit No. IL0078727, which is for the main Deer Run Mine site. The Illinois EPA requested that the Applicant review and summarize past excursions and provide a detailed discussion of the various actions that

may have been taken to address or mitigate the excursions. The following is a short summary of the detailed information provided by the Applicant:

From available information the majority of excursions appear to have occurred in 2010 and 2011 which was during the early stages of facility construction and development at a time when the greatest area of freshly disturbed soils were exposed to weathering. This was prior to re-establishment of vegetative cover as well as prior to placement of the liners beneath the coal stockpiles, within the sedimentation basins and within the drainage control structures (ditches) conveying stormwater runoff affected by coal related materials. Following placement of required liners and re-vegetation of exposed soils and soil stockpiles, these initial excursions were eliminated from continuing.

It is also noted that several of the cited excursions were exceedances of the 30-day monthly average permit limit based on only a single sample collected during the 30-day period. The few remaining excursions were addressed in a timely manner by the Applicant on a case-by-case basis. The detailed discussion of excursions provided by the Applicant is maintained in the Illinois EPA records under IEPA Log No. 4543-14 and is available for review upon request.

Although the Illinois EPA did not issue a violation for the excursions cited in this comment, the Illinois EPA has issued Violation Notice (VN) Nos. W-2010-30248 and W-2014-50161 dated August 10, 2010 and August 25, 2014, respectively. Violation Notice No. W-2010-30248 was issued for failure to submit Discharge Monitoring Reports (DMR's) while VN No. W-2014-50161 was issued for unauthorized discharge, discharge of contaminants, offensive conditions and failure to comply with the NPDES permit.

The NPDES permit as issued contains water quality based permit limits for all outfalls to insure that the water quality standards in the receiving waters are met.

34. Please explain the antidegradation process.

Antidegradation is a water quality standard (35 Ill. Adm. Code 302.105) that requires those seeking an NPDES permit or Section 401 water quality certification for new or expanded discharges or habitat alterations to investigate how their proposed activity can minimize pollutant loading or aquatic habitat impacts to the greatest practical extent. Applicants must submit an antidegradation assessment to the Illinois EPA outlining how they have evaluated alternatives to the planned activity that would result in less pollutant loading or less habitat disturbance. Illinois EPA must review the assessment and determine whether the provisions of the antidegradation

standard have been met. For more details, please read Ill. Adm. Code Section 302.105.

35. My farm is close to the Middle Fork Creek which floods and pollutes the soil and crops. Does the Illinois EPA take into account the impact to the environment when there are increases in loading?

Illinois EPA lists The Middle Fork Shoal Creek from the confluence with Cress Creek to the confluence with Shoal Creek as fully supporting aquatic life uses in the draft 2014 Illinois Integrated Water Quality Report and Section 303(d) List (http://www.epa.state.il.us/water/tmdl/303-appendix/2014/appendix-b2.pdf). There are no problems with water quality in this segment of the stream as attested by the good quality of the aquatic community found there. The stream segment upstream of this segment is listed as impaired for aquatic life use, but the causes of impairment, manganese, total phosphorus and dissolved oxygen, would not cause soils to become polluted. There are no known contaminants in the Middle Fork that would harm fish for human consumption other than the statewide methylmercury fish advisory that suggests that women of childbearing age and children 15 years old and under consume no more than one meal per week of predatory fish. The antidegradation review process conducted by Illinois EPA found that the increase in pollutant loading from the two new effluent outfalls proposed at the Deer Run Mine would not cause adverse impacts in the receiving streams for the mine.

36. Is there ever any time limit for taking care of the violations in mines?

The Compliance Assurance Section at Illinois EPA Bureau of Water determines when violations of NPDES permit conditions have occurred and pursues compliance and enforcement actions pursuant to Section 31 of the Illinois Environmental Protection Act. The Illinois EPA has 180 days after becoming aware of the violation to send a Violation notice. As a requirement of the Violation Notice, the facility has an opportunity to submit a Proposed Compliance Commitment Agreement (PCCA) with Illinois EPA. The PCCA should provide the steps that the facility will take to correct the violations along with a schedule to resolve the violations that may not exceed one year. Illinois EPA will review the PCCA and either accept the agreement or, if it is determined that the agreement is not acceptable, may pursue enforcement action in conjunction with the Illinois Attorney General's Office. If enforcement is pursued an Illinois Pollution Control Board order or a court order will be developed requiring compliance be achieved in accordance with a specified time frame.

37. Is antidegradation a part of this NPDES permit? I appreciate the explanation of the mine writing this. As a citizen the year is 2014 we are not in 1890 or 1990 and the fact that the mine puts in here that they've established the best Management practice same as done for 100 years for coal waste in a kind of liners, great, but the

problem is this antidegradation statement misses so many things of essential critical value to Hillsboro. With the other mines we need to recognize people died of cancer. That is a real problem because these basically they are like toxic waste. Heavy metals left there from the mine for the convenience of the mine travels to the aquifers forever and can affect the farms. It never gets into the antidegradation that's written and it's not mentioned for the benefit of the mine or anything else about it. The health impacts are never considered.

Antidegradation for the Deer Run Mine NPDES Permit covers the discharge of mine stormwater effluents to the surface waters of the state. Illinois EPA has used water quality data from this mine and its knowledge of water quality from coal mines in general to conclude that water quality standards will be met in the two new mine discharges and that the increase in pollutant loading, namely increases in chloride and sulfate loading, to the receiving waters from the two new outfalls will not cause adverse impacts. There is no anticipated adverse impact to aquatic life from the constituents of these discharges from chloride, sulfate, metals or anything else. From exposure to surface water, i.e., Central Park Creek and the Middle Fork of Shoal Creek, aquatic life is most sensitive to these pollutants and we have determined that aquatic life will not be adversely impacted. Human exposure to the water in the creeks would be limited to dermal exposure when people touch the water and fish consumption exposure. None of the constituents of the effluent are present in concentrations that will cause harm to humans through these routes. Regarding groundwater, the mine must conform to standards that require liners for disposal areas that prevent pollutants from contaminating groundwater.

38. I understand that the antidegradation assessment states that the new refuse will be constructed of coal refuse. What steps are being required of Hillsboro Energy to collect polluted runoff of the impoundment of coal? Will run off from all sides of the disposal area be discharged to the new outfalls eight and nine?

The new refuse disposal structure will be constructed of coal refuse, which is the rock brought up from underground with the coal. A pond in the form of a moat surrounds the refuse disposal structure and will capture runoff from the outside slopes of the berms that form the structure. Rainfall hitting the inside slopes of the structure will remain in the coal wash water recycle system and will not be discharged. All the runoff coming from the outside slopes of the structure will enter the moat, which has two compartments, one for Outfall 008 and one for Outfall 009. The runoff will be settled in the moats and discharged when levels in the moats attain a certain elevation.

Also, please refer to the responses to Items No. 21 and 22 above.

39. The antidegradation assessment also says that pond five is nearing capacity of coal fines and refuse, unquote. What do you mean by pond five, sedimentation basin five,

Shoal Creek water structure number five? What is that? And if it's sedimentation, why is it being dredged?

The current refuse disposal structure at the mine is nearing its capacity. There is a pond in the form of a moat surrounding this existing structure that captures runoff from the outer slopes of the structure. This is Pond 005 and it serves to settle solids before the water is discharged through Outfall 005, therefore Pond 005 is also referred to as sedimentation basin five. The effluent from the outfall from Pond 005 (Outfall 005) is discharged to a small ditch that flows to Watershed Structure No. 5, which is an impoundment (lake created by damming a creek) that existed before the mine was planned. Watershed Structure No. 5 was apparently created as a soil conservation measure. Pond 005 and Watershed Structure No. 5 coincidentally have the same numeric designation. No dredging of Pond 005 is planned to the knowledge of Illinois EPA. The refuse disposal area that will replace the existing structure served by Pond 005 will be served by Ponds 008 and 009.

40. I am aware that IEPA stated that there was data on Shoal Creek but the Illinois EPA did not have data on small tributaries like Central Park Creek, which this mine discharges to. I know that IEPA also conducts site specific studies of streams that you call facility related stream surveys, and I wonder do you do those for mines and are there plans to do any study like that on Central Park Creek to address concerns you have heard about what impacts these mine discharges are having on the creek?

Illinois EPA biologists conduct several facility related stream studies each year and sometimes the facility is a coal mine. Such a survey is tentatively scheduled for September, 2014 for Central Park Creek. These surveys are weather dependent in that high stream flows from abundant rainfall or dry conditions in the case of a drought will cause the survey to be postponed.

41. The antidegradation assessment said that Hillsboro Energy has been collecting sulfate points from Central Park Creek and I wondered if you could summarize that data now, and if you could provide that data in the responsiveness summary.

According to information submitted to Illinois EPA by the mine, sulfate data was collected at the outlet of Watershed Structure No. 5, where the water would then flow to Central Park Creek. From May 29, 2009 through April 22, 2013, 23 sulfate samples were taken. The average concentration of these samples was 64 mg/L and the highest sample was 301 mg/L collected on October 2, 2012. For comparison, the sulfate water quality standard for the receiving stream for the new outfalls (008 and 009) was determined to be 837 mg/L. The complete data set for Central Park Creek monitoring is attached. <u>See</u> Attachment 1.

42. How much does the antidegradation statement fit into the Illinois EPA's evaluation for this permit?

Every NPDES permit that involves new discharges of pollutants, such as the Deer Run Mine adding two new outfalls, must conduct an antidegradation assessment. This assessment must contain the required information as outlined in the antidegradation standard at 35 Ill. Adm. Code 302.105(f). The Illinois EPA then must review the information to determine whether the provisions of the antidegradation standard have been met. The NPDES permit may not be issued without a favorable conclusion regarding attainment of the antidegradation standard.

43. The mine has stated that the refuse disposal areas are the only practical way to dispose of mine wastes. These mounds of mine waste will be there forever, permanently taking prime farmland out of production. Why can't the mine have a onetime processing plant to treat the water instead of these huge mounds? Is economics the only factor the mine must consider when it decides what kind of treatment it will provide?

Antidegradation assessments are conducted on proposed wastewater discharges, which in this case are two moat style sedimentation ponds that surround the new refuse disposal area (the "mounds"). The antidegradation assessment evaluates what alternatives exist to the creation of the wastewater and then, if the creation of the wastewater is unavoidable, what treatments to reduce pollutant loading may be applied. For underground mines, the disposal of coal refuse back underground in the mine cavities is not practical. Therefore, some type of above ground disposal method is the only practical alternative and so the wastewater generated from the refuse structures is evaluated under alternatives analysis in the antidegradation assessment. The wastewater in this case consists of stormwater that runs off the outer slopes of the refuse disposal containment area. This water, as demonstrated by the effluent from a similar structure at this mine, Outfall 005, has concentrations of chloride and sulfate that are elevated from background concentrations, but are well within water quality standards (See response to Item Nos. 17(b) and 41). Metals concentrations are low in these effluents.

As effluent concentrations at this mine are well below water quality standards, a treatment plant treatment plant to reduce the chloride and sulfate and very low levels of metals is impractical and unnecessary. In this regard, antidegradation addresses the need for the mounds to some extent.

44. The mine claims having a treatment plant would take too much space yet this permit is for a second Disposal Area and the mine has just been operating a few years. Many hundreds of acres of valuable prime flat Illinois farm land will be covered over by these mine Disposal Areas before this mine is done operating over 30 or more years. IEPA does not look at the total impacts of each of your permit approvals. Each approval of one of these NPDES permits by IEPA further seals the fate of the area to a large collection of High Hazard Dam coal slurry impoundments that will

remain for generations to come. There is no assessment of what having this Disposal Area left forever with heavy metals loaded inside will mean to the City of Hillsboro and future generations, the local tax base and adjacent property values.

As explained in the response to Item No. 37, **antidegradation considers only issues related to surface water quality.**

45. We request that limits of 35 mg/L (30 day average) and 70 mg/L (daily maximum) for Total Suspended Solids be imposed under all discharge conditions at page 2 of permit where limits are described for discharges while the RDA is in use. Since the RDA is being built up of coarse coal waste, which is essentially a construction activity, these limits are necessary.

Please refer to the response to Item No. 20 above.

46. In order to satisfy Illinois' antidegradation requirements at 35 Ill. Adm. Code 302.105, we request that Deer Run Mine be required to use another technology besides sedimentation basins to address proposed increases in loading of sulfates and chlorides. The use of sedimentation basins as the sole technology to address pollution from coal mine runoff is clearly inadequate to address dissolved solids. As we report in December 2013 letter on the proposed renewal of the Deer Run mine's existing NPDES permit # IL0078727 (See Att. 1. Hillsboro Energy LLC, Deer Run Mine draft NPDES 12.26.13), the mine had three instances in which a sulfate discharge was above the limits in their existing permit (one which would be above the limits in the proposed permit) and seven instances in which the chloride water quality standard was exceeded. Since May 2012, which is the last date we reference in our December letter, ECHO (See Att. 2. ECHO report) reports that permit IL0078727 has been out of compliance for five of seven quarters, two due to non-reporting and three quarters in which violations of permit limits for pH, chloride, sulfate and iron occurred.

Please refer to the response in Item 33 above.

It should be noted that a revised sulfate water quality based effluent limit has been calculated based on receiving stream data collected when the mine was operating. The new limit is higher because hardness and chloride data obtained while the mine is operating showed that the sulfate limit should be raised. In other words, conditions exist in the receiving stream that dictate a higher concentration sulfate water quality standard. Please note that several of the reported sulfate exceedances would not have been over the permit limit if the new sulfate water quality based effluent limits were in place.

47. At the Sugar Camp Mine, another Illinois mine owned by the same parent company Foresight Energy (See http://www.foresight.com/) as the Deer Run Mine, reverse osmosis is being employed (See Att. 3. Public Notice of Emergency Permit, Underground Injection Wells at Sugar Camp Mine, Macedonia, IL). We request that

reverse osmosis, a process which is a “technically and economically reasonable measure[s]” be employed for discharges from RDA2 proposed to be permitted under draft NPDES permit # IL0080039 in order “to avoid or minimize the extent of the proposed increase in pollutant loading”.

The use of reverse osmosis at the Sugar Camp Mine, and drilling a disposal well for the reject water, is used to meet water quality based effluent limits. The Deer Run Mine has no high chloride mine pumpage to deal with. Consistent with antidegradation rules, the Deer Run Mine has demonstrated that they can manage the refuse disposal area stormwater in a way that allows the chloride water quality standard to be met.

Groundwater Issues

48. If discharges are going to be approved, two new outflows and they have heavy metal sediment, acid, whatever is being discharged at the time from the mine impoundment, because the water table is high or low in the area, different depths from the mine's own material mining the water level is 5.3 feet up to 15 feet, is there a risk that the surface water and ground water can intermingle and mix from the NPDES discharges?

    The Illinois EPA has investigated this issue and does not anticipate that surface water from the NPDES discharge will contaminate groundwater within or near the mine site. The streams in the area are gaining streams; that is, groundwater flows to surface water, rather than from streams into groundwater.

49. Related to that other part of question was since there are known old mines below a good portion of this proposed permit area if the ground water levels are shallow and the surface water if after you have a chance to look at it if you find there is an exchange, is there a risk that pollution from the mine or discharges could get more quickly to underground levels because of the mine collapsed areas that are underneath the permit? Is that a factor for your consideration?

    Surface water from the discharges will not be flowing to the underground mine works. In addition, there are a number of groundwater monitoring wells surrounding the RDA that will detect any contaminants prior to movement to the underground mine works or to surface water.

50. The mine does have discharge out to structure five you mentioned then the liner issues. I would like to ask IEPA is there a reason that you have approved a 40 mil liner instead of 60? Is that number tested or evaluated or does IEPA have a standard you put in place for Illinois for coal mine liners like this?

    The Illinois EPA is not aware of a model that demonstrates or predicts how long the liner will last. The model shows that the HDPE liner will insure groundwater would meet the groundwater standards at the compliance point at the edge of the RDA throughout its active life; at closure of the RDA and indefinitely into the future.

    Also, this thickness of liner has been approved and used at other coal mine RDA's. Modeling indicates the use of this liner will achieve compliance of the groundwater standards at the compliance point at the edge of the RDA.

51. What are the permeability limitations of the planned liners?

The liner is required to have a hydraulic conductivity of no greater than $1X10^{-7}$ cm/sec.

52. How do all of those requirements in this permit compare to the requirements for a typical landfill?

A landfill requires a five foot earthen engineered liner or a 60 mil geomembrane with a three foot earthen engineered liner below the geomembrane. The liner proposed for Deer Run RDA No. 2 area is a 40 mil thick geomembrane liner and as proposed does not have an earthen liner below it. The protective cover over the geomembrane liner also differs from that required for a landfill in that a landfill requires a leachate collection system and drainage layer. The RDA No. 2 area design does not include a leachate collection system; however, a protective layer of 1 foot thickness will be placed over the geomembrane. The foundation preparation for RDA No. 2 does appear to meet the requirements for a landfill. More information of the specific liner and foundation requirements can be found in the application for the permit, Appendix A-1.

It is important to note that the hydraulic conductivity of the liner is still required to meet the hydraulic conductivity for a landfill, as specified in response to Item 51 above. Also, while the RDA does not, as proposed, have the same liner requirements as a landfill, the modeling shows that compliance with the groundwater standards will be achieved at the compliance points.

53. Can you describe the location of the ground monitoring wells that will be required for the new disposal area? What direction does ground water flow from the site of the proposed disposal area? I'm especially concerned about ground water flow to the creek that feeds into Hillsboro old lake, which is a public water supply. In the responsiveness summary can you include a map that shows where the monitoring wells are and shows the direction of the groundwater flow from the site of the disposal area?

The Illinois EPA contacted the applicant and the applicant provided map showing groundwater flow direction and the locations of the groundwater monitoring wells will be provided. The map is attached to the Responsiveness Summary.

54. Will the future of the subsidence of the old mines weaken the liner? Will it leak into the subsoil if the liner leaks?

The Illinois EPA requested that the applicant provide further information regarding mine voids located under proposed RDA2 and any potential for

further void collapse which may affect the liner. The information submitted indicates further subsidence is not anticipated.

55. A major concern is that at some point there will be additional collapse of the room and pillar areas below this Disposal Area 2. That could cause significant strain on the 40 mil. HDPE liner which is supposed to protect the shallow groundwater table from pollutants. I am concerned that this is a long-term risk to the area groundwater and for the Hillsboro and Schram City areas. At some point the liner below this Disposal Area will leak. There is no information in the antidegradation statement as to the potential costs to the near-by communities from this permit approval. There is no cost assessment of what a clean-up of a leak or spill from the Disposal Area would be. There is no cost consideration of the long term potential for the liner to leak and groundwater contamination to occur potentially affecting groundwater fed streams, private wells, and future needs of the populace. There is no consideration of risks this mine presents in this permit area, considering the water table is very shallow and there are known sand lenses scattered throughout the underground below this permit location. The property values, health, quality of life, impacts on home siding, car and other vehicle paint, and a multitude of other direct costs to the public are nowhere reflected in the antidegradation assessment.

The Illinois EPA requested that the applicant provide further information regarding mine voids located under proposed RDA2 and any potential for further void collapse which may affect the liner. The information submitted indicates further subsidence is not anticipated. With the liner in place at the bottom, nearby identified sand seams and groundwater will not be impacted by the RDA.

56. This letter is also to request that a 60 mil liner be installed instead of the current 40 mil. The location is a proven area of shallow groundwater and the NPDES discharges subject in this permit will enter a tributary to a state designated Biologically Significant Stream. We respectfully submit a 60 mil liner is the standard for basic landfills in Illinois and a reasonable requirement for this permit This Certification will allow mine discharges into waters of the United States which include the Middle Fork Shoal Creek, which is important for its designation and recognition as a state Biologically Significant Stream (BSS). BSS ratings are done as a way to communicate levels of biotic integrity to a wide range of stakeholders with the purpose of conserving biological integrity across the state. The indicated discharge points could impact Central Park Creek, which flows through the city of Hillsboro and is open to public contact at the public park and High School grounds and several other locations. If these added protections of stronger liner and capping are not done, this Disposal Area should be required to be moved. It is located too close to the towns of Hillsboro and Schram City, Montgomery County. This Disposal Area should be required to be in a location away from residential areas and in a location that is not a long-term risk to the area groundwater and surface water resources for future generations and a state Biologically Significant Stream.

Please refer to response Item No. 32 above for clarification on the Biologically Significant Streams in the area.

Also, please refer to responses to Item Nos. number 7 and 53 above regarding risks to groundwater and specifics regarding the effectiveness of the liner. The Illinois EPA requested that the applicant provide further information regarding mine voids located under proposed RDA No. 2 and any potential for further void collapse which may affect the liner. The information submitted indicates further subsidence is not anticipated. With the liner in place at the base of the RDA, nearby sand seams and groundwater will not be impacted by the RDA.

57. Please provide in the Responsiveness Summary how the Illinois EPA has addressed the risk of integrity of an impoundment sitting on top of old mine voids and in an area of high groundwater table.

Please refer to response to Item No. 56 above.

58. Given the toxic nature of coal waste, the high water table in the area and the potential for surface water to be contaminated by connected groundwater, required liners should be at least as thick and impermeable as those required of regular landfills; preparation of the site before the liner is installed and the cover for the disposal site as well should be as least as stringent as those for regular landfills.

Please refer to responses to Item No. 51 and 52 above.

The cover for the RDA at closure is proposed as a 4 foot soil cover. As noted above, the modeling performed for the site shows that compliance with the groundwater standards will be achieved at the compliance points.

Enforcement/Compliance Issues

59. What is the penalty if the company does not comply with their permit and who is in charge of the enforcing the penalty?

    Penalties are addressed in Section 42 of the Illinois Environmental Protection Act and the amount of a penalty would be decided on a case by case bases. Penalties are enforced by the Illinois Pollution Control Board or a court of competent jurisdiction. Finally, the States Attorney of the county in where the violation occurred or the Illinois Attorney General's Office can bring forth a cause of action seeking penalties.

60. Will the Illinois EPA consider the things that are brought up tonight at the hearing when you have already reached the conclusion that the facility is going to work and permit should be issued?

    The Illinois EPA does not reach a final decision on the permit until the draft permit has been through the public comment period and a public hearing, should one be held. The Illinois EPA then reviews all the information presented during the comment period and public hearing before making a final decision on whether or not to issue the permit or if any changes are warranted to the draft permit before issuing. It should also be noted that permit that is public noticed is only a draft permit.

Outside the Scope of the NPDES Permit

61. We have coal dust coming into houses and dust all of the time and noise at night. It was supposed to be quiet out there at this time but at 12 o'clock at night it's not. I'm wondering if there is anything you can do about it or who to contact?

    If there is concerns with coal dust coming of the mine property, citizens are encouraged to call the Illinois EPA's field office to report the problem. Illinois EPA will send staff out to investigate the complaint. The number to the field office for complaints in Montgomery County is 217-557-8761.

    Please refer to the response to Item No. 17(h)above.

62. There was never a public hearing held on the Deer Run Lifetime Air Permit. Deer Run Mine is allowed to contaminate the air with who knows what quantity of fugitive emissions since there are no monitors in Hillsboro. Deer Run does not use stacker tubes in the raw and processed coal areas as indicated in the annual air reports in 2012 and 2013 because the coal piles are high enough for the emitted coal dust to be incompliance with the opacity level at the mine. How much particulate matter permeates the air beyond the mine site? Fugitive dust emanating off the mine site is not adequately controlled by the procedures outlined in the operation permit.

    Deer Run does not test for nor are they required to test for how much particulate matter permeates beyond the mine site. The air permit for Deer Run limits the mine to 12 million clean tons per year or 20 million raw tons per year, which also controls or limits the amount of air emissions generated.

    Also, please refer to the response to Item 17(h) above.

63. Deer Run Mine proposes two waste impoundments with "High Hazard Dams," these are poorly planned for this location in relation to the health of the nearby citizens in this community.

    This is an issue under the jurisdiction of IDNR/Office of Water Resources.

64. In our submitted exhibit, "American Cancer Society statistics for Montgomery County," this community has a high cancer rate and we feel that additional polluted water may contribute to these statistics.

    The Illinois EPA reviewed Exhibit 10 and it does note that Montgomery County has the 19th highest cancer rate of the 102 counties in Illinois. However, the exhibit submitted does not provide any other information except for this number. The permit being issued to Hillsboro Energy for the Deer Run Mine by the Illinois EPA is consistent with the applicable laws, rules and regulations in drafting and issuing this NPDES permit.

65. A road that Abraham Lincoln traveled to Vandalia on and Large County Farm Cemetery in “shadow zone” are two historic landmarks that could be damaged because of Deer Run Mine. Tourists need clean water. These issues have economic impact on the county.

These issues fall under the jurisdiction of IDNR/Office of Water Resources.

Acronyms and Initials

CFR	Code of Federal Regulations
COE	Core of Engineers
CWA	Clean Water Act
DMR	Discharge Monitoring Report
ECHO	Enforcement and Compliance History Online
HUC	Hydrologic unit code
ICIS	Integrated Compliance Information System
IDNR	Illinois Department of Natural Resources
IDPH	Illinois Department of Public Health
IEMA	Illinois Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
ILCS	Illinois Complied Statutes
Ill. Adm. Code	Illinois Administrative Code
mg/L	Milligrams per liter
ng/L	Nanograms per liter
NPDES	National Pollutant Discharge Elimination System
OMM	Office of Mines and Minerals
pH	A Measure of Acidity or Alkalinity of a Solution
RDA	Refuse Disposal Area
SMCRA	Surface Mining Control and Reclamation Act of 1977 (federal)
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
USGS	Untied States Geological Service

DISTRIBUTION OF RESPONSIVENESS SUMMARY

An announcement, that the NPDES permit decision and accompanying responsiveness summary is available on the Illinois EPA website, was mailed to all who registered at the hearing and to all who sent in written comments. Printed copies of this responsiveness summary are available from Barb Lieberoff, 217-524-3038, e-mail: Barb.Lieberoff@illinois.gov.

WHO CAN ANSWER YOUR QUESTIONS

Illinois EPA NPDES Permit:

Illinois EPA NPDES technical decisions:	Larry Crislip	618-993-7200
Legal questions	Stefanie Diers	217-782-5544
Water quality issues	Bob Mosher	217-558-2012
Groundwater issues	Amy Zimmer	217-785-4787
Public hearing of June 4, 2014	Dean Studer	217-558-8280

The public hearing notice, the hearing transcript, the NPDES permit and the responsiveness summary are available on the Illinois EPA website (please copy the website address into your browser):

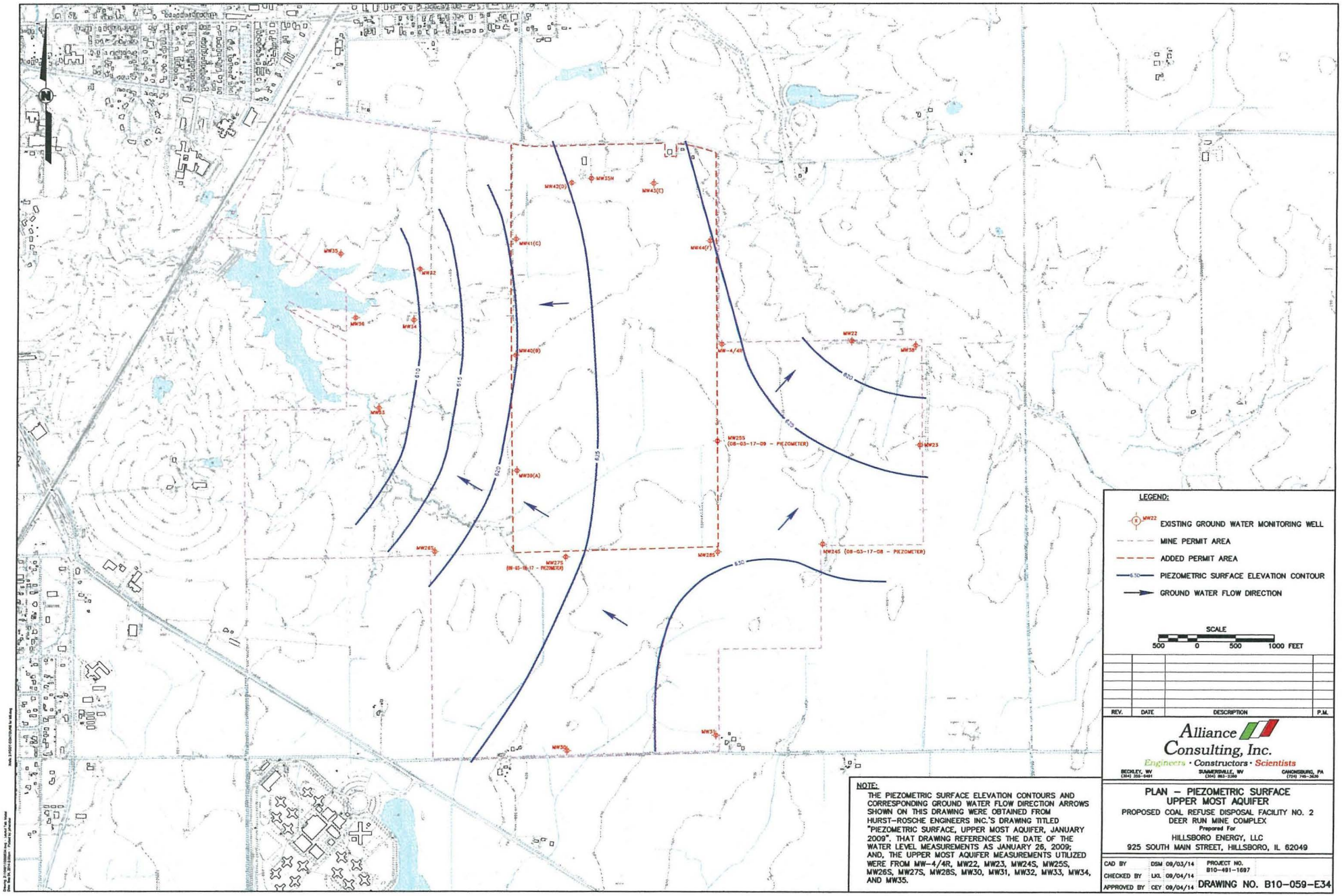
http://www.epa.illinois.gov/public-notices/2013/npdes-notices/index#hillsboro-energy

ATTACHMENT 1

D-1 (STRUCTURE 5 OUTLET)

POND ID	EVENT	QUARTER	YEAR	SAMPLE DATE	Ph	Alkalinity, total (as CaCO3)	Acidity, total (as CaCO3)	Solids, total suspended	Chloride (as Cl)	Sulfate, total (as SO4)	Iron, total (as Fe)	Flow, in conduit or thru treatment plant (MgpD)
D-3	Base	1	2009	1/26/2009	7.06	414	-208	4610	33.4	81	31.5	0
D-1	Base	2	2009	5/29/2009	7.25	60	-29	43	14.2	11	6.57	0.036
D-1	Base	2	2009	6/30/2009	7.51	70	-32	18	12.4	12	3.3	
D-1	Base	3	2009	7/30/2009	7.85	202	-169	13	10.1	21	0.357	
D-1	Base	3	2009	8/18/2009	7.81	228	-176	5	9	20	0.299	0
D-1	Base	4	2009	11/24/2009	7.53	84	-50	10	13	26	2.59	0.216
D-1	Base	1	2010	1/22/2010	7.39	62	-34	34	11	21	3.29	0.3744
D-1	Precip	1	2010	2/5/2010	7.62	93	-56	22	13.6	35	2.03	0.51696
D-1	Precip	1	2010	3/12/2010	7.73	100	-71	22	20.1	39	2.98	0.33552
D-1	Base	2	2010	4/5/2010	8.14	116	-84	5	21.9	50	1.22	0.02736
D-1	Base	2	2010	4/29/2010								0.20016
D-1	Base	2	2010	5/28/2010	9.1	124	-93	5	19.5	37	0.423	0.01728
D-1	Base	2	2010	6/3/2010	9.83				19	32		0.0432
D-1	Base	3	2010	7/1/2010	7.91	82	-59	15	9.3	24	2.43	0.19152
D-1	Base	3	2010	7/27/2010	7.58	46	-26	141	3.1	16	13.5	0
D-1	Base	3	2010	8/27/2010	7.56	120	-96	11	8	25	0.806	0.0144
D-1	Base	3	2010	9/29/2010	7.49	156	-145	13	9	41	0.362	0
D-1	Base	4	2010	11/23/2010	8.99	101	-93	32	14	49	0.557	0.00288
D-1	Base	2	2011	5/3/2011	7.9	109	-97	30	20	60	3.08	0.1152
D-1	Base	1	2012	1/6/2012	8.05	117	-104	5	179	180	0.826	0.216
D-1	Base	2	2012	4/12/2012	9.14	135	-123	8	76	81	0.257	0.216
D-1	Base	2	2012	5/3/2012	8.19							0.504
D-1	Base	3	2012	9/7/2012	7.5	101	-85	14	50	106	0.223	0.36
D-1	Base	4	2012	10/2/2012	7.57	128	-113	5	401	301	0.239	0.72
D-1	Base	1	2013	3/4/2013	7.48	135	-113	37	154	104	1.16	0.864
D-1	Base	2	2013	4/22/2013	7.67	102	-93	7	241	190	1.61	0.72

ATTACHMENT 2



LEGEND:

- EXISTING GROUND WATER MONITORING WELL (MW22)
- MINE PERMIT AREA
- ADDED PERMIT AREA
- PIEZOMETRIC SURFACE ELEVATION CONTOUR (630)
- GROUND WATER FLOW DIRECTION

SCALE

500 0 500 1000 FEET

REV.	DATE	DESCRIPTION	P.M.

NOTE:

THE PIEZOMETRIC SURFACE ELEVATION CONTOURS AND CORRESPONDING GROUND WATER FLOW DIRECTION ARROWS SHOWN ON THIS DRAWING WERE OBTAINED FROM HURST-ROSCHE ENGINEERS INC.'S DRAWING TITLED "PIEZOMETRIC SURFACE, UPPER MOST AQUIFER, JANUARY 2009". THAT DRAWING REFERENCES THE DATE OF THE WATER LEVEL MEASUREMENTS AS JANUARY 26, 2009; AND, THE UPPER MOST AQUIFER MEASUREMENTS UTILIZED WERE FROM MW-4/4R, MW22, MW23, MW24S, MW25S, MW26S, MW27S, MW28S, MW30, MW31, MW32, MW33, MW34, AND MW35.

Alliance Consulting, Inc.
Engineers · Constructors · Scientists
BECKLEY, WV (304) 255-0491
SUMMERSVILLE, WV (304) 863-3280
CANONSBURG, PA (724) 745-3630

PLAN – PIEZOMETRIC SURFACE UPPER MOST AQUIFER

PROPOSED COAL REFUSE DISPOSAL FACILITY NO. 2
DEER RUN MINE COMPLEX

Prepared For
HILLSBORO ENERGY, LLC
925 SOUTH MAIN STREET, HILLSBORO, IL 62049

CAD BY	DSM 09/03/14	PROJECT NO.	B10-491-1697
CHECKED BY	LKL 09/04/14		
APPROVED BY	CEY 09/04/14	DRAWING NO.	B10-059-E34