

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

PEOPLE OF THE STATE OF ILLINOIS,)	
)	
Complainant,)	
)	
v.)	PCB NO. 99-134
)	(Enforcement - Water)
HERITAGE COAL COMPANY, L.L.C.)	
(f/k/a PEABODY COAL COMPANY)	
L.L.C.),)	
)	
Respondent.)	

NOTICE OF ELECTRONIC FILING

To: See Attached Service List

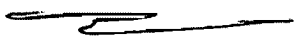
PLEASE TAKE NOTICE that on April 11, 2011, I electronically filed with the Clerk of the Pollution Control Board of the State of Illinois, c/o John T. Therriault, Assistant Clerk, James R. Thompson Center, 100 W. Randolph St., Ste. 11-500, Chicago, IL 60601, COMPLAINANT'S RESPONSE TO MOTION FOR PARTIAL SUMMARY JUDGMENT and MOTION TO EXCEED PAGE LIMITATION, copies of which are attached hereto and herewith served upon you.

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS

LISA MADIGAN,
Attorney General of the
State of Illinois

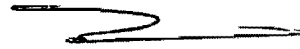
MATTHEW J. DUNN, Chief
Environmental Enforcement/Asbestos
Litigation Division

BY: 
THOMAS DAVIS, Chief
Assistant Attorney General
Environmental Bureau

500 South Second Street
Springfield, Illinois 62706
217/782-9031
Dated: April 11, 2011

CERTIFICATE OF SERVICE

I hereby certify that I did on April 11, 2011, cause to be served by First Class Mail, with postage thereon fully prepaid, by depositing in a United States Post Office Box in Springfield, Illinois, a true and correct copy of the following instruments entitled NOTICE OF ELECTRONIC FILING, COMPLAINANT'S RESPONSE TO MOTION FOR PARTIAL SUMMARY JUDGMENT and MOTION TO EXCEED PAGE LIMITATION upon the persons listed on the Service List.



THOMAS DAVIS, Chief
Assistant Attorney General

This filing is submitted on recycled paper.

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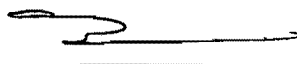
MOTION TO EXCEED PAGE LIMITATION

NOW COMES the Complainant, PEOPLE OF THE STATE OF ILLINOIS, and respectfully requests leave to file its Response to the Respondent's Motion for Summary Judgment. Section 101.302(g) of the Board's Procedural Rules imposes a page limitation of 50 pages for a brief. The People's Response totals 52 pages and leave is respectfully requested to file this brief.

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS,
LISA MADIGAN,
Attorney General of the State of Illinois

MATTHEW J. DUNN, Chief
Environmental Enforcement/Asbestos
Litigation Division

BY: 

THOMAS DAVIS
Environmental Bureau
Assistant Attorney General

500 South Second Street
Springfield, Illinois 62706
217/782-9031
Dated: 4/11/11

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COMPLAINANT'S RESPONSE TO MOTION FOR PARTIAL SUMMARY JUDGMENT

NOW COMES the Complainant, PEOPLE OF THE STATE OF ILLINOIS, and respectfully responds to the Motion for Summary Judgment on Count III of the Third Amended Complaint and states as follows:

INTRODUCTION

The Respondent, Heritage Coal Company LLC ("HCC"), challenges the applicability of the Board's Groundwater Quality Standards ("GWQS") at 35 Ill. Adm. Code Part 620 to the Eagle No. 2 Mine in Gallatin County. We will preface our Response by reciting the grounds set forth by the Respondent [Brief at page 3] with our responsive position on each contention:

"The GWQS established by Section 620.410(a) do not apply because reclamation at the Mine was not completed at the time of the alleged violations." This is a legally correct statement regarding the general regulatory exemption in Section 620.450(b)(2) ("Prior to completion of reclamation at a coal mine, the standards as specified in Sections 620.410(a) and (d), 620.420(a) and (d), 620.430 and 620.440 are not applicable to inorganic constituents and pH."). However, other provisions of Section 620.450(b) specifically limit this exemption in regards to refuse

disposal areas which the record shows is the source of the groundwater contamination.

“The GWQS established by Section 620.301 do not apply because the Disposal Areas do not discharge to ‘resource groundwater.’” The prohibition of Section 620.301 is correctly interpreted to be limited to “the release of any contaminant to a resource groundwater.” In order to be entitled to summary judgment, the Respondent must demonstrate that the groundwater contaminated by the refuse disposal areas cannot be considered as presently being (or capable of being) put to beneficial use due to its suitable quality and is instead a Class IV groundwater pursuant to Section 620.240.

“The GWQS established by Sections 302.208 and 302.304 do not apply because the Disposal Areas are not “not contained within an area from which overburden has been removed.” Although the Complainant disputes the factual statement, it is correct that the provisions of Section 620.450(b)(4) and (5) are only applicable to refuse disposal areas located where overburden removal did not occur.

“At all times after December 5, 2006, the alternative GWQS under Section 620.450(a)(3) apply because a groundwater management zone (‘GMZ’) was established . . . pursuant to Section 620.250(a).” This is legally correct.

This introductory section will determine what the evidentiary record may consist of at this juncture, especially whether the material facts represented to be “undisputed” are reliable, and discuss the purposes of the Illinois Surface Coal Mining Land Conservation and Reclamation Act (“Mining Act”), 225 ILCS 720/1.01 *et seq.*, and regulations promulgated to implement the Illinois Groundwater Protection Act (“IGPA”), 415 ILCS 55/1 *et seq.*, which the Respondent contends are identical. This contention allows the Respondent to argue that the meaning of the

terms employed in Part 620 ought be construed in the context of mining instead of groundwater protection. Our response will provide a more appropriate context in which to consider this argument. The People dispute both the factual basis and the legal bases of HCC's motion.

The Record as to Pleadings and Admissions

In determining whether the moving party is entitled to summary judgment and whether any genuine issue of material fact exists, the Board must construe the pleadings, admissions and affidavits strictly against the movant and liberally in favor of the opponent. A chronology is set forth in our pleadings as to the applicability of statutory and regulatory standards. It is undisputed that the Eagle No. 2 Mine began mining operations in 1968 and ceased such operations on July 12, 1993. Permit No. 34 was issued by the State of Illinois on August 1, 1985 pursuant to the Mining Act, which governs lands affected by coal mining operations after February 1, 1983. The mining permit was revised by the Office of Mines and Minerals, Illinois Department of Natural Resources ("IDNR" or the "Department"), on September 27, 1996; the "results of review" (attached as an exhibit and supported by affidavit) contains the permit findings and conditions, review comments and responses, required modifications to the renewal application, and IDNR's groundwater assessment and findings of probable cumulative hydrologic impacts.

The Illinois Environmental Protection Act and the Board's regulations also became effective subsequent to the commencement of operations at the Eagle No. 2 Mine. The Part 620 standards became effective on November 25, 1991. The People's Third Amended Complaint was filed on September 16, 2002 and attempts to delineate the applicability of the environmental standards to alleged violations occurring prior to and subsequent to November 25, 1991. Lastly, a groundwater management zone ("GMZ") was established on December 6, 2006.

Respondent's Answer to the Complaint

The admissions and denials in the Respondent's Answer (filed on December 23, 2002) are relevant to any consideration of its Motion for Summary Judgment. The Board's rule at Section 103.204(d) regarding an answer to an enforcement complaint provides that the material allegations of the complaint will be taken as admitted if not specifically denied by the answer, unless respondent asserts a lack of knowledge sufficient to form a belief, and allows a respondent to raise affirmative defenses: "Any facts constituting an affirmative defense must be plainly set forth before hearing in the answer or in a supplemental answer. . . ." This rule does not provide any further guidance as to the substantive content of an answer to a complaint, but Section 101.100(b) provides that "the Board may look to the Code of Civil Procedure and the Supreme Court Rules for guidance where the Board's procedural rules are silent."

According to Section 2-610(a) of the Code of Civil Procedure, an answer "shall contain an explicit admission or denial of each allegation of the pleading to which it relates." It is well settled that an admission in a pleading is binding on the party making it, and as to such party it is conclusive as to the admitted fact. Also, the scope of any admission is limited to the actual allegation being admitted. Neither the Board's procedural rules nor the Code of Civil Procedure allows a responding party to "acknowledge" additional factual matters in an answer. The Board must be wary of any arguments based upon "facts" cited within the Respondent's Answer that are not pleaded with the complaint or supported by affidavit.

For instance, in its Answer regarding paragraph 5 of Count I, the Respondent "admits the allegations set forth in the first sentence thereof and denies the allegations set forth in the second, third, fourth, fifth, and sixth sentences thereof." Answer at ¶ 5. The fourth sentence alleges that

“Eagle No. 2 was operated as an underground coal mining facility . . . from 1968 until July 1993.” Complaint at ¶ 5. Instead of admitting any portion of this sentence, the Respondent “acknowledges the following facts with respect to matters that are the subject of said paragraph . . . Eagle No. 2 was operated as an active underground coal mine in 1968 until July 1993, and reclamation activities at the mine have been ongoing thereafter.” Answer at ¶ 5; emphasis added. However, the complaint does not allege that reclamation activities at the mine have been ongoing. This factual claim regarding reclamation activities is also not pleaded in any of the Respondent’s sixteen affirmative defenses. Answer at ¶s 74 - 89. The record exclusive of the Motion for Summary Judgment is devoid of any information regarding reclamation. While the facts and law pertaining to the Respondent’s contentions in its Motion for Summary Judgment will be addressed in detail below, this section will also identify other factual issues as to Count III that are either disputed through explicit denials or otherwise the subject of acknowledgments or assertions by the Respondent.

The nature of the groundwater is also disputed by the Respondent. Paragraph 6 of Count I pleads the following facts: “Eagle No. 2 is located at the eastern edge of the Henry Aquifer, one of the few Class 1 groundwater resources in southern Illinois. The Saline Valley Conservancy District (“SVCD”) public water supply wells are located to the southwest and hydraulically down-gradient from Eagle No. 2.” HCC’s Answer indicated that the Respondent lacked information or knowledge regarding the first sentence and denied the allegations of the second sentence. Proof of these facts is provided by the Illinois EPA counter-affidavits attached hereto.

In its denial of the allegations of paragraph 8 of Count I, the Respondent represents that “As part of its operations at Eagle No. 2, [HCC] constructed and otherwise prepared disposal

areas at the surface portion of the mine, including excavating trenches at some locations, and disposed of substantial quantities of gob and slurry in those areas. The coal mine refuse disposed of at Eagle No. 2 contains certain inorganic chemicals, some of which were present at the time of disposal and some of which were generated after disposal. The groundwater quality data of which [HCC] has knowledge indicate that sulfates present in this refuse have leached into on-site groundwater.” Answer at ¶ 8. In contrast to merely acknowledging complaint allegations, this response constitutes a judicial admission.¹ In addition to sulfates, the People have alleged violations of the GWQS in Part 620 for chloride, manganese, total dissolved solids (“TDS”), and iron. These five contaminants were alleged in paragraph 8 to “have leached from the mine refuse at Eagle No. 2 into the groundwater on-site and have migrated off-site of Eagle No. 2.”

Thus, the only undisputed facts pleaded in the Third Amended Complaint are as follows: the Eagle No. 2 Mine is located in Gallatin County; trenches were excavated to dispose of mine refuse, which contained certain inorganic chemicals; and sulfates present in this refuse have leached into on-site groundwater. In its Answer, the Respondent claims a lack of information and knowledge regarding the Henry Aquifer and (while admitting additional facts in its summary judgment pleadings) denies that any contaminants have migrated off-site of Eagle No. 2.

Respondent’s Proffered Facts and Affidavits

A defendant moving for summary judgment bears the initial burden of coming forward with competent evidentiary material, which if uncontradicted, entitles him to judgment as a

¹ Once a statement of fact has been admitted in pleadings, it constitutes a judicial admission, it is binding on party making it, and it makes it unnecessary for opposing party to introduce evidence in support thereof because it has effect of withdrawing fact from issue.

matter of law.² Only if the defendant satisfies his initial burden of production does the burden shift to the plaintiff to present some factual basis that would arguably entitle it to a favorable judgment.³ If the defendant fails to support his motion for summary judgment with evidentiary facts, the plaintiff may rely on its complaint to establish a genuine issue of fact.⁴

The Respondent's argument provides a list of twenty facts which it represents to be undisputed and material to these issues; each of these facts is purportedly supported by an affidavit or complaint allegation. Brief at pages 3-7. It is well settled that where a moving party's affidavits are uncontested, the material facts recited therein must be taken as true. The People affirmatively state that the factual statements numbered 1 through 12, 14, and 16 through 19 [Brief at pages 3-7] are not disputed, and will contest the remaining statements individually; the counter-affidavits refuting these factual assertions will be discussed as to the particular claim.

The Complainant objects to factual statement #13, which is based upon paragraph 11 of the Brown affidavit. Mr Brown served as the mine engineer at Eagle No. 2 from early 1991 through late 1994. Brown at ¶ 4. Utilizing company records and documents, in late 1993 or early 1994, Mr Brown prepared the chronology now attached to his affidavit. Brown at ¶¶ 8 and 9. The qualifying phrase "at least as early as the beginning of 1984" is confusing and potentially misleading in reference to either the generation of coal mining refuse or the use of disposal areas for refuse placement. The chronology suggests that carbon recovery operations began "at least as

² See *Kielbasa v. St. Mary of Nazareth Hospital*, 209 Ill. App. 3d 401, 406 (1st Dist. 1991); *Kleiss v. Bozdech*, 349 Ill. App. 3d 336, 349 (4th Dist. 2004).

³ *Kleiss*, 349 Ill. App. 3d at 350.

⁴ *Kielbasa*, 209 Ill. App. 3d at 406.

early as the beginning of 1984.” The statement of fact ends with references to “ongoing” and “continuing” disposal and recovery even though the chronology prepared by Brown does not identify any activities beyond July 1993.

The Respondent’s factual statement #15, which cites to paragraphs 4 and 5 of the McGarvie affidavit, represents the following: “As of early 1993, land reclamation so as to establish the approved post-mining land uses for most of the Disposal Areas had not yet begun. Land reclamation of the Disposal Areas in this regard was not completed until a number of years later.” The first sentence is not disputed and is based upon Mr McGarvie’s review of records “from the time active mining began at that facility through the cessation of active mining at that facility.” McGarvie at ¶ 4. However, while the second sentence appears verbatim in paragraph 5 of his affidavit, Mr McGarvie does not indicate when the suggested reclamation of the refuse disposal areas has been completed. In fact, none of Respondent’s proffered facts indicates when reclamation actually did commence and when any such activities might have been completed.

The Complainant objects to factual statement #20, which is based upon an exhibit described in the affidavit of W.C. Blanton, one of the attorneys for HCC, as a printout of the IDNR website. Blanton affidavit at ¶ 3. This statement of fact improperly relies on the IDNR website for a description of the “current status” of Eagle No. 2 under Permit #34 as “In reclamation, has outstanding bond.” The factual issues relating to reclamation must be supported, if at all, by competent and admissible evidence. First of all, this printout summary does not necessarily qualify as a business record and the affidavit provides no foundational showing. The Board’s procedural rule at 35 Ill. Adm. Code 101.626 requires the admission of “evidence that is admissible under the rules of evidence as applied in the civil courts of Illinois, except as

otherwise provided in this Part.” In particular, Section 101.626(e) governs the admission of business records. The Complainant does not dispute that the regulation of coal mining is the “business” of IDNR’s Office of Mines and Minerals. The problem is the manner in which the Respondent is tendering this hearsay information. The lack of foundation precludes consideration of exhibit 1 to the Blanton affidavit.

As of January 1, 2011 the rules of evidence as applied in the civil courts of Illinois are codified in Illinois Rules of Evidence. Rule 802 prohibits the admission of hearsay (“except as provided by these rules, by other rules prescribed by the Supreme Court, or by statutes as provided in Rule 101”). Rule 803 provides that business records and public records “are not excluded by the hearsay rule, even though the declarant is available as a witness” upon a showing of the following:

(6) Records of Regularly Conducted Activity. A memorandum, report, record or data compilation, in any form, of acts, events, conditions, opinions, or diagnoses, made at or near the time by, or from information transmitted by, a person with knowledge, if kept in the course of a regularly conducted business activity, and if it was the regular practice of that business activity to make the memorandum, report, record or data compilation, all as shown by the testimony of the custodian or other qualified witness, or by certification that complies with Rule 902(11), unless the source of information or the method or circumstances of preparation indicate lack of trustworthiness, but not including in criminal cases medical records. The term “business” as used in this paragraph includes business, institution, association, profession, occupation, and calling of every kind, whether or not conducted for profit.

* * *

(8) Public Records and Reports. Records, reports, statements, or data compilations, in any form, of public offices or agencies, setting forth (A) the activities of the office or agency, or (B) matters observed pursuant to duty imposed by law as to which matters there was a duty to report, excluding, however, police accident reports and in criminal cases medical records and matters observed by police officers and other law enforcement personnel, unless the sources of information or other circumstances indicate lack of trustworthiness.

In accordance with Section 101.626 of the Board’s rules, the admissibility of the Blanton

affidavit exhibit depends upon the application of “the rules of evidence as applied in the civil courts of Illinois” as set forth above. To consider the exhibit admissible under Rule 803(6), the Board must be provided with the required foundational showing (“all as shown by the testimony of the custodian or other qualified witness, or by certification that complies with Rule 902(11), unless the source of information or the method or circumstances of preparation indicate lack of trustworthiness”). The Blanton affidavit fails to provide this showing. The printout is not admissible under Rule 803(8) even though IDNR is a public agency because there is no showing that the information set forth was either (A) the activities of the office or agency, or (B) matters observed pursuant to duty imposed by law as to which matters there was a duty to report.

Section 101.516(b) of the Board’s rules governs summary judgment: “If the record, including pleadings, depositions and admissions on file, together with any affidavits, shows that there is no genuine issue of material fact, and that the moving party is entitled to judgment as a matter of law, the Board will enter summary judgment.” The legal and factual sufficiency of affidavits are not defined by the Board’s rules, but pursuant to Section 101.100(b) “the Board may look to the Code of Civil Procedure and the Supreme Court Rules for guidance where the Board’s procedural rules are silent.” Supreme Court Rule 191(a) mandates that an affidavit must meet five requirements: (1) it must be made on the personal knowledge of the affiant; (2) it must consist of facts admissible in evidence; (3) it must state relevant facts, not conclusions; (4) it must have attached sworn or certified copies of all documents on which the affiant relies; and (5) it must affirmatively show that the affiant, if sworn as a witness, can testify competently to its contents. “Compliance with the requirement that an affidavit must affirmatively show that the affiant is qualified to testify at trial is to be determined from the contents of the affidavit itself,

and an express statement to that effect is neither helpful nor required.”⁵

The statements in the Blanton affidavit are insufficient foundation for the attached exhibit. A recent case considered a very similar situation.⁶ In support of a motion for summary judgment, the movant’s attorney (Wald) submitted his affidavit to which was appended a consultant’s (Caruso) letter conveying evidentiary facts; the court found that “Caruso’s unsworn and unverified letter constitutes inadmissible hearsay and cannot be relied upon in support of [the] motion for summary judgment. . . . The fact that Caruso’s letter was attached to Wald’s affidavit does not cure this defect, as the affidavit does not disclose that Wald had personal knowledge of the statements contained in Caruso’s letter or that Wald was able to testify competently to the facts set forth therein.”⁷

Here, the Blanton affidavit is insufficient to bootstrap the admission of the attached exhibit. The remedy is to strike any improper matter from an affidavit.⁸ The IDNR printout is inadmissible as hearsay and the Board may not consider it.

Complainant’s Record Submittals

The Complainant elects to provide affidavits to counter the assertions and arguments of HCC in its motion. These affidavits provide some of the testimony of Rick Cobb and Bill Buscher of the Illinois EPA, and will be discussed in response to the particular contentions of

⁵ *Rinchich v. Village of Bridgeview*, 235 Ill. App. 3d 614, 623-24(1st Dist. 1992), citing *Purtill v. Hess* (1986), 111 Ill.2d 229, 241.

⁶ *Paul H. Schwendener, Inc. v. Jupiter Electric Co., Inc.*, 358 Ill.App. 3d 65 (1st Dist. 2005).

⁷ 358 Ill.App. 3d at 79.

⁸ See *Murphy v. Urso* (1981), 88 Ill.2d 444, 462-63.

Respondent's motion. Additional documentary evidence is also tendered for inclusion in the record. These documents include a company memorandum dated August 12, 1983 produced by the Respondent in discovery and subsequently admitted as genuine through a request to admit. Since discovery materials are not filed with the Board, copies are attached to this exhibit to provide the necessary foundation as to authenticity. The other document is HCC's mining permit.

The IDNR September 27, 1996 "results of review" is submitted as a properly certified copy of public records pursuant to Rule of Evidence 902(4) and Section 101.626 of the Board's Rules. This exhibit provides legitimate factual information (necessary in light of HCC's denial of our factual allegations) and a factual context for the Board's consideration of the groundwater contamination caused by the refuse disposal areas of the Eagle No. 2 Mine. The groundwater assessment documents the failure to prevent the contamination of the Henry Aquifer.

In approving the renewal and revision of Permit No. 34, IDNR made findings as required by its mining rules. In contrast to the factual information cited in the results of review, these findings are IDNR's determinations or conclusions based upon the underlying facts presented in the permit application materials. For instance, the finding pursuant to 62 Ill. Adm. Code 1773.15(c)(5) indicated that the Department "has assessed the probable cumulative impacts of all anticipated coal mining on the hydrologic balance in the cumulative impact area, in accordance with 62 Ill. Adm. Code 1784 and finds that the operations proposed under the application have been designed to prevent material damage to the hydrologic balance outside the proposed permit area (see Appendix C)." See Section III.A. Unfortunately, the Department was wrong.

Section 2.04(c) of the Mining Act mandates that "the Department shall notify various

local governmental bodies, planning agencies, sewage and water treatment authorities, and water companies in the locality [of the mine].” In reviewing this application, IDNR was required to solicit comments from SVCD which expressed several concerns regarding the lack of descriptive information and analytical data, some of which had already been addressed in IDNR’s required modifications, and regarding the potential impact on SVCD’s groundwater supply. In particular, SVCD had commented on the surface impoundments and refuse disposal areas:

Comment - The separation between the bottom of the impoundments and the underlying aquifer is not indicated.

Response - Since no refuse is to be deposited in the impoundments, this information is not pertinent to this revision. . . .

Comment - There is no information provided which indicates the separation of the existing gob and slurry which is on the permit area and proposed to be covered and the underlying aquifer.

Response - As indicated in the comment, the gob and slurry areas currently exist and no change concerning these refuse areas is proposed. The revision addresses borrow areas to cover the refuse and a reclamation plan change to allow the borrow areas to remain as permanent impoundments. Information concerning the separation between refuse areas and the aquifer is not pertinent to this revision.

Comment - There was no discussion as to how groundwater contamination is going to be avoided both presently and long term on the site. Please keep in mind that the Saline Valley Conservation District anticipates operating in its well field for over 50 years.

Response - This was addressed by Modification No. 8. As a response, Peabody incorporated the site characterization report and corrective action plan. The corrective action plan objectives were developed based on site characterization activities, and the geochemical, groundwater flow and precipitation infiltration models and discussions with the Department and IEPA. The objectives include groundwater impact control and mitigation.

Comment - No existing groundwater information from monitoring wells was submitted as a part of this application in order to determine the effect of this application on present and future groundwater quality.

Response - See Modification No. 8. Peabody has, since issuance of Permit No. 34, monitored groundwater for quality and quantity. The existing network of 14 active monitoring wells was augmented with 25 additional observation wells. The additional wells were installed to provide adequate information to assess the water quality for the site characterization report and corrective action plan.

Section V, Appendix B. IDNR duly considered these comments, of course, but sided with the permit applicant, even though it acknowledged the lack of information in the application.

Unfortunately, SVCD was *not* wrong.

Appendix C to the results of review provides the groundwater assessment and findings of probable cumulative hydrologic impact. The legal requirements and technical aspects of this assessment are discussed below. It is fair to say that any assessment by IDNR is only as accurate and valid as the baseline data as to pre-existing conditions and the predictive determination of probable consequences that may be documented by the permit applicant. While the conclusion of the regulatory agency that the Eagle No. 2 Mine “has been designed to prevent material damage to the hydrologic balance outside the permit area” is disproved by the consequential groundwater contamination, the assessment portion of Appendix C is a legitimate source of descriptive information to provide a context for the Board’s review, including the following:

Cumulative Hydrologic Impact Area

* * *

The mine is located within the watershed of Cypress Ditch . . . [which] drains to the Saline River approximately three miles downstream of the permit area. . . .

In this particular site, significant groundwater resources exist which must also be considered. The aquifer considered in this assessment may extend beyond the watershed of Cypress Ditch and will be considered.

However, for the purpose of this assessment, the cumulative hydrologic impact area is considered to be the watershed of Cypress Ditch and the underlying aquifer.

Surface Water

* * *

During the active operations, and now reclamation, at this facility, the applicant will be required to comply with all applicable State and Federal effluent limits. Adherence to those limits will help to ensure that no adverse impacts occur to the hydrologic balance as a result of these operations.

Groundwater The operation is situated in an area of extremely good groundwater

potential. Preliminary reports by both Pryor (1956) and Zuehls, et al. (1981) indicated that the probability of developing a reliable groundwater supply was excellent in this area. Reliable groundwater supplies may be developed in the sands and gravels adjacent to the Ohio River, and have been in nearby Old Shawneetown. Quite different conditions exist within and adjacent to the permit area. During the Wisconsin glacial stage, slackwater dams formed which impounded vast amounts of melting water from the receding glaciers. Approximately 13,000 years ago, one such dam gave way and the ensuing flood waters entered the area approximately two miles north of Shawneetown skirting the nearby Shawneetown Hills (Nelson and Lumm, 1984). Following an old course of the Ohio River, the flood waters forced their way through the gap between the nearby Wildcat and Gold Hills and from there flowed along the present course of the Saline River. In the wake of this event, known as the Maunie Flood, the channel filled with over 100 feet of sand and gravel, and is now classified as the Henry Formation (Willman, et al., 1975). It is this filled channel that is currently being used for the public and private water supplies adjacent to the mine site.

Structural geology of the area is quite complex, with several major faults and associated structures in the area. The Henry Formation is located approximately 200 feet above the No. 5 Coal over most of the area, however, the West Inman Fault is located on the eastern boundary of the shadow area added by Revision No. 4. Here, the coal lies approximately 300 feet below the Henry Formation. This mine is considered "wet" as it proposed to pump approximately 300,000 gallons per day (gpd) from the underground works. Cartwright and Hunt (1978), stated that in a study of 15 underground works only 4 mines pumped volumes of between approximately 80,000 and 1.3 million gpd. The water originated from drips from the sandstone unit directly overlying the No. 5 Coal. Information presented in Nelson and Lumm (1984) suggests that at places not too distant from the mine workings, this overlying unit may be exposed at the base of the unconsolidated material. Should this be the case, this unit may be receiving direct recharge from the Henry Formation. However, as state earlier, over the mining area, this unit is 200 to 300 feet below the bottom of the glacial meltwater channel and separated from it by very low permeability limestones, shales and occasional sandstones. . . .

The operation consumed a total of approximately 1.5 million gpd of groundwater. This came from primarily two sources. Of this total, 300,000 gpd were pumped from the underground works, and the remainder was withdrawn directly from the Henry Formation for such uses as makeup water in the preparation plant, sanitary water supplies and for underground dust suppression. However, the withdrawal of this amount was not anticipated to have any detrimental impacts to water quantity in the area. This conclusion is based on a report prepared for the Saline Valley Conservancy District (SVCD) by the Illinois State Water and Geological Surveys . . . on the feasibility of installing municipal water wells into the same aquifer that underlies the permit area. The report suggested a site approximately one half mile to the northwest of the permit area but easement problems forced the SVCD to install the three wells approximately 2500 feet from the southwest corner of the permit area. Information presented in the report prepared for the SVCD (Poole and Sanderson, 1981) showed that for a well with a capacity of 1.7 million gpd,

drawdowns at a distance of 3000 feet away may be as much as 9.9 feet, based upon the constraints which are used to develop the aquifer model. However, at distances of one mile or more, the drawdown on the piezometric surface was estimated at less than two feet. Since the installation of SVCD's three initial production wells, SVCD has installed two additional pumping wells, one of which is located approximately 1400 feet west of Slurry No. 5. It should be noted that there are several high capacity irrigation wells in the area which are much closer to the SVCD wells. These may contribute to interference with SVCD's wells. Any future development on the part of SVCD to install more wells or to expand its well field should take into account the impacts of water production from these sources as well.

Even though it is anticipated that any adverse impacts will result to adjacent water levels, very little information was available to quantitatively assess the impacts of this operations on groundwater prior to the submittal of Revision No. 6. The method by which the applicant was previously disposing of its coarse refuse material was the primary concern. A cut and fill method was used during most of the life of the mine. Trenches were dug approximately thirty feet deep and the refuse was placed into them. With a thin clay cover of approximately less than ten feet, the material was being placed into the aquifer itself.

Under ambient conditions, measurements made by the applicant showed that the hydraulic gradient was quite low and hence any contamination would not move very far from the mine site. Additionally, once the production well at the mine began operating, any contaminant would tend to be localized at the mine site. With the installation of a high capacity well field in relatively close proximity to the refuse disposal area, it became necessary for the applicant to employ more sophisticated analytical methods for the prediction of impacts to the hydrologic balance.

Initially, the applicant used Random Walk, a mass transport groundwater model first developed by Prickett, et al. (1981). The program takes into account physical characteristics of the aquifer, water withdrawals or injection, pollutant loading and movement rates. The study looked at the increases to total dissolved solids (TDS). Ambient conditions for this area assumed that initial TDS levels were approximately 338 parts per million (ppm). Results show that the TDS levels are not increased at the SVCD wells as long as the mine operates its pumping wells. This is due to the fact that the mine's pumping wells produce a hydraulic gradient such that all infiltration at the mine goes to the mine's own supply well. However, when the wells at the mine are no longer active, the pollutants are predicted to move toward the SVCD wells. TDS is predicted to reach a maximum concentration of 388 ppm in the SVCD wells approximately 30 years after the anticipated mine closure. This is because the mine's water supply well would no longer be functioning and the municipal wells would be the controlling factor in the area's hydraulic gradient. As the site is reclaimed and cover is placed over all of the waste areas, the flow to the aquifer is anticipated to diminish from the refuse areas. This will result in a slight reduction of TDS concentration reaching the wells. The long term impact, 30 years from mine closure, to the SVCD wells is estimated at a final TDS concentration of 373 ppm or an increase of 10.4 percent. Such an increase is not anticipated to be an adverse impact to

the public water supply, as even with this increase, the final level is still well below all applicable drinking water standards. As a part of the study, several additional monitoring wells were installed to gather basic information and provide calibration for their modeling study. For the most part, these wells were installed directly between the waste disposal area and the adjacent SVCD wells.

In 1985 the Department required Peabody to perform a hydrogeologic investigation of the site prior to issuance of Permit No. 34. The investigation utilized a numerical groundwater flow model and included an assessment of potential impacts to the Henry Aquifer by mining activities. The investigation showed that no significant groundwater impacts were occurring outside the mine site permit boundary. The report was accepted by the Department and Permit No. 34 was approved.

In 1992, Peabody conducted a subsurface exploration for the proposed construction of Slurry Cell No. 6. Additionally, Peabody commissioned a groundwater quality assessment in 1992 as a requirement of a permit modification for the installation of Slurry No. 1A. The assessment consisted of a geophysical delineation of the extent of impacted groundwater. The results showed that [the] extent of groundwater impacted by mining activities was largely limited to the area within the permit boundary. Both IEPA and the Department responded favorably to the report but required additional characterization of the nature and extent of impacted groundwater.

Most recently, a site characterization report and corrective action plan was prepared . . . by GeoSyntec Consultants . . . regarding the effects to groundwater quality from coal refuse areas and the potential effects to nearby groundwater users. . . .

A total of 25 monitoring wells were monitored biweekly beginning on December 13, 1994 and continued through March 23, 1995. The wells were sampled and analyzed for selected Class I water quality constituents. The results of the site characterization activities determined that groundwater quality consists of elevated total dissolved solids (TDS) and sulfate concentrations which are limited to the area within the Permit No. 34 boundary except for small areas along the northern edge of the site. Sulfate comprises about 40 to 60 percent of the elevated TDS. Chloride, iron and manganese concentrations and pH . . . are within the ranges of background values for this area. Geochemical testing showed that the coal refuse material contains 9 to 19 percent pyrite which generates acid rock drainage (ARD) upon exposure to air and water. The ARD is the primary factor contributing to the elevated TDS in the groundwater.

The site characterization defined borrow areas which would provide suitable material for constructing a final cover system for the coal refuse materials. With this information, a corrective action plan (CAP) was developed utilizing the site characterization results to supplement the reclamation plan. The CAP has two main elements: coal refuse (ARD) source control, and groundwater impact mitigation. The ARD source control element consisted of an enhanced final cover system for the coal refuse area to limit infiltration of precipitation and prevent further generation of ARD, which would help in decreasing TDS levels. The second element consists of three additional shallow groundwater extraction wells to mitigate the areas beneath the site with greatest effects on groundwater.

Results of review at Section V, Appendix C. With this summary of the facts considered by IDNR in its permitting actions, the Board has a more comprehensive basis to consider HCC's claims.

Statutory Purposes Are Not Identical

The Respondent contends that the "purposes" of the Mining Act and the Part 620 regulations under the IGPA "are the same." Brief at page 14. The argument provides selective quotations from Section 1.02 of the Mining Act, 225 ILCS 720/1.02(a), and Section 620.105 of the Board regulations and contends that "the Mining Act and the Part 620 regulations are therefore 'in para materia,' because the purpose of both statutes is to protect water quality." Brief at page 15. The Respondent attempts to address the meaning of phrases such as "coal mine" and "cumulative impact area," and to argue that "there was no need for these terms to be redefined for purposes of Part 620." Brief at page 12. Citing Illinois case law, HCC suggests that the Board employ a special rule of statutory construction:

where the same word is used in different sections of the same legislative act, the presumption is that the word is employed with the same definite meaning unless there is something in the act to clearly show that a different meaning was intended. [citations omitted]. Although the same presumption does not apply where the same word is used in different statutes, courts have consistently recognized that '[t]he meaning of words used in a given statute may be ascertained from the consideration of other acts *in pari materia* where the words are used.' See *Lake County v. Gateway Houses Foundation, Inc.*, 311 N.E.2d 371, 377 [19 Ill. App. 3d 318, 325] (Ill. App. [2nd Dist.] 1974).

Brief at page 14. This presumption (i.e. same words, same statute, same meanings) is inapplicable.

In fact, the court in *Gateway Houses* actually concludes: "Where, however, words are capable of having various meanings depending on the circumstances in which they are used, the definition in one legislative act has little or no value in determining its meaning in another."⁹ Therefore, the

⁹ 19 Ill. App. 3d at 325.

concept of *in pari materia* has “little or no value” where statutory terms employed in different acts are compared and considered. As a guide to construction, where the Respondent seeks to equate the term “underground mining operations” as used in the Mining Act with the regulatory term “coal mine” as employed in Part 620, the concept of *in pari materia* is simply inapplicable.

The cardinal rules of statutory and regulatory construction are to look to the plain meaning of the language itself and to resort to other aids only in the event of ambiguity. The concept of *in pari materia* (which is Latin for “in the same matter”) is defined to mean “that statutes that are *in pari materia* may be construed together, so that inconsistencies in one statute may be resolved by looking at another statute on the same subject.”¹⁰ The doctrine of *in pari materia* also requires that different sections of the same statute be read harmoniously and viewed as a whole. Where the statutory language is clear and unambiguous, resort to alternative methods of interpretation is inappropriate. The U.S. Supreme Court has “stated time and again that courts must presume that a legislature says in a statute what it means and means in a statute what it says there. . . . When the words of a statute are unambiguous, then . . . ‘judicial inquiry is complete’.”¹¹ The Respondent’s contentions fail when the plain language of the respective provisions is afforded its plain meaning.

The statute itself often articulates this legislative intent. The declaration of purpose in Section 1.02(a) of the Mining Act mandates the Department “to assure that the coal supply essential to the Nation’s and State’s energy requirements, and to their economic well-being is provided [and] to strike a balance between protection of the environment and agricultural

¹⁰ Black’s Law Dictionary, 7th edition at page 794.

¹¹ *Connecticut Nat’l Bank v. Germain*, 503 U.S. 249, 253-54 (1992), quoting *Rubin v. United States*, 449 U.S. 424, 430 (1981).

productivity, and the Nation's need for coal as a source of energy." The Department must also "prevent erosion, stream pollution, water, air and land pollution and other injurious effects to persons, property, wildlife and natural resources," and protect "the health, safety and general welfare of the people, the natural beauty and aesthetic values, and enhancement of the environment in the affected areas of the State," and provide for "the enhancement of wildlife and aquatic resources." The purpose of the Mining Act is to permit the mining of coal through a balancing of interests approach where the environment and agricultural productivity are affected .

Section 620.105 describes the purpose of the Part 620 regulations and Section 2 of the IGPA provides the express intent of the State legislature:

(a) The General Assembly finds that: (i) a large portion of Illinois' citizens rely on groundwater for personal consumption, and industries use a significant amount of groundwater; (ii) contamination of Illinois groundwater will adversely impact the health and welfare of its citizens and adversely impact the economic viability of the State; (iii) contamination of Illinois' groundwater is occurring; (iv) protection of groundwater is a necessity for future economic development in this State.

(b) Therefore, it is the policy of the State of Illinois to restore, protect, and enhance the groundwaters of the State, as a natural and public resource. The State recognizes the essential and pervasive role of groundwater in the social and economic well-being of the people of Illinois, and its vital importance to the general health, safety, and welfare. It is further recognized as consistent with this policy that the groundwater resources of the State be utilized for beneficial and legitimate purposes; that waste and degradation of the resources be prevented; and that the underground water resource be managed to allow for maximum benefit of the people of the State of Illinois.

415 ILCS 55/2. The purpose of this statute is to protect the groundwater as a natural and public resource without regard to coal mining or any other legitimate enterprise. The legislature intended no balancing of interests but rather to achieve the "maximum benefit" for its citizens.

The Respondent's assertion of identical purposes between the Mining Act and Part 620 ignored the controlling statement by the General Assembly in enacting the IGPA. The importance

of the Board's explanatory provision in Section 620.105 relates to the implementation of groundwater protection regulations. HCC is mistaken in believing that the purposes of the Mining Act and Part 620 are "the same" and in arguing that the coal mining statute and the groundwater protection regulations are *in pari materia*, and this mistake affects most of its arguments regarding the various regulatory terms. The Respondent relies on this legal doctrine to provide self-serving interpretations and constructions of certain "mining" terms utilized in Part 620. This doctrine, however, does not dictate that terms in separate statutes be given identical meanings but only that separate statutes bearing on the same subject matter be given harmonious interpretation.¹²

In interpreting the actual statutes, the Board should consider, in addition to the statutory language, the reason for the law, the problems to be remedied, and the objects and purposes sought by the law.¹³ Here, the Board must also interpret and construe the rules so as to achieve the statutory purposes of the IGPA and must be indifferent to matters relating to the protection and support of coal mining.

Federal Mining Law Also Requires Groundwater Protection

The Illinois Mining Act and the regulations promulgated thereunder comprise the Illinois Regulatory Program, approved by the U.S. Department of the Interior's Office of Surface Mining Reclamation and Enforcement¹⁴ as comporting with the federal Surface Mining Control and Reclamation Act of 1977 ("SMCRA").¹⁵ Congressional legislation, and subsequent State action

¹² See *Gerard v. White*, 356 Ill. App. 3d 11, 17 (1st Dist. 2005).

¹³ See *People v. Donoho* (2003), 204 Ill. 2d 159, 171-72.

¹⁴ Hereinafter referenced as "OSM" or the Office of Surface Mining.

¹⁵ 30 U.S.C. 1201 *et seq.*; also referenced as the "federal Act."

by the Illinois General Assembly, involved unprecedented participation by not only interest groups but also the citizenry around the country, due in large part to the burgeoning environmental protection movement. It is not an exaggeration to suggest that every proposed statutory term and its defined meaning was subject to scrutiny during the Congressional debates and legislative processes. The resulting compromise was to balance the conservation and preservation of natural resources with the production of coal.

Under the federal program,¹⁶ each State regulatory program must be no less effective than the federal regulations in achieving the requirements of the Act. The Illinois Program was approved by the Office of Surface Mining on April 4, 1984.¹⁷ Any State regulatory revision or amendment must be reviewed and submitted for public comment through publication in the Federal Register. All approved program changes are then codified in the Code of Federal Regulations.¹⁸ This rulemaking process is critical to assure that Illinois and other approved States conform their program implementation rules to the concept of minimal national standards.¹⁹

The compromise to balance the conservation and preservation of natural resources with the production of coal did not relegate the protection of groundwater. In fact, the federal program assigns critical importance to groundwater through the cumulative impact approach to the assessment of hydrologic impacts of both surface and underground mining. This national

¹⁶ 30 CFR §§ 730.5, 732.15, and 732.17.

¹⁷ 49 Fed. Reg. 13494.

¹⁸ 30 CFR § 913.15.

¹⁹ See *Bragg v. West Virginia Coal Ass'n*, 248 F.3d 275, 289 (4th Cir. 2001) (“after a State enacts statutes and regulations that are approved by the Secretary, these statutes and regulations become operative, and the federal law and regulations, while continuing to provide the “blueprint” against which to evaluate the State’s program, “drop out” as operative provisions”).

standards approach and the ability of a State to appropriately implement the mandatory regulatory requirements are the continuing subject of litigation.

The focus of *Ohio River Valley Environmental Coalition v. Salazar* is the requirement for a cumulative hydrologic impact assessment.²⁰ When applying for a mining permit, the applicant must determine the probable hydrologic consequences of the proposed operations, both within the mine site and the surrounding area. This determination is used by the regulatory agency to conduct an assessment of the “cumulative impact area” in order to ascertain “whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.” The permit applicant must provide hydrologic information pursuant to 30 CFR § 780.21 for surface mining and 30 CFR § 784.14 for underground mining. The federal court in West Virginia engaged in analyses that may be useful to the Board in considering the legal issues raised in HCC’s motion.

The court first noted that “in order to comply with SMCRA and its corresponding regulations, a state program’s statutes and regulations must be no less stringent than SMCRA and no less effective than the federal regulations.” The regulation at 30 CFR § 730.5 provides a semantic framework to achieve national standards:

Consistent with and in accordance with mean:

(a) With regard to the Act, the State laws and regulations are no less stringent than, meet the minimum requirements of and include all applicable provisions of the Act.

(b) With regard to the Secretary’s regulations, the State laws and regulations are no less effective than the Secretary’s regulations in meeting the requirements of the Act.

²⁰ 2011 WL 11287 (S.D.W.Va. 2011). See also *Ohio River Valley Environmental Coalition v. Kempthorne*, 473 F.2d 94 (4th Cir. 2006).

In practice, this means that a State is mandated (“no less stringent”) to achieve through its laws and regulations the statutory requirements of SMCRA while it has some discretion (“no less effective”) regarding the substantive requirements of its program in meeting the regulatory requirements of the federal program. The court’s inquiry as to the consistency of State and federal law was premised upon the statutory provision at 30 U.S.C. § 1292(a)(3): “Nothing in [SMCRA] shall be construed as superseding, amending, modifying, or repealing” the Clean Water Act (“CWA”) or with any rule or regulation promulgated thereunder.” The issue for adjudication, however, was whether the West Virginia rules regarding cumulative impact are “no less effective” than the corresponding federal regulations:²¹

OSM also found that the connection of the material damage definition to the water quality standards was “not inconsistent” with the link between the federal water monitoring requirements under the SMCRA regulations, 30 CFR §§ 780.21 and 784.14, and detection of material damage. These regulations require that “current and approved postmining land use” should be considered in developing criteria for monitoring surface and ground water, which is used to determine whether or not material damage is occurring. To OSM, the logic behind tying the monitoring requirements to postmining land use is akin to the logic of tying the material damage definition to existing water uses. This link is strengthened by West Virginia’s explanation of how the definition is to be applied, “since water quality standards established under the Clean Water Act are linked to both existing and designated uses.” Further, as the water quality standards do not apply to surface water quantity or ground water quality or quantity, OSM noted that the material damage definition must allow room for the development of additional criteria to consider in determining material damage. OSM concluded that the definition “does not limit West Virginia’s authority or obligation to do so.” On the basis of this conclusion and its reliance on West Virginia’s incorporation of its water quality standards into the definition, OSM concluded that the West Virginia definition does not “limit[] the reach of material damage in a way that reduces the effectiveness of its program so that it would be less effective than Federal rules in achieving the purposes of SMCRA .”

The Environmental Protection Agency (“EPA”) in its concurrence expressed concern that the “amendments may be subject to interpretations that would be inconsistent with the CWA. . . .” The agency, like the plaintiffs, emphasized that “water quality

²¹ Slip op. at 5-6, internal record citations omitted and emphasis in original.

standards require protection of *designated uses* as well as existing uses.” It nonetheless acquiesced to the amendments as, under § 1292 of SMCRA, the “amendments must be construed and implemented consistent with the CWA, NPDES regulations, and other relevant environmental statutes.” OSM expressed similar concerns. In its findings on the effect of adding the material damage definition, the OSM stated that its approval was “based upon West Virginia implementing this new definition consistent with its explanation provided with the proposed amendment.... Should we later find that this definition is not being implemented in a manner consistent [with the explanatory letter], OSM may revisit this finding.”

The court upheld the federally approved State regulations and found that “West Virginia’s material damage definition does not supercede, amend, modify, or repeal the Clean Water Act.”

This recent federal case is mentioned here to focus our attention on the delineation and assessment of a cumulative impact area. The *Ohio River Valley Environmental Coalition* case acknowledges that the water quality standards established under the Clean Water Act are linked to both existing and designated uses. Here, the Board will appreciate that the water quality standards it established under the IGPA are linked to both existing and designated uses.

The pertinent parts of the Illinois mining rule (62 Ill. Adm Code 1784.14) regarding hydrologic information provides:

- (e) Determination of the probable hydrologic consequences (PHC).
 - 1) The application shall contain a determination of the probable hydrologic consequences of the proposed operation on the proposed permit area, shadow area and adjacent area, with respect to the hydrologic regime and the quantity and quality of water in surface and ground water systems under all seasonal conditions, including the contents of dissolved and total suspended solids, total iron, pH, total manganese, and other parameters required by the Department if such parameters are necessary to assure an accurate determination of probable hydrologic consequences on a site-specific basis.
 - 2) The PHC determination shall be based on baseline hydrologic, geologic and other information collected for the permit application and may include data statistically representative of the site.
 - 3) The PHC determination shall include findings on:

- A) Whether adverse impacts may occur to the hydrologic balance;
 - B) Whether acid-forming or toxic-forming materials are present that could result in the contamination of surface-or ground-water supplies;
 - C) What impact the proposed operation will have on:
 - i) sediment yield from the disturbed areas;
 - ii) acidity, total suspended and dissolved solids, and other important water quality parameters of local impact;
 - iii) flooding or stream-flow alteration;
 - iv) ground-water and surface-water availability; and
 - v) other characteristics as required by the Department, based upon public comment and the Department's technical review; and
 - D) Whether the underground mining activities conducted after January 19, 1996 may result in contamination, diminution or interruption of a well or spring in existence at the time the permit application is submitted and used for domestic, drinking or residential purposes within the permit, shadow or adjacent areas.
- 4) An application for a permit revision shall be reviewed by the Department to determine whether a new or updated PHC determination shall be required.
- f) Cumulative hydrologic impact assessment.
- 1) The Department shall provide an assessment of the probable cumulative hydrologic impacts of the proposed operation and all anticipated mining upon surface and ground water systems in the cumulative impact area. This assessment shall be sufficient for purposes of permit approval, to determine whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The Department shall allow the submittal of data and analyses by the permittee in accordance with subsection (c).
 - 2) An application for a permit revision shall be reviewed by the Department to determine whether a new or updated assessment shall be required.
- g) The application shall include a plan with maps and descriptions, indicating how the relevant requirements . . . will be met. The plan shall be specific to local hydrologic conditions. It shall contain steps to be taken during mining and reclamation, through bond release, to minimize disturbances to the hydrologic balance within the permit, shadow, and adjacent areas; to prevent material damage outside the permit area; to meet the applicable Federal and State water quality laws and regulations. The plan shall include the measures to be taken to avoid acid or toxic drainage; prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow; provide

water treatment facilities when needed; control drainage; restore approximate premining recharge capacity. The plan shall specifically address any potential adverse hydrologic consequences identified in subsection (e) and shall include preventative and remedial measures.

The Board should note that paragraph (e) requires the applicant to make a determination of the probable hydrologic consequences of the proposed operation upon the quantity and quality of ground water and surface water under seasonal flow in the proposed permit and adjacent areas. This determination is a predictive estimate of potential impacts on the hydrologic balance and serves as a source of basic information for the regulatory authority when preparing the assessment. It will be used by the regulatory authority to evaluate whether the operation has been designed to minimize disturbances to the hydrologic balance both within and outside the permit area and to prevent material damage to the hydrologic balance outside the permit area. This paragraph specifies minimum analytical findings and estimates and allows the regulatory authority to expand the findings to be made. The findings from the PHC determination have a direct bearing on remedial measures, monitoring requirements, and supplemental baseline information requirements that will be set for a permit applicant.

Paragraph (f) requires the regulatory authority to prepare an assessment of the probable cumulative hydrologic impacts of the proposed operation and all anticipated mining upon the surface and groundwater systems within the cumulative impact area. The assessment must be sufficient to determine, for purposes of permit approval, whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

Paragraph (g) sets out the required elements of the hydrology reclamation plan which must be included within the permit application. This plan must indicate the steps to be taken during

mining and reclamation through bond release to meet the hydrologic balance protection requirements; to minimize disturbance to the hydrologic balance within the permit and adjacent areas; to prevent material damage to the hydrologic balance outside the permit area; and to meet applicable federal and State water quality laws and regulations. Also, the plan must specifically address any potential adverse hydrologic consequences identified in the PHC determination by including preventive and remedial measures.

Section 1784.14 was revised in 1999 to address changes required by the Energy Policy Act of 1992 regarding the replacement of drinking, domestic, and residential water supplies that have been adversely impacted by underground coal mining operations. OSM notified Illinois in May 1996 that State program amendments were required because of the new Section 720(a) of SMCRA (resulting from the Energy Policy Act) and the promulgation of implementing federal regulations. OSM again notified Illinois on April 1, 1999 that existing provisions of Section 1784.14 were insufficient to require the necessary baseline hydrologic information for ground water overlaying or adjacent to underground workings. The previous version of the mining rule was deemed less effective than the corresponding federal regulation:²²

because the Illinois definitions of "permit area" and "adjacent area" do not include the shadow area. "Shadow area" is the term used by Illinois to differentiate the surface over underground workings areas from the surface permitted and bonded areas. Therefore, Illinois' regulation would not require baseline hydrologic information for ground water overlaying or adjacent to underground workings. In response to our letter . . . the revised subsection requires ground water quantity descriptions for the permit, shadow, and adjacent areas to include, at a minimum, rates of discharge or usage and elevation of the potentiometric surface in the coal to be mined. It also requires this information for each water bearing stratum above the coal to be mined and in each water bearing stratum which may be potentially impacted below the coal to be mined.

²² 64 Fed. Reg. 68024,68025-26 (December 6, 1999).

The legal deficiencies in the State mining rules existed during the time period of the Department's groundwater assessment of cumulative hydrologic impacts in Appendix C to the September 27, 1996 results of review. The finding that the Eagle No. 2 Mine would not cause "material damage to the hydrologic balance outside the permit area" was made without the necessary baseline hydrologic information for ground water overlaying or adjacent to underground workings.

ARGUMENT

HCC argues that the groundwater quality standards ("GWQS") do not apply to its operations at the Eagle No. 2 Mine and there cannot be any liability under Part 620 for the violations alleged in Count III. The Respondent asserts that the GWQS established by Section 620.410(a) do not apply because reclamation at the mine was not completed at the time of the alleged violations. Brief at page 11. The pertinent time frame is from November 25, 1991 (when the Part 620 standards became effective) until December 6, 2006 (when the GMZ was established upon Illinois EPA approval). Other contentions raised in the motion, but not factually supported by the record, include the following: "The Disposal Areas are located 'within an underground coal mine' for purposes of Section 620.450(b)(1)." Brief at page 12. "The Disposal Areas are also part of a 'coal mine' for purposes of Section 620.450(b)(2). . . ." Brief at page 16. "HCC's operation of the Disposal Areas is not subject to Section 620.301 because those areas do not discharge to a 'resource groundwater'." Brief at page 19. "The Disposal Areas are located within areas from which overburden has been removed." Brief at page 22. The Respondent also contends that certain refuse disposal areas (i.e. Slurry No. 1A and Slurry No. 5) "have been in 'continuous operation' since before February 1983 and have not been laterally expanded," and thus are not subject to these regulations. Brief at page 24. Lastly, HCC contends that any liability under Part

620 “does not extend past December 5, 2006.” Brief at page 27. Each of these contentions will be addressed accordingly, and in the context of the Complainant’s well-pleaded factual allegations and the Respondent’s pervasive denials of such facts.

The GWQS Established By Section 620.410(a) Do Not Apply Because Reclamation At The Mine Was Not Completed At The Time Of The Alleged Violations:

By the express terms of Section 620.450(b)(1), Section 620.450 applies to any inorganic chemical constituent or pH that may be present in any groundwater within an underground coal mine itself or within the cumulative impact area of groundwater for which the hydrologic balance has been disturbed by permitted mining (either surface or underground). Section 620.450(b)(2) provides that the GWQS established by Section 620.410(a) do not apply to such groundwater (i.e. within an underground coal mine itself or within the cumulative impact area) during the coal mining operations until reclamation may be completed. However, Sections 620.450(b)(4) and (5) explicitly provide exceptions to this exemption in regard to refuse disposal areas.

Prior to completion of reclamation, Section 620.410(a) is not applicable; after completion of reclamation, Section 620.410(a) is (with a special exception as to total dissolved solids) applicable. The applicability of GWQS depends upon the facts.

The Respondent’s claim that the water quality standards of Section 620.410(a) are generally inapplicable (because the reclamation of the Eagle No. 2 Mine is not completed) is legally correct, but this does not end the inquiry. The allegations of Count III are pleaded (at ¶s 42 and 43) to fall under the purview of Sections 620.450(b)(4) and (5):

By causing or allowing the release of inorganic chemicals to enter the groundwater, and by causing the groundwater within the outermost edge of the Eagle No. 2 coal refuse areas at the monitoring well locations as noted in paragraph 10 to exceed the groundwater quality standards for coal refuse disposal areas pursuant to Section 620.450(b)(4) and (b)(5) . . .

the Respondent has violated and continues to violate Section 12(a) of the Act, 415 ILCS 5/12(a) (1998), and 35 Ill. Adm. Code 620.410(a) (1996).

By causing or allowing the release of inorganic chemicals to enter the groundwater, and by causing the groundwater not located within the outermost edge of the coal refuse disposal areas at Eagle No. 2 at the monitoring well locations as noted in paragraph 10 to exceed the Class I: Potable Resource Groundwater standards, the Respondent has violated and continues to violate Section 12(a) of the Act, 415 ILCS 5/12(a) (1998), and 35 Ill. Adm. Code 620.410(a) (1996).

The Respondent denies both of these paragraphs. Answer at ¶s 69 and 70. The allegations of violation pertain respectively to groundwater located within the outermost edge of the coal refuse disposal areas (¶ 42) and groundwater located outside of the coal refuse disposal areas (¶ 43). This distinction between groundwater located within this boundary of the outermost edge of the coal refuse disposal areas and groundwater located outside such boundary is made in Sections 620.250 and 620.505 but this distinction is not the focus of HCC's arguments.

The People's complaint, however, does address this distinction in our pleadings. At Paragraph 15 of Count I (incorporated into Count III as ¶ 10) we allege that the refuse disposal areas are subject to the standards of Section 620.450(b)(4) and (b)(5) by providing a factual description of each refuse disposal areas, including location, commencement of operation, permit authorization, and any modification, and identifies the monitoring wells located within such areas, but the Respondent denies these factual allegations. Answer at ¶ 15. Paragraph 15 of Count I also cites the applicable legal requirements for each refuse disposal area. Additional factually descriptive information as to the monitoring wells located within such areas and the monitoring wells installed beyond the boundaries of the refuse disposal areas is provided in paragraph 20 of Count I (incorporated into Count III as ¶ 15) and paragraph 27 of Count II (incorporated into Count III as ¶ 28). Although these allegations comprise the groundwater monitoring data reported

by the Respondent to the Illinois EPA, each of the hundreds of water quality exceedances is denied in a wholesale fashion. Answer at ¶ 20 and ¶ 45. HCC's denials of the complaint allegations work against HCC by restricting the record upon which it may rely for summary judgment. This also diminishes the Respondent's ability to claim that it is legally entitled to relief and increases the likelihood of a genuine issue of material fact.

Section 620.450(b) applies to coal mining conducted on the surface and underground. Subsection (b)(1) exempts the Eagle No. 2 Mine from the generally applicable standards for groundwater within the underground coal mine; this would be the 300,000 gallons per day pumped from the underground works during its operations to extract coal. The source of the contaminants that polluted the groundwater, however, is the refuse disposal areas. Sections 620.450(b)(4) and (5) apply to refuse disposal areas "not contained within the area from which overburden has been removed."

The following summary contains the facts alleged by the Complainant and denied by the Respondent regarding the refuse disposal areas, permits and monitoring wells, and the regulatory provisions thereby made applicable to each refuse disposal area:

Slurry No. 1A: Slurry No. 1 was placed into operation prior to February 1, 1983 but was modified to include additional area through vertical and lateral expansion after November 25, 1991. It was then designated Slurry 1A and placed into operation after November 25, 1991. Subtitle D Permit No. 1992-MD-6977 was issued on August 24, 1992. Monitoring wells within the outermost edge of Slurry 1A: GW-9. Applicable GWQS: Section 620.410 pursuant to Section 620.450(b)(5)(B).

Slurry No. 2: Slurry No. 2 was placed into operation prior to February 1, 1983. Subtitle D Permit No. 1972-MD-1618-OP5 was issued on June 8, 1978. Applicable GWQS: Section 620.440(c)

pursuant to Section 620.450(b)(4)(B).

Slurry No. 3 (Refuse No. 3): Slurry No. 3 was placed into operation after February 1, 1983 and before November 25, 1991. Supplemental Construction Authorization was granted on October 23, 1984. NPDES Permit No. IL0044661 was issued on July 28, 1988. Groundwater within the outermost edge of Slurry No. 3 is a potential source of water for public or food processing use. Monitoring wells within the outermost edge of Slurry No. 3: GW-4, GW-6, MW-17. Applicable GWQS: Section 302.304 pursuant to Section 620.450(b)(4)(A).

Slurry No. 5: The West Refuse Area (predecessor to Slurry No. 5) was placed into operation prior to February 1, 1983 and was subsequently modified to include additional area through vertical expansion after February 1, 1983 and before November 25, 1991. Supplemental Construction Authorization was granted February 27, 1987. NPDES Permit No. IL0044661 was issued on July 28, 1988. Slurry No. 5 was placed into operation after February 1, 1983 and before November 25, 1991. Groundwater within the outermost edge of Slurry No. 5 is a potential source of water for public or food processing use. Monitoring wells within the outermost edge of Slurry No. 5: GW-11, MW-14, MW-18, MW-23, MW-24 & MW-25. Applicable GWQS: Section 302.304 pursuant to Section 620.450(b)(4)(A).

South 40 Refuse Area: Subtitle D Permit No. 1972-MD-1618-OP-4 was issued on October 17, 1977. The South 40 Refuse Area was placed into operation prior to February 1, 1983. There are several monitoring wells which are not located within the outermost edge of the coal refuse disposal areas: GW-13, GW-14, GW-15, GW-16, GW-17, GW-18, GW-19, GW-20, GW-26, MW-1, MW-2, MW-3, MW-4, MW-7, MW-9, MW-10, MW-19, & MW-21. Applicable GWQS: Section 620.440(c) pursuant to Section 620.450(b)(4)(B).

The groundwater on site at Eagle No. 2 not located within the outer most edge of the coal preparation plant, Slurry No. 1A, Slurry No. 2, Slurry No. 3, Slurry No. 5 and the South 40 Refuse Area, and extending off site to areas including the SVCD well fields, is Class I: Potable Resource Groundwater pursuant to Section 620.210(a)(4) and is subject to the standards specified in Section 620.410. There are several monitoring wells which are not located within the outermost edge of the coal refuse disposal areas: GW-13, GW-14, GW-15, GW-16, GW-17, GW-18, GW-19, GW-20, GW-26, MW-1, MW-2, MW-3, MW-4, MW-7, MW-9, MW-10, MW-19, & MW-21. These wells are subject to the standards specified in Section 620.410.

Pursuant to Section 620.505(a)(3), compliance with the standards for groundwater that underlies a coal mine refuse disposal area is to be determined at the outermost edge as specified in Section 620.240(f)(1) or the location of monitoring wells in existence as of November 25, 1991. Due to the record consisting to a large extent of factual allegations denied by the Respondent, the Board would be required to address such contested factual issues in order to determine questions of legal applicability. The People, therefore, submit that genuine issues of material fact already exist or are created by the motion for summary judgment. As noted in the introductory section, the denials to the complaint allegations are in some instances "supplemented" by answers to particular paragraphs that alternatively seek to "acknowledge" factual matters that are perceived by the Respondent to be the subject of such allegations. The intent may have been in good faith but the lack of clarity as to what is actually being admitted undercuts any argument that the Respondent is entitled to judgment as a matter of law. As the Respondent noted in its Brief, the purpose of a summary judgment proceeding is not to try an issue of fact, but "to determine whether any genuine issue of material fact exists." Brief at page 11.

The important factual issues regarding the refuse disposal areas are discussed by Mr Cobb and Mr Buscher in their testimonial affidavits. Based upon these pertinent and relevant facts, the Illinois EPA properly and objectively concludes that the refuse disposal areas are subject to Sections 620.450(b)(4) and (5).

The Respondent argues that the refuse disposal areas are located “within an underground coal mine” for purposes of Section 620.450(b)(1). Brief at page 12. As discussed in the introductory section of this Response, HCC attempts to employ definitions from other sources to explain or clarify language in Part 620. The need for explanation or clarification has not been demonstrated because the language is not ambiguous. The resort to interpretative aids, such as the concept of *in pari materia*, is unnecessary. It is well-settled that administrative rules and regulations (promulgated within the scope of the legislative enactment’s grant of authority and consistent with the enabling statutes) are to be interpreted in the same ways as the statute itself.

“Only where the language of the statute is ambiguous may the court resort to other aids of statutory construction.”²³ When a statute is ambiguous, an interpretation by an agency charged with administering it is generally entitled to significant deference.²⁴ However, an agency may not expand or contract the scope of a statute under the guise of interpretation.²⁵ The Respondent seemingly does not contend that Part 620 is ambiguous but if this were its contention, the Illinois EPA’s positions (first articulated during the Board’s rulemaking proceedings and applied subsequently to this enforcement matter) as discussed in the testimonial affidavits would be

²³ *People v. Glisson* (2002), 202 Ill.2d 499, 505.

²⁴ *Illinois Consolidated Telephone Co. v. Illinois Commerce Commission* (1983), 95 Ill.2d 142, 152.

²⁵ *Van's Material Co. v. Department of Revenue* (1989), 131 Ill.2d 196, 203.

entitled to significant deference. Additionally, there is no claim that the Illinois EPA (in this pending enforcement matter) or the Board (in the prior rulemaking proceedings) acted to expand or contract the scope of the IGPA under the guise of interpretation.

Likewise with rules and regulations, the “primary objective in construing a statute is to give effect to the intention of the legislature. The language of the statute is the best indication of legislative intent. The statute should be evaluated as a whole, and each provision construed in connection with every other section. When the language is unambiguous, we must apply the statute without resorting to further aids of statutory construction.”²⁶ The court also applied “the general rule of statutory construction that when the same words appear in different parts of the same statute, they should be given the same meaning absent some contextual indication that the legislature intended otherwise.”²⁷ In construing a statute, a court is not at liberty to depart from the plain language of the statute by reading into it exceptions, limitations, or conditions that the legislature did not express.²⁸

The meaning and utility of any given regulatory provision may best be determined by looking to the statute. Therefore, Part 620 must be read in light of the purposes of the IGPA and not the Mining Act. The purposes of a particular statute are to be interpreted and accomplished by a comprehensive reading of the statutory provisions, beginning with the legislative findings. Here, Section 2 of the IGPA provides a clear and concise declaration of the intent of the General Assembly. See page 21 *supra*. To begin with the obvious: there is no mention of mining in

²⁶ *People v. Grever* (2006), 222 Ill.2d 321, 328-29.

²⁷ *Id.* at 331.

²⁸ *Eagan v. Chicago Transit Authority* (1994), 158 Ill.2d 527, 532.

Section 2. Definitions specific to mining are not included in Section 3. Most importantly, the grant of authority for regulations in Section 8 does not make any provision for the special treatment of mining. In order to effectuate the public policy articulated by the legislature and to implement the statutory mandates of the IGPA, the Board was required to consider the following:

(1) recognition that groundwaters differ in many important respects from surface waters, including water quality, rate of movement, direction of flow, accessibility, susceptibility to pollution, and use; (2) classification of groundwaters on an appropriate basis, such as their utility as a resource or susceptibility to contamination; (3) preference for numerical water quality standards, where possible, over narrative standards, especially where specific contaminants have been commonly detected in groundwaters or where federal drinking water levels or advisories are available; (4) application of nondegradation provisions for appropriate groundwaters, including notification limitations to trigger preventive response activities; (5) relevant experiences from other states where groundwater protection programs have been implemented; and (6) existing methods of detecting and quantifying contaminants with reasonable analytical certainty.

415 ILCS 55/8(b). The goal is nondegradation and no balancing of other interests is afforded by the law.

In contrast, the Mining Act is intended to promote mining while protecting natural resources through conservation and reclamation. As the regulatory agency, the Department is directed "to strike a balance between protection of the environment and agricultural productivity, and the Nation's need for coal as a source of energy." Section 1.02(a) declares the public policy of the State of Illinois:

It is declared to be the policy of this State to provide for conservation and reclamation of lands affected by surface and underground coal mining in order to restore them to optimum future productive use and to provide for their return to productive use including but not limited to: the planting of forests; the seeding of grasses and legumes for grazing purposes; the planting of crops for harvest; the enhancement of wildlife and aquatic resources; the establishment of recreational, residential and industrial sites; the establishment of new bodies of water for recreational, agricultural, and wildlife conservation purposes; and for the conservation, development, management, and appropriate use of all the natural resources of such areas for compatible multiple purposes,

to aid in maintaining or improving the tax base; and protecting the health, safety and general welfare of the people, the natural beauty and aesthetic values, and enhancement of the environment in the affected areas of the State; to prevent erosion, stream pollution, water, air and land pollution and other injurious effects to persons, property, wildlife and natural resources; to assure that the coal supply essential to the Nation's and State's energy requirements, and to their economic well-being is provided; to strike a balance between protection of the environment and agricultural productivity, and the Nation's need for coal as a source of energy; and to assure that land conservation and reclamation plans for all mining operations are available for the prior consideration of the public, and of County governments within whose jurisdiction such lands will be affected by coal mining.

225 ILCS 720/1.02(a). It is the duty of the Office of Mines and Minerals to strike this necessary balance. Any implication that the Illinois EPA or the Board ought to somehow weigh mining interests in the application and enforcement of the IGPA and the Part 620 rules is unfounded.

Therefore, the Board must construe the IGPA and the Part 620 rules in order to achieve the purposes of such laws. Since the language of the statute is the best indication of legislative intent, the Board must continue to support "the essential and pervasive role of groundwater in the social and economic well-being of the people of Illinois, and its vital importance to the general health, safety, and welfare." This may be accomplished by applying the Part 620 rules in the context of the public policy and legislative intent. The People's enforcement efforts need not be impeded by an expansive reading of the limited exemptions of Section 620.450(b). Instead, the Board ought to be quite skeptical of HCC's arguments.

As noted, the Respondent argues that the refuse disposal areas are located "within an underground coal mine" and "within the cumulative impact area of groundwater for which the hydrologic balance has been disturbed from a permitted coal mine" for purposes of Section 620.450(b)(1). Brief at page 12. HCC also contends that the refuse disposal areas are part of a "coal mine" for purposes of Section 620.450(b)(2). Brief at page 16. As also noted, HCC denies

almost all of the material facts regarding the refuse disposal areas. However, with our evidentiary submissions, the record does show that impermeable barriers were not placed beneath any refuse disposal areas even though Mr Gastreich warned in an August 12, 1983 company memo that this posed “a very high potential for pollution of a major aquifer used for public water supply.”

Gastreich memo. This evidentiary exhibit also provides insight into the Respondent’s disregard for the affected groundwater. HCC knew then that the location for the refuse disposal areas “lies *immediately* above the sand and gravel outwash of the Henry Formation which is a major *shallow* aquifer” and “lies in an area designated [by the U.S. Geological Survey] as having a high ground water contamination potential because of the high hydraulic conductivity of the overlying unconsolidated material, shallow bedrock, and a high water table.” Gastreich memo; emphases added. Despite these prevailing geological conditions, Mr. Gastreich noted that the mine refuse will be disposed of above or within the local water table.

This memo provides evidentiary facts for the record. Obviously, the trenches excavated on the surface lands are not actually located “within” an underground mine. In fact, the refuse disposal units are actually located within or immediately above a major shallow aquifer which is actually being used as a public water supply. This aquifer is actually located between the land surface and the underground levels at which coal was mined. Incredibly, no liners were installed. It is also undisputed that this resource groundwater was affected by the contaminants leaching from the refuse disposal areas.

Is the affected groundwater, however, actually located “within the cumulative impact area of groundwater for which the hydrologic balance has been disturbed from a permitted coal mine?” The Board cannot accept the Department’s substantive determinations and findings in the

groundwater assessment because the technical rules regarding the necessary minimum data to support such an assessment were legally deficient at that time. The Board also cannot accept the conclusions on behalf of the Respondent because the record in this matter does not factually support such conclusions. This is apparently why the Respondent resorts to these semantic gymnastics to attempt to show that the refuse disposal areas are subsumed within the mining definitions of what a mine is.

Here is also where the Respondent's arguments devolve entirely from the inappropriate application of *in pari materia* and other interpretative aids. The presumption espoused by the mining company is basically that the terminology employed by the Department in the mining permit process should have the same meaning in the rules proposed and developed by the Illinois EPA and the Board. This approach makes sense where the separate definitions for a term or phrase are virtually identical. For instance, "cumulative impact area" is defined consistently by the Board at Section 620.110 and by the Department at 62 Ill. Adm. Code Part 1701 as the area, including the permitted coal mine area, within which impacts resulting from the proposed operation may interact with the impacts of all anticipated mining on surface and groundwater systems. The mining and groundwater rules define "hydrologic balance" exactly the same way: "the relationship between the quality and quantity of water inflow to, water outflow from, and water storage in a hydrologic unit such as a drainage basin, aquifer, soil zone, lake, or reservoir. It encompasses the dynamic relationships among precipitation, runoff, evaporation, and changes in ground and surface water storage." Therefore, the legal meanings of these two terms ("cumulative impact area" and "hydrologic balance") are virtually identical.

The pertinent inquiry is more factual than legal. The underground mine clearly disturbed

the hydrologic balance of the groundwater actually located within the mine itself. There is nothing in the record, however, to show that the hydrologic balance of the major shallow aquifer was actually disturbed by mining activities or operations. The Respondent does not address these factual issues. Instead, HCC relies upon the broad mining definitions of “underground mining operations” and various related terms which are not used in the Part 620 rules. The Respondent’s objective is to show that the refuse disposal areas are included within the meaning of a “coal mine.” Brief at page 16.

Section 1.03(a)(26) of the Mining Act defines “underground mining operations” and Part 1701 of the mining rules defines “underground mining activities” to include areas utilized for the disposal and storage of waste. Operations or activities incidental to underground mining but conducted on the surface include refuse disposal areas. The mining rules also provide additional definitions:

“Affected area” means, with respect to surface mining activities, any land or water upon or in which those activities are conducted or located. With respect to underground mining activities, affected area means: any water or surface land upon which those activities are conducted or located.

“Disturbed area” means an area where vegetation, topsoil, or overburden is removed or upon which topsoil, spoil, coal processing waste, underground development waste, or noncoal waste is placed by surface coal mining operations. Those areas are classified as disturbed until reclamation is complete and the performance bond or other assurance of performance required by 62 Ill. Adm. Code 1800 is released.

“Permit area” means the area of land and water within the boundaries of the permit which are designated on the permit application maps, as approved by the Department. This area shall include all areas which are or will be affected by the surface coal mining and reclamation operations during the term of the permit indicated on the approved map which the operator submitted with the operator’s application and which is required to be bonded under 62 Ill. Adm. Code 1800 and where the operator proposes to conduct surface coal mining and reclamation operations under the permit, including all disturbed areas; provided, that areas adequately bonded under another valid permit may be excluded from a

permit area. The permit area excludes the area defined in this Part as the shadow area.

“Shadow area” means any area beyond the limits of the permit area in which underground mine workings are located. This area includes all resources above and below the coal that are protected by the State Act that may be adversely impacted by underground mining operations including impacts of subsidence.

It is reasonable to consider (for purposes of mining) that the refuse disposal areas at Eagle No. 2 are located in both an “affected area” and a “disturbed area” (since the trenches were excavated into the water table) and that the “permit area” comprises the “affected area” and the “disturbed area” but excludes the “shadow area.” Moreover, since the “cumulative impact area” includes by definition the “permit area” the refuse disposal areas at Eagle No. 2 are located in the “cumulative impact area.” There still remains the critical issue of whether the hydrologic balance of the shallow groundwater was disturbed. The type of disturbance obviously differs according to whether the land surface or the hydrologic balance is being disturbed. The placement of refuse upon the land and the excavation of disposal areas within the land make such land a “disturbed area” without regard to the impacts upon the groundwater. More importantly, for purposes of Part 620, the groundwater may be contaminated without its hydrologic balance necessarily being disturbed. The Section 620.450(b)(1) exemption from the GWQS applies only “within the cumulative impact area of groundwater for which the hydrologic balance has been disturbed from a permitted coal mine area. . . .”

In other words, the regulatory exemption for coal mines in the Part 620 regulations does not apply to the entire cumulative impact area, but only to such portion for which the hydrologic balance is disturbed by mining. After all, the groundwater assessment adopted an expansive view of the cumulative impact area to include not only the Eagle No. 2 Mine but also the “literally

dozens of other mine sites, both active and abandoned, [that] exist in the Saline River watershed,” which drains an area of approximately 1062 square miles, but then stated that “assessment of a watershed of this size would not provide an accurate understanding of the impacts of this operation.” Cypress Ditch drains into the Saline River three miles downstream of the permit area and thus, while not quantified in scope, serves as a sub-watershed of the Saline River. For purposes of its September 1996 groundwater assessment, the Department assumed the cumulative impact area “to be the watershed of Cypress Ditch and the underlying aquifer.” Section III.A.

The Respondent does not attempt to clarify the extent of the cumulative impact area and, more importantly, that portion of the cumulative impact area for which the hydrologic balance of the groundwater has been disturbed by its operations. In fact, it is this lack of a precise delineation that the Respondent relies upon in its “similar terms/identical meaning” argument. The implications of this argument are that the adverse impacts of a coal mine’s broadly defined operations and activities upon any groundwater are simply the consequences of mining. The Board must reject that argument.

The GWQS Established By Section 620.301 Do Not Apply Because The Disposal Areas Do Not Discharge To “Resource Groundwater”:

Section 620.301 provides the following generally applicable prohibitions: “No person shall cause, threaten or allow the release of any contaminant to a resource groundwater such that:

- 1) Treatment or additional treatment is necessary to continue an existing use or to assure a potential use of such groundwater; or
- 2) An existing or potential use of such groundwater is precluded.”

The Respondent contends that the groundwater to which the refuse disposal areas discharged should not be considered to be a “resource” groundwater and is instead a Class IV

groundwater. This contention is based upon the undisputed fact that mining had commenced prior to February 1, 1983 and the factually unsupported assertion that “the groundwater at issue is clearly ‘within a previously mined area.’” Brief at page 20.

The phrase “previously mined area” is defined at Section 620.110 as meaning “land disturbed or affected by coal mining operations prior to February 1, 1983.” As discussed above, the mining rules provide definitions for “affected area” and “disturbed area” but these definitions are neither applicable nor helpful. In fact, the brevity of this particular argument raises more questions, especially in light of the Respondent’s denials of the People’s well-pleaded factual allegations specific to the various refuse disposal areas. For instance, the Complaint alleges that Slurry No. 1 was placed into operation prior to February 1, 1983 and subsequently modified to include additional area through vertical and lateral expansion after November 25, 1991; Slurry No. 2 was placed into operation prior to February 1, 1983; Slurry No. 3 was placed into operation after February 1, 1983 and before November 25, 1991; the West Refuse Area (predecessor to Slurry No. 5) was placed into operation prior to February 1, 1983 and was subsequently modified to include additional area through vertical expansion after February 1, 1983 and before November 25, 1991; and the South 40 Refuse Area was placed into operation prior to February 1, 1983. HCC has denied these facts. Answer at ¶ 20 on page 5 and ¶ 45 on page 8. The Board may not endeavor to resolve disputed factual matters in ruling on the motion.

The Respondent, however, apparently does not argue that because the refuse disposal areas (except for Slurry No. 3) were placed in operation prior to February 1, 1983, the land in which they were excavated constitute “areas utilized for the disposal and storage of waste” under the mining definitions and therefore should be considered as a “previously mined area” under Part

620. Such an argument would, of course, utterly depend upon using mining definitions to interpret and construe a term defined within Section 620.110. Once again, unless there is an overriding ambiguity in the statutory or regulatory language, other terms defined in other laws are not relevant and no construction aids are allowed. A “previously mined area” is land that has been mined prior to February 1, 1983. The installation of a refuse disposal unit should not result in the classification of the groundwater contaminated by such refuse as a Class IV groundwater pursuant to Section 620.240(g).

The argument actually presented is premised upon a lack of information (i.e. a genuine issue of material fact):

The groundwater therefore must be characterized as Class IV groundwater unless the State presents evidence establishing that the groundwater is capable of consistently meeting the standards of Section 620.410 (which apply to Class I groundwater) or 620.420 (which apply to Class II groundwater). The State has not presented – and in fact, cannot present – such evidence. To the contrary, the IEPA approval of a GMZ for the Mine constitutes that agency’s conclusion that those standards can not be met by HCC with reasonable effort.

Brief at page 20. A party claiming legal entitlement to summary judgment may not rely upon a prediction that the opposing party may not prove its case. More particularly, the complaint allegations denied by this Respondent show that the groundwater contaminated by the refuse disposal areas was and is utilized by the Saline Valley Conservancy District as a public water supply. The Cobb and Buscher affidavits also provide sufficient evidentiary facts to support these allegations. This proof adequately supports the alleged violations of Section 620.301.

As to the alternative argument (the excavation of the refuse disposal areas as constituting previous mining), the provisions of Section 620.450(b)(4) and (5) would specifically apply depending upon the circumstances set forth therein. These circumstances wholly consist of

whether the refuse disposal area is “contained within the area from which overburden has been removed” and “was placed into operation prior to February 1, 1983.” These provisions only apply to refuse disposal areas not contained within the area from which overburden has been removed and will be discussed below.

The GWQS established By Section 302.208 and Section 302.304 Do Not Apply:

The Respondent contends that the GWQS established by Sections 302.208 and 302.304 do not apply because the refuse disposal areas are located within areas from which it alleges that “overburden” has been removed. This term is defined only in Part 1701: “‘Overburden’ means material of any nature, consolidated or unconsolidated, that overlies a coal deposit, excluding topsoil.” Once again, the Respondent contends that “the definitions in the Mining Regulations should be applied to the interpretation of terms in the groundwater quality standards pertaining to mining.” Brief at page 23. Once again, the proffered legal support for this notion is the inappropriate application of *in pari materia* and other interpretative aids. The Respondent insists that we “must construe laws relating to the same subject with reference to each other, so as to give effect to all of the provisions of each if possible,” citing *Cinkus v. Village of Stickney Municipal Officers Electoral Board*.²⁹

The Supreme Court in *Cinkus* addressed the respective meanings of the word “eligible” as used in the Illinois Municipal Code and the Election Code. The court seemingly found that “the word is ambiguous in that it relates to being elected to office as well as being capable of holding office,” before noting that it had previously held that provisions of the Election Code and the

²⁹ 228 Ill.2d 200 (2008).

Municipal Code may be considered *in pari materia* for purposes of statutory construction.³⁰ In this appropriate instance, a court presumes that the legislature intended that two or more statutes which relate to the same subject are to be operative and harmonious. A court must compare statutes relating to the same subject and construe them with reference to each other, so as to give effect to all of the provisions of each if possible.

While the eligibility to seek election and hold office is clearly the “same subject” in the provisions of the Municipal Code and the Election Code, the promotion of mining and the protection of groundwater are not virtually identical or even partially similar. Before you reach the question of same subject, there must be some sort of determination of ambiguity. This determination by the court in *Cinkus* was rather cursory in light of its 1988 decision holding the Municipal Code and the Election Code to be *in pari materia*: “If we were to construe the word ‘eligible’ in isolation, we obviously would be forced to conclude that the word is ambiguous in that it relates to being elected to office as well as being capable of holding office.”³¹ The Board cannot resort to aids of construction without first finding the term “overburden” to be ambiguous and such a finding does not appear to be reasonable whether the term is considered in “isolation” or more appropriately in the context of Part 620.

Contrary to the situation in the *Cinkus* case where the court was concerned with provisions of both statutes, the Board is here directly concerned only with Part 620 and not the Mining Act or its rules. The fact that Section 620.110 explicitly defines “previously mined area” to mean something different than its mining definition is significant, but more importantly is the fact that it

³⁰ *Id.* at 218-19.

³¹ *Id.* at 218.

has an explicit meaning under Part 620. This term as used in Section 620.240 is not ambiguous and “overburden” as used in Section 620.450(b) is not ambiguous.

What the Respondent seeks to do is to artificially create ambiguity where none exists. In particular, it conflates “the area from which overburden has been removed” with the “previously mined area” and the “permitted coal mine area.” The generally applicable cardinal rule of interpretation (reiterated in the *Cinkus* case) is to give the plain meaning to the plain language. In other words, to use common sense. For instance, there are many differences between the surface and underground mining of coal; the Mining Act mandates separate performance standards and the mining rules make numerous distinctions regarding technical matters. The Part 620 regulations are designed to prevent groundwater contamination and most of the technical differences between underground and surface mining are of little practical or legal consequence. Thus, the removal of overburden is what distinguishes surface mining from underground mining. Any groundwater disturbed by surface mining is regulated in the same way as groundwater within an underground mine and both, during mining and reclamation, are exempt from the otherwise applicable GWQS.

The Respondent’s argument regarding overburden is based upon a fundamentally misplaced perspective; HCC seeks to construe the Part 620 rules in the context of the Mining Act and rules so that the meaning of any mine-related term used in the GWQS is forced as a “square peg” into the “round hole” of groundwater protection. Mr Cobb discusses in his affidavit the effort to address mining concerns during the rulemaking. The Board certainly appreciates that “mining concerns” are not one-sided; it is technically practicable and economically reasonable to both extract coal and comply with environmental and groundwater protection regulations. Coal

production is not entitled to any priority over the nondegradation of resource groundwaters. The regulatory exemptions provided by Sections 620.450(b)(1) and (2) are limited by the exceptions within Sections 620.450(b)(4) and (5). The Board need not and must not restrict the applicability of these exceptions regarding the siting of refuse disposal areas, and thereby preclude liability for HCC's failure to prevent material damage to the Henry Aquifer.

In promulgating Part 620, the Board allowed refuse disposal areas for a surface mine to be sited within the area from which overburden has been removed. Since overburden removal is not necessary for underground mining, refuse disposal areas for mines such as Eagle No. 2 are not located within an area from which overburden has been removed and are not subject only to the regulatory exemptions provided by Sections 620.450(b)(1) and (2). The Respondent seeks relief by a hyper-technical reading of language used to distinguish surface and underground mining.

As noted, "overburden" is specifically defined for mining purposes but no definition is provided in the groundwater regulations. Coal deposits are found underground. Any material (except for "topsoil" which is also defined for mining purposes) covering the coal deposits is considered to be overburden. The removal of overburden is necessary for surface mining but not for underground mining. The record certainly does not show that overburden was removed at the Eagle No. 2 Mine. In fact, the geologic cross section diagram discussed by Mr Cobb and attached as Appendix III to his affidavit shows the placement of a representative refuse disposal area with the overburden intact. Yet, HCC persists in trying to hammer home its square peg.

However, assuming *arguendo* that the Respondent can make the law conform to its legal arguments (instead of the appropriate application of the law to the facts or, more precisely, the application of the appropriate law to the facts), there is a genuine issue of material fact as to

whether any slurry unit is actually “contained within the area from which overburden has been removed.” If the Respondent claims that the meaning of “overburden” or any other so-called mining term as used in Part 620 must conform to its mining definition, then there is still a factual issue and the non-movant is still entitled to any reasonable inferences to possibly resolve the factual issue. The record shows that the excavation of trenches into the water table did remove material overlying the coal deposits; assuming this material was something other than topsoil, then it must be overburden. However, factual assumptions of this nature are not acceptable. It is reasonable, however, to make the inference that topsoil would have been removed during any excavation. Therefore, contrary to the implications of Respondent’s argument, an area where topsoil is removed does not qualify (under the Part 1701 definition) as an “area from which overburden has been removed.” While it may be necessary to define in the Mining Act and rules numerous terms for mining purposes, the IGPA and the Part 620 rules focus on the protection of groundwater from any and all activities and operations within the State of Illinois, including but not limited to mining.

The last of Respondent’s arguments also seeks to utilize mining terminology to “explain” language use in Part 620. Section 620.450(b)(4)(B) employs the term “continuous operation” which is not specifically defined in Section 620.110 or Part 1701. The contention is that Slurry No. 1A and Slurry No. 5 are subject to the Class IV GWQS of Section 620.440(c) because they have been in continuous operation since before February 1983 and have not been laterally expanded. Brief at page 24. This contention contradicts the complaint allegations that Slurry No. 1 was placed into operation prior to February 1, 1983 and subsequently modified to include additional area through vertical and lateral expansion after November 25, 1991. It was then

designated Slurry 1A and placed into operation after November 25, 1991. The People assert that the applicable GWQS are imposed by Section 620.410 pursuant to Section 620.450(b)(5)(B). As to Slurry No. 5, the West Refuse Area (predecessor to Slurry No. 5) was placed into operation prior to February 1, 1983 and was subsequently modified to include additional area through vertical expansion after February 1, 1983 and before November 25, 1991. Slurry No. 5 was placed into operation after February 1, 1983 and before November 25, 1991.

HCC claims that neither of the People's contentions regarding these two slurry areas "is factually correct." Brief at page 24. Therefore, there is another genuine issue of material fact which the Board may not attempt to resolve and which precludes summary judgment.

In conclusion, the GWQS established by Section 302.208 and 302.304 apply (pursuant to Sections 620.450(b)(4) and (5)) to the groundwater contaminated by the refuse disposal areas placed into operation after February 1, 1983, and before November 25, 1991. As noted above, the complaint allegations regarding the dates of operation and any subsequent modifications are denied by the Respondent. The People assert that the applicable GWQS for Slurry No. 3 and Slurry No. 5 are Sections 302.208 and 302.304 pursuant to Section 620.450(b)(4)(A) because these two units were placed into operation after February 1, 1983 and before November 25, 1991.

HCC's Liability, If Any, Does Not Extend Past December 5, 2006

The Third Amended Complaint was filed prior to the approval and establishment of the GMZ in accordance with Section 620.250 for the Eagle No. 2 Mine. The People agree that the Respondent's liability for civil penalties does not extend past December 5, 2006.

CONCLUSION

The Respondent's legal arguments do not demonstrate that it is legally entitled to relief.

The genuine issues of material fact identified above preclude entry of summary judgment, except regarding the GMZ contention. The counter-affidavits and evidentiary exhibits submitted by the People contradict many of the Respondent's factual claims and provide an appropriate context for the Board to consider and reject the repeated assertions that the Board's groundwater regulations must be construed in light of the Respondent's view of the applicable mining laws. In order to achieve the critical objectives of the Illinois Groundwater Protection Act, the Board must enforce the plain meaning of Part 620.

WHEREFORE, the Complainant, PEOPLE OF THE STATE OF ILLINOIS, respectfully requests that the Motion for Summary Judgment be DENIED.

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS,
LISA MADIGAN,
Attorney General of the State of Illinois

MATTHEW J. DUNN, Chief
Environmental Enforcement/Asbestos
Litigation Division

BY: 


THOMAS DAVIS
Environmental Bureau
Assistant Attorney General

500 South Second Street
Springfield, Illinois 62706
217/782-9031

Dated: 4/11/11


STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF MINES AND MINERALS

I, Joseph Angleton, Manager of the Illinois Department of Natural Resources, Office of Mines and Minerals, hereby certify that I am authorized to hold custody of the public records for the Peabody Coal n/k/a Heritage Coal Company LLC in Gallatin County, Illinois, and specifically Results of Review, dated 9/27/96, for Revision Application No. 6 to Permit No. 34 – Eagle No. 2 Mine. The attached document is a true and correct copy of the public records in my custody.



Joseph Angleton, Manager

Sworn and authorized before me
this 11th day of February __, 2011



Notary Public



**Results of Review
Permanent Program Revision Application No. 6 to Permit No. 34
Peabody Coal Company
Eagle No. 2 Mine**

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The Illinois Department of Natural Resources (Department), Office of Mines and Minerals, Land Reclamation Division, the Regulatory Authority in Illinois under the Surface Mining Control and Reclamation Act of 1977 (Federal Act), 30 U.S.C. Section 1201 *et seq.* has reviewed Peabody Coal Company's (Peabody), Eagle No. 2 Mine application for revision No. 6 to Permit No. 34 in accordance with the Surface Coal Mining Land Conservation and Reclamation Act (State Act), 225 ILCS 720, and the Department's regulations at 62 Ill. Adm. Code 1700-1850.

Peabody has submitted in writing the modifications required by the Department's April 11, 1996, letter (Appendix A). These modifications have been reviewed and approved by the Department. Pursuant to 62 Ill. Adm. Code 1773.19, the Department has decided to approve the application as modified. The Department's decision is based upon a review of the record as a whole, and is supported and documented by the record. The finding and reasons for the Department's decision are set forth below. The period for administrative review under 62 Ill. Adm. Code 1847.3 commences as of the date of this decision.

I. SUMMARY OF REVISION APPLICATION NO. 6 TO PERMIT NO. 34

Surface coal mining and reclamation operations revision application No. 6 to Permit No. 34 submitted by Peabody, for its Eagle No. 2 Mine, proposes a revision on 587.6 acres. The proposed revision changes the post-mining land use to reflect the future of the Eagle No. 2 area. This revision decreases the acreage in pasture with a corresponding increase in the post-mining acreage designated as wildlife/wetland, water resources, and industrial/commercial.

The following is a summary of the pre-mining land uses shown by Peabody, and the proposed post-mining land uses:

	<u>Original Pre-mining</u>	<u>Approved Post-mining</u>	<u>Proposed Post-mining</u>
Cropland	182.0	56.3	56.3
Water Resources	17.0	1.3	3.0
Pastureland	26.0	513.8	363.8
Residential	0.0	0.2	0.2
Industrial/Commercial	323.0	16.0	21.5
Wildlife Habitat / Wetland	0.0	0.0	142.8
Forest	10.0	0.0	0.0
Undeveloped	20.0	0.0	0.0
Total	<u>578.0</u>	<u>*587.6</u>	<u>*587.6</u>

*There have been three (3) incidental boundary revisions which have added 9.6 acres to the original permit.

II. PROVISIONS FOR PUBLIC PARTICIPATION

The Department finds that the public participation requirements of 62 Ill. Adm. Code 1773.13 and 1773.14 have been met.

The 587.6 acre permit application was filed with the Department on September 29, 1995, and was deemed complete on November 6, 1995. The applicant placed a newspaper advertisement of the proposed operation in the Gallatin Democrat, a newspaper of general circulation in the area affected, published in Gallatin County, once a week for four consecutive weeks, beginning on November 30, 1995. The applicant filed two copies of the permit application with the County Clerk of Gallatin County, in accordance with 62 Ill. Adm. Code 1773.13(a)(2), on November 27, 1995. Copies of the application were sent to the following State Agencies: Illinois Department of Agriculture (IDOA), Illinois Environmental Protection Agency (IEPA), and Illinois Historic Preservation Agency (IHPA), and the Natural Resources Conservation Service (NRCS) on December 14, 1995, for review and comment. Written notification of the application was given to those governmental agencies and entities required to receive notice under 62 Ill. Adm. Code 1773.13(a)(3).

State Agency comments on this application have been received by the Department, with the source and date of comments as follows: IDOA (December 22, 1995); IEPA (January 10, 1996); IHPA (May 31, 1996); and Saline Valley Conservation District (January 3, 1996).

The NRCS did not comment on this application.

No requests for an informal conference or public hearing were received by the Department.

All comments received have been considered by the Department in reviewing this application. The Department's responses to these comments are set forth in Appendix B.

All comments received on permit revision application No. 6 to Permit No. 34 have been furnished to Peabody, and have been filed for public inspection at the office of the Gallatin County Clerk.

III. SUMMARY OF THE DEPARTMENT'S FINDINGS

The Department, upon completing its review of the information set forth in the application, the required modifications submitted (see Appendix A) and information otherwise available, as described below, and made available to the applicant, and after considering the comments of State Agencies, and all other comments received, makes the following findings:

A. Findings Required by 62 Ill. Adm. Code 1773.15

1773.15(b)(1) The Department finds that the applicant or any person who owns or controls the applicant is not currently in violation of the State Act, Federal Act or any other law or regulation referred to in Section 1773.15(b)(1).

1773.15(b)(3) The applicant, anyone who owns or controls the applicant, or the operator specified in the application does not control and has not controlled surface coal mining and reclamation operations with a demonstrated pattern of willful violations of the Federal or State Acts of such nature and duration and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the Federal or State Acts.

1773.15(c)(1) The permit application as modified is accurate and complete and all requirements of the Federal and State Acts and the regulatory program have been complied with.

1773.15(c)(2) Peabody has demonstrated that reclamation as required by the Federal and State Acts and the regulatory program can be accomplished under the reclamation plan contained in the permit application, as modified.

1773.15(c)(3)(A) The proposed permit area is not within an area under study or administrative proceedings under a petition, filed pursuant to 62 Ill. Adm. Code 1764, to have an area designated as unsuitable for surface coal mining operations.

1773.15(c)(3)(B) The proposed permit area is not within an area designated as unsuitable for mining pursuant to 62 Ill. Adm. Code 1762 and 1764 or subject to the prohibitions or limitations of 62 Ill. Adm. Code 1761.11 and 1761.12, except as delineated as follow:

1761.11(a) The proposed permit area does not include any lands within the boundaries of the National Park System, the National Wildlife Refuge System, the National System of Trails, the National Wilderness Preservation System, the Wild and Scenic Rivers System, and National Recreation Areas designated by Act of Congress.

1761.11(b) The proposed permit area is not on any Federal lands within the boundaries of any national forest.

1761.11(c) The proposed surface coal mining and reclamation operations will not adversely affect any publicly owned park or any privately owned or publicly owned places included on the National Register of Historic Places.

1761.11(d) The proposed permit area is within one hundred (100) feet of the outside right-of-way line of public roads in Gallatin County, described in the original findings for Permit No. 34 and incorporated herein by reference. This revision involves relocation of land uses and does not propose any mining activity that will affect any of the nearby public roads.

The Department finds the interests of the public and affected landowners will be protected from the proposed mining operations as a result of the measures to be taken by Peabody, described in the mining operations plan concerning these roads.

1761.11(e) The proposed permit area is within three hundred (300) feet of several occupied dwellings. These dwellings were addressed in the Revision No. 1 to Permit No. 34 findings and are herein incorporated by reference.

1761.11(f) The proposed permit area is not within three hundred (300) feet measured horizontally of any public building, school, community, or institutional building. A church has recently (within two years) been constructed across Route 13 from the mine entrance road and is within 300 feet of the permit area. This church is subject to valid existing rights. The permit area is not located adjacent to a public park.

1761.11(g) The proposed permit area is not within one hundred (100) feet measured horizontally of a cemetery.

1773.15(c)(4) Not applicable to this revision.

1773.15(c)(5) The Department has assessed the probable cumulative impacts of all anticipated coal mining on the hydrologic balance in the cumulative impact area, in accordance with 62 Ill. Adm. Code 1784 and finds that the operations proposed under the application have been designed to prevent material damage to the hydrologic balance outside the proposed permit area (see Appendix C).

1773.15(c)(6) Peabody has not proposed the use of existing structures in the permit application.

1773.15(c)(7) No additional fees are required as a result of this revision. The Department finds that the applicant has paid all reclamation fees from previous and existing operations as required by 30 CFR 870.

1773.15(c)(8) The requirements of 62 Ill. Adm. Code 1785 are not applicable to this revision.

1773.15(c)(9) The requirements of this section are not applicable to this revision.

1773.15(c)(10) The Department finds the proposed activities will not effect the continued existence of endangered or threatened species or result in the destruction or adverse modification to the critical habitats as determined under the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*).

1773.15(c)(11) This section is not applicable to this application.

1773.15(c)(12) The effect of the proposed permitting action on properties listed on or eligible for listing on the National Register of Historic Places has been taken into account by the Department. The applicant performed a Phase I Archaeological survey on the undisturbed portion of the proposed revision area. On May 1, 1996, American Resources Group, LTD.,

recommended a project clearance. On May 31, 1996, the Illinois Historic Preservation Agency (IHPA) concurred with the recommendation. (See Appendix 'B' for comments made by the IHPA).

B. Findings Required by 62 Ill. Adm. Code 1785 (Applicable Sections)

1785.17 The requirements of this Section are not applicable to underground mining operations.

C. Compliance with 62 Ill. Adm. Code 1773.19

1773.19(a)(1) The Department has based its decision to approve, as modified, Peabody's application for Revision No. 6 to Permit No. 34, Eagle No. 2 Mine, on the complete application, public participation as provided by 62 Ill. Adm. Code 1773.13 and 1773.14, compliance with all applicable provisions of 62 Ill. Adm. Code 1785, and the processing and complete review of the application.

1773.19(a)(3) The Department is providing written notification of its final permit decision to the following persons and entities:

- A. The applicant, each person who filed comments or objections to the permit application, and each party to the public hearing;
- B. The Gallatin County Board; and,
- C. The Office of Surface Mining.

All materials supporting these findings are a part of the public record and are hereby incorporated by reference. Based upon the information contained in the Revision No. 6 application, information otherwise available and made available to the applicant, the comments of State Agencies, all findings and information contained herein and conditions set forth in Part IV, the Department is issuing, as modified, Peabody's application for Revision No. 6 to Permit No. 34.

Enter on behalf of the Illinois Department of Natural Resources, Office of Mines and Minerals, Land Reclamation Division as Regulatory Authority.

Brent Manning, Director
Illinois Department of Natural Resources



Fred Bowman, Director
Office of Mines and Minerals

Dated: _____

9/27/96

IV. Permit Conditions

- A. The permittee shall conduct surface coal mining and reclamation operations only on those lands specifically designated as the permit area on the maps submitted with the application and authorized for the term of the permit and that are subject to the performance bond or other equivalent guarantee in effect pursuant to 62 Ill. Adm. Code 1800.**
- B. The permittee shall conduct all surface coal mining and reclamation operations as described in the approved application, except to the extent that the Department otherwise directs in the permit.**
- C. The permittee shall comply with the terms and conditions of the permit, all applicable performance standards of the Federal and State Acts, and the requirements of the regulatory program.**
- D. Without advance notice, delay, or a search warrant, upon presentation of appropriate credentials, the permittee shall allow the authorized representatives of the Department and Secretary of the United States Department of the Interior to:
 - 1. Have the right of entry provided for in 62 Ill. Adm. Code 1840.12; and,**
 - 2. Be accompanied by private persons for the purpose of conducting an inspection in accordance with 62 Ill. Adm. Code 1840, when the inspection is in response to an alleged violation reported to the Department by the private person.****
- E. The permittee shall take all possible steps to minimize any adverse impacts to the environment or public health and safety resulting from noncompliance with any term or condition of this permit, including, but not limited to:
 - 1. Accelerated or additional monitoring necessary to determine the nature and extent of noncompliance and the results of the noncompliance;**
 - 2. Immediate implementation of measures necessary to comply; and,**
 - 3. Warning, as soon as possible after learning of such noncompliance, any person whose health and safety is in imminent danger due to the noncompliance.****
- F. As applicable, the permittee shall comply with 62 Ill. Adm. Code 1700.11(d) for compliance, modification, or abandonment of existing structures.**
- G. The permittee shall pay all reclamation fees required by 30 CFR 870 for coal produced under this permit for sale, transfer, or use.**
- H. Within thirty (30) days after a cessation order is issued under 62 Ill. Adm. Code 1843.11, for operations conducted under the permit, except where a stay of the cessation order is granted and remains in effect the permittee shall either submit to the Department the following information, current to the date the cessation order was issued, or notify the Department in writing that there has been no change since the immediately preceding submittal of such information:**

1. Any new information needed to correct or update the information previously submitted to the Department by the permittee under 62 Ill. Adm. Code 1778.13(c);
or
 2. If not previously submitted, the information required from a permit application by 62 Ill. Adm. Code 1778.13(c).
- I. In the event the use of reduced soil cover (less than 4 feet) to reclaim the refuse areas proves unsuccessful, the Department will require the refuse to be covered with four feet of the best available non-toxic and noncombustible material pursuant to 62 Ill. Adm. Code 1817.83.
- J. The applicant has proposed to utilize an alternative cover plan for coal refuse area Nos. 1, 3 and 5. This plan includes a one-foot, compacted layer to be constructed over the existing gob surface. The applicant shall continue to provide the Department with documentation of the density/moisture data for all areas subject to the compaction standard as outlined in the permit application.



ILLINOIS
DEPARTMENT OF
NATURAL RESOURCES
Office of Mines and Minerals

524 South Second Street, Springfield 62701-1787

Jim Edgar, Governor ● Brent Manning, Director

April 11, 1996

Certified Mail No. 991 535

Mr. Larry Reuss
Peabody Coal Company
521 North Borders Street
Suite 101
Marissa, Illinois 62257

Dear Mr. Reuss:

The Department, after reviewing the information contained in the permit application and information otherwise available, and made available to the applicant, and after considering the comments of the Interagency Committee, and all other comments received, has determined that modification of Peabody Coal Company's Eagle No. 2 Mine, Revision No. 6 to Permit Application No. 34 is necessary. The modifications to the application shall comply with the requirements of 62 Ill. Adm. Code 1777.11. The modifications required by the Department are enclosed here. Absent the modifications required by the Department, the application does not demonstrate compliance with the requirements of the Illinois Surface Coal Mining Land Conservation and Reclamation Act, Regulations and Regulatory Program.

The Department will issue a decision approving the Peabody Coal Company's Permit Revision No. 6 to Application No. 34 when it receives and approves the modifications specified. If the applicant does not desire to modify the permit application as described below, it may, by filing a written statement with the Department, deem the permit revision application denied, and such denial shall constitute final action.

The period for administrative review (62 Ill. Adm. Code 1775.11) shall commence upon:

- 1) Receipt by the applicant of a written decision from the Department, approving the application as modified; or
- 2) if the applicant's modifications are insufficient, or if the applicant fails to submit the required modifications, receipt by the applicant of a written decision from the Department denying the permit application; or
- 3) receipt by the Department of the applicant's denial statement.

The modifications required by the Department are as follow:

- 1) Pursuant to 62 Ill. Adm. Code 1783.25(b), 1784.16(a) and 1784.23(c) and as required by Part I-10-B of the application, the Department is requiring the applicant to modify the application by submitting engineering certifications where the modifications result in changes to maps, plans or cross sections submitted under the original application.
- 2) Pursuant to 62 Ill. Adm. Code 1777.11(c) and as required by Part I-1 of the application, the Department is requiring the submittal of a verification by a responsible official of the applicant for the information being submitted as a result of this modification letter.
- 3) Peabody has proposed five permanent impoundments. The intended use is specified as support for pasture. NRCS (formerly SCS) Engineering Field Manual, 1984, recommends minimum pond depths for our region as 9 feet over 25 percent of the pond area. Pursuant to 62 Ill. Adm. Code 1817.49(b), the Department is requiring modification of the proposed plan to design all impoundments intended for agricultural use to meet the NRCS design guidelines with respect to pond depth or to designate another use for the proposed ponds. The Department notes that the sizes and configurations of the proposed ponds (make-up lake, east borrow area pond, borrow area #5 pond, and freshwater lake) are well suited for wetlands if properly designed and constructed. Should the applicant wish to propose wetlands for these four ponds, the following information shall be required (pursuant to Sections 1784.13 and 1817.97) in addition to the items required by Section 1817.49(b)(1-10).
 - A) Characterization of soils which are to comprise the bottom substrate of the wetlands. If any toxic- or acid-forming materials are present a complete acid/base accounting is required. If such materials are to be covered by less than four feet of non-toxic earth materials a contingency plan is required in the event the lesser cover proves inadequate.
 - B) A map of the watershed for each wetland is required along with an acreage figure for that watershed. (Watershed maps may be 1:24,000 scale or larger.)
 - C) Anticipated water quality information is required for any pond which does not have an NPDES monitoring point.
 - D) Discharge structures must be properly designed.
 - E) A plan for vegetating the wetland with acceptable species is required.

- F) Any additional wetland enhancement features (i.e., nest site development, etc.) should be specified.

If the land uses are changed the Post-Mining Land Use Map and Part V of the application shall be modified to accurately identify the land uses.

- 4) The applicant has proposed to retain two existing lakes as permanent impoundments. It is also proposed that three additional permanent impoundments be created as the result of borrow activities necessary to provide soil cover for the coal refuse area. Section 1817.49(a) and (b) of 62 Ill. Adm. Code allows the Department to approve permanent impoundments providing that a demonstration of the requirements set forth in section are met. In order to assure compliance with the above regulation, the applicant shall address the following items.

A) MAKEUP LAKE:

62 Ill. Adm. Code 1817.49(a)(8) requires a combination of principal and emergency spillways. The plans submitted indicate a single 12-inch CMP drop inlet structure. The applicant shall provide appropriate design information for an emergency spillway.

B) EAST BORROW AREA:

The plan view of the east borrow area impoundment indicates a perimeter berm will be constructed where needed to control drainage. The applicant shall provide more specific details as to the location, extent and geometry of the perimeter berm.

C) SOUTH BORROW AREA:

The plan view of the south borrow area shows a levee with a top elevation of 362.0 feet. The applicant shall provide more specific details as to the locations, extent and geometry of the levee.

D) ALL IMPOUNDMENTS:

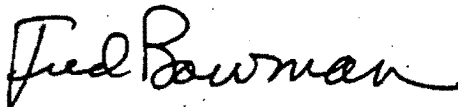
Part IV 7-J-1-a of the UCM-1 application requires that impoundments, dam locations and watershed limits be shown on the Mining Operations Map. Based on the maps provided it is not possible to determine the watershed limits. Additionally, the applicant has proposed considerable levee and berm construction which appears to limit the drainage area. In order to assure accurate watershed data and that the water level will be sufficiently stable and be capable of supporting the intended use, the applicant shall provide maps which delineate the watershed for each impoundment. In the

event that any acreage figures are revised, it will be necessary to provide updated DAMS2 computer runs to reflect these changes.

- 5) The applicant has proposed that several roads be retained to facilitate the post-mining land use of the site, yet the map indicates one permanent access road for farming use. The applicant shall provide clarification as to which roads are being proposed as permanent. Part V 1-C-5 of the UCM-1 application details the information required for permanent roads.
- 6) Pursuant to 62 Ill. Adm. Code 1817.22, response II-13-F must be modified to describe the removal and disposition of the topsoil in the new borrow area. Areas of new disturbance with a topsoil replacement liability must either have topsoil replaced or have an approved substitute material.
- 7) 62 Ill. Adm. Code 1784.14(b) requires each application to contain baseline hydrologic information on all surface water bodies, such as streams, lakes and impoundments, the location of any discharge into any surface water body in the proposed permit and adjacent areas, and information on the surface water quality and quantity sufficient to demonstrate seasonal variation and water usage. The applicant must submit a completed Schedule A for the proposed permanent impoundment to be identified as the East Borrow Area Pond with Discharge No. 009 as required by Part III 2-D-3-c. of the UCM-1 application.
- 8) Pursuant to 62 Ill. Adm. Code 1817.83, response V 4-B must be modified to incorporate the provisions of IPR 62, its imposed conditions and the Site Characterization and Corrective Action Plan. Any proposed expansions of the cover variance area must also be addressed.
- 9) Pursuant to 62 Ill. Adm. Code 1783.12, the applicant shall submit additional information to enable the Department to identify and evaluate the potential cultural, archaeological and historic resources at the proposed borrow areas. This information may include a completed Phase I cultural resource survey of the area. Upon receipt of the applicant's submittal, and consultation with the Illinois Historic Preservation Agency, the Department will make a determination of the effects the proposed mining activities will have on properties listed on or eligible for listing on the National Register of Historic Places. Sufficient information must be provided to the Department to enable it to develop the prerequisite finding at 62 Ill. Adm. Code 1773.15(c)(12).

If you have any questions please feel free to contact this office at (217) 782-4970 or (618) 439-9111.

Sincerely,

A handwritten signature in cursive script that reads "Fred Bowman".

Fred Bowman, Director
Office of Mines and Minerals

FB:RM:js

cc: R.Morgenstern
OSMRE

APPENDIX B

CONSIDERATION OF COMMENTS AND OBJECTIONS

62 Ill. Adm. Code 1773.13(b) allows submission of written comments on applications for a revision. The following are comments received from the State Agencies, County Board and other members of the public and the Department's response to those comments.

Illinois Department of Agriculture

Comment - IDOA has reviewed revision 6 and has no comments to offer.

Response - Comment forwarded to the operator.

Illinois Environmental Protection Agency

The Illinois Environmental Protection Agency has completed its review of the subject mining permit application and finds that additional information and/or clarification is needed as follows:

Comment - This revision proposes a new permanent impoundment to be identified as the East Borrow Area Pond with Discharge 009. Although Discharge 009 was initially proposed in IPR 60 to OMM Permit No. 34, no Schedule A, effluent quality estimate, as required by 62 Ill. Adm. Code 1784.14 b) 2) was found.

The applicant should submit a Schedule A for this discharge and indicate the receiving waters.

Response - The Department addressed this comment in Appendix A, Modification question No. 7.

Comment - The selected Curve Number (CN value) of 75 may be too low considering the proposed final water surface area for the East Borrow Area Pond. This could cause inadequate spillway design as required by 62 Ill. Adm. Code 1817.49(b)(9). The applicant should further justify the selection of this value considering the proposed water surface area.

Response - The applicant has revised the Curve Number to a value of 85 in response to the Illinois Environmental Protection Agency comments through modification to the original design. This value appears to be appropriate in reflecting current field conditions. The change was incorporated into the applicants response to the Department's April 11, 1996 modification letter.

Comment - Initially, Pond 009 may not have sufficient sediment storage of detention time during the course of the excavation of the East Borrow Area Pond as required by 62 Ill. Adm. Code 1817.46(c)(1)(C)(i) and (ii). The applicant should provide storage volume below spillway elevation.

Response - Approval to construct Pond 009 was granted by the Department in IPR No. 6 on September 25, 1995. Since that time Pond 009 has served to control surface runoff within the borrow area primarily by pumpage. As such, detention times are significantly extended beyond that of the normal inflow/outflow situations. Sediment storage capacity will be monitored in the field and corrective maintenance action will be required if conditions warrant.

Comment - Spillways shall be designed for a 25 year 6 hour precipitation event in accordance with 62 Ill. Adm. Code 1817.40 b) 9). It appears all calculations are based on a 10 year 24 hour event. All impoundment spillways proposed in this revision should be evaluated for this precipitation event.

Response - The applicant has revised the design to reflect a 25 year - 6 hour event in response to Illinois Environmental Protection Agency comments. Since adequate capacity was available in the initial design, the configuration of the open channel spillway remains unchanged. The change was incorporated into the applicants response to the Department's April 11, 1996 modification letter.

Comment - An approximate final contour map is required by 62 Ill. Adm. Code 1784.13 b)3). At a minimum, the applicant should show on an appropriate map general surface flow directions, all permanent diversions and delineate final watersheds reporting to each impoundment. Also, drainage should be shown to be controlled through the duration of the reclamation activities.

Response - For those areas subject to change under this revision adequate cross-sectional drawings were provided to depict approximate final topography. This revision does not significantly alter the surface configuration from that of the currently approved plan, except for the borrow areas which are necessary as cover material for coal refuse within the permit area. In response to Illinois Environmental Protection Agency comments, the applicant has also provided an additional map which shows flow directions, permanent impoundment and watersheds. The change was incorporated into the applicants response to the Department's April 11, 1996 modification letter.

Comment - The drainage area tributary to the East Borrow Area Pond may be insufficient to sustain stable water levels as required by 62 Ill. Adm. Code 1817.49 b)3). This, in conjunction with the indefinite depth of excavation, may result in sizable changes in water surface area. The applicant should show that there will be sufficient inflow to maintain a stable water level.

Response - The applicant has revised the post-mining plan to leave this area as a wetland/wildlife area in response to Appendix A, Modification Question No. 3. Seasonal fluctuations in the water level will serve to mimic those found in natural wetlands creating areas that will transition between moist soil units and water.

Comment - This operation is presently covered under Illinois Environmental Protection Agency Permit No. IL0044661. Since changes are now proposed from that previously permitted, a modified permit will be required.

Response - This comment must be addressed by Peabody Coal Company through direct correspondence with the Illinois Environmental Protection Agency.

Illinois Historic Preservation Agency

Comment - The Phase I survey and assessment of the archaeological resources appear to be adequate. Accordingly, we have determined, based upon this report, that no significant historic, architectural, and archaeological resources are located in the project area.

Response - Comment forwarded to the operator.

Saline Valley Conservancy District

Comment - There are no boring logs presented for the proposed impoundments.

Response - A total of eight borings were drilled within the area encompassing the proposed impoundments. The borings were presented in Insignificant Permit Revision No. 62 to Permit No. 34 which is on file with the Gallatin County Clerk for public inspection.

Comment - The depths of the impoundments are not indicated.

Response - Cross-sectional drawings were included in the application which show the anticipated water depths.

Comment - The separation between the bottom of the impoundments and the underlying aquifer is not indicated.

Response - Since no refuse is to be deposited in the impoundments, this information is not pertinent to this revision. The borrow pits will be utilized to provide additional soil cover for the coal refuse areas.

Comment - There is no information provided which indicates the separation of the existing gob and slurry which is on the permit area and proposed to be covered and the underlying aquifer.

Response - As indicated in the comment, the gob and slurry areas currently exist and no change concerning these refuse areas is proposed. The revision addresses borrow areas to cover the refuse and a reclamation plan change to allow the borrow areas to remain as permanent impoundments. Information concerning the separation between the refuse areas and the aquifer is not pertinent to this revision.

Comment - There was no discussion as to how groundwater contamination is going to be avoided both presently and long term on the site. Please keep in mind that the Saline Valley Conservation District anticipates operating in its well field for over 50 years.

Response - This was addressed by Modification No. 8. As a response, Peabody incorporated the site characterization report and corrective action plan. The corrective action plan objectives were

developed based on site characterization activities, and the geochemical, groundwater flow and precipitation infiltration models and discussions with the Department and IEPA. The objectives include groundwater impact control and mitigation.

Comment - No existing groundwater information from monitoring wells was submitted as a part of this application in order to determine the effect of this application on present and future groundwater quality.

Response - See Modification No. 8. Peabody has, since issuance of Permit No. 34, monitored groundwater for quality and quantity. The existing network of 14 active monitoring wells was augmented with 25 additional observation wells. The additional wells were installed to provide adequate information to assess the water quality for the site characterization report and corrective action plan.

APPENDIX C

ASSESSMENT AND FINDINGS OF PROBABLE CUMULATIVE HYDROLOGIC IMPACT

The applicant must submit a determination of probable hydrologic consequences of the proposed mining and reclamation operations, both on and off the permit area, as required by 62 Ill. Adm. Code 1784.14(e).

Pursuant to 62 Ill. Adm. Code 1773.15(c)(5), the Department must make an assessment of the probable cumulative impacts of all anticipated coal mining on the hydrologic balance in the cumulative impact area, in accordance with 62 Ill. Adm. Code 1784.14(f), and find in writing that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

The following assessment and findings are intended to fulfill the above requirements.

I. Assessment

Cumulative Hydrologic Impact Area The permitted area was for surface support facilities for the underground mining of the Harrisburg (No.5) Coal. The mine was opened in 1968 and most of the necessary facilities were constructed, and gob and slurry disposal was performed, prior to any permitting requirements. Revision Nos. 1, 2, 3, 4, and 5 in addition to one incidental boundary revision, added approximately 6,635 shadow area acres to the original surface 578.0 acres permitted.

The mine is located within the watershed of Cypress Ditch. This is a man-made waterway created several years ago when the indigenous cypress forest was removed and the surrounding land converted to agricultural uses. The waterway drains to the Saline River approximately three miles downstream of the permit area. A U.S.G.S. monitoring station is maintained on the Saline River (No. 03383530) approximately three miles downstream of the convergence. At this site the Saline River has a drainage area of approximately 1062 square miles (Zuehls, et al., 1981).

Literally dozens of other mine sites, both active and abandoned, exist in the Saline River watershed. Clearly, assessment of a watershed of this size would not provide an accurate understanding of the impacts of this operation. In this particular site, significant groundwater resources exist which must also be considered. The aquifer considered in this assessment may extend beyond the watershed of Cypress Ditch and will be considered as well.

However, for the purposes of this assessment, the cumulative hydrologic impact area is considered to be the watershed of Cypress Ditch and the underlying aquifer.

Surface Water The operation created several surface water impoundments to facilitate the operations. Prior to these operations, there were no developed water resources in the permit area. For this site, the applicant listed 17.0 acres of impoundments as developed water resources, primarily sediment control ponds and the fresh water lake. In post-mining conditions, the applicant originally

proposed to remove all of these impoundments and return the area to a mixture of pasture and cropland. Revision No. 6 proposes 3.0 acres of developed water resources to remain for post-mining land uses. Additionally, this revision proposes 116.0 acres to remain as wetland wildlife. These changes were incorporated to acquire additional cover material to facilitate reclamation of the waste disposal areas. The post-mining land uses, therefore, will change the amount of developed water resources and wetland wildlife available to 3.0 acres and 116.0 acres, respectively.

Surface water quality information was also collected by the applicant at several locations. Four locations on Cypress Ditch were utilized as collection points. Stations 701 and 702 are both upstream of all mining and associated activities on separate tributaries of Cypress Ditch. Station 703 is located downstream of 702 and receives discharges from underground pumpage. Lastly, station 704 is located downstream of all previous points and of all mining and associated activities. A summary of the data from stations 701, 703, and 704 are presented in Table 1.

Table 1. Ambient Water Quality Data

	<u>Sta. 701</u>			<u>Sta. 703</u>			<u>Sta. 704</u>		
	<u>Max</u>	<u>Min</u>	<u>Ave</u>	<u>Max</u>	<u>Min</u>	<u>Ave</u>	<u>Max</u>	<u>Min</u>	<u>Ave</u>
pH	8.3	6.6	-	8.0	6.4	-	8.2	6.8	-
TDS	1090	130	495	1685	188	416	1249	115	475
TSS	243	6	45.3	50	3	14.1	151	4	55.2
Acid	-42	-282	-191	-117	-356	-255	-31	-320	-228
Fe	7.7	0.29	1.91	524	0.5	15.6	8.7	0.32	2.76
Mn	1.75	0.04	0.34	13.6	0.04	0.69	0.71	0.07	0.28

The data in this table indicates only relatively minor impacts from the existing operation. The pH at all stations ranges from just below neutral to slightly alkaline. It is at all times within acceptable limits. Total dissolved solids (TDS) are also relatively low with downstream TDS actually less than upstream values. The highest values are recorded just below Station 703 which received pumpage discharge from the underground workings. However, there is no data to suggest that this high level is a result of this operation. In the general area there are many oil wells which in some cases have historically been shown to discharge oil brines which have been a problem in these and similar areas of southern Illinois. In any case, this high level is not so high as to cause concern. Total suspended solids (TSS) range widely with some very high values occurring. These high values are more likely due to much of the area surrounding the mine being used for row-crop agriculture, than from the actual mining operation. Net acidity values also show that alkalinity is much greater than acidity. Iron values are increased downstream in the area. Downstream of station 703, a very high iron value of 524 mg/l was recorded on one occasion. As with TDS, the downstream values, while slightly elevated on the average, are not so high as to cause concern by themselves.

During the active operations, and now reclamation, at this facility, the applicant will be required to comply with all applicable State and Federal effluent limits. Adherence to these limits will help to ensure that no adverse impacts occur to the hydrologic balance as a result of these operations.

Groundwater The operation is situated in an area of extremely good groundwater potential. Preliminary reports by both Pryor (1956) and Zuehls, et al. (1981) indicated that the probability of developing a reliable groundwater supply was excellent in this area. Reliable groundwater supplies may be developed in the sands and gravels adjacent to the Ohio River, and have been in nearby Old Shawneetown. Quite different conditions exist within and adjacent to the permit area. During the Wisconsin glacial stage, slackwater dams formed which impounded vast amounts of melting water from the receding glaciers. Approximately 13,000 years ago, one such dam gave way and the ensuing flood waters entered the area approximately two miles north of Shawneetown skirting the nearby Shawneetown Hills (Nelson and Lumm, 1984). Following an old course of the Ohio River, the flood waters forced their way through the gap between the nearby Wildcat and Gold Hills and from there flowed along the present course of the Saline River. In the wake of this event, known as the Maunie Flood, the channel filled with over 100 feet of sand and gravel, and is now classified as the Henry Formation (Willman, et al., 1975). It is this filled channel that is currently being used for the public and private water supplies adjacent to the mine site.

Structural geology of the area is quite complex, with several major faults and associated structures in the area. The Henry Formation is located approximately 200 feet above the No. 5 Coal over most of the area, however, the West Inman Fault is located on the eastern boundary of the shadow area added by Revision No. 4. Here, the coal lies approximately 300 feet below the Henry Formation. This mine is considered "wet" as it proposed to pump approximately 300,000 gallons per day (gpd) from the underground works. Cartwright and Hunt (1978), stated that in a study of 15 underground works only 4 mines pumped volumes of between approximately 80,000 and 1.3 million gpd. The water originated from drips from the sandstone unit directly overlying the No. 5 Coal. Information presented in Nelson and Lumm (1984) suggests that at places not too distant from the mine workings, this overlying unit may be exposed at the base of the unconsolidated material. Should this be the case, this unit may be receiving direct recharge from the Henry Formation. However, as stated earlier, over the mining area, this unit is 200 to 300 feet below the bottom of the glacial meltwater channel and separated from it by very low permeability limestones, shales and occasional sandstones. Potential to encounter additional water existed as mining progressed toward the West Inman Fault, a nearly vertical normal fault, as faults may act as a secondary permeability feature which may transmit water both from the surface and/or other formations. However, in modifications to Revision No. 4, the mine plan stated that as mining progressed towards this area, mining would cease should conditions degrade.

The operation consumed a total of approximately 1.5 million gpd of groundwater. This came from primarily two sources. Of this total, 300,000 gpd were pumped from the underground works, and the remainder was withdrawn directly from the Henry Formation for such uses as makeup water in the preparation plant, sanitary water supplies and for underground dust suppression. However, the withdrawal of this amount was not anticipated to have any detrimental impacts to water quantity in the area. This conclusion is based on a report prepared for the Saline Valley Conservancy District (SVCD) by the Illinois State Water and Geological Surveys. The Surveys prepared a report on the feasibility of installing municipal water wells into the same aquifer that underlies the permit area. The report suggested a site approximately one half mile to the northwest of the permit area but easement problems forced the SVCD to install the three wells approximately 2500 feet from the

southwest corner of the permit area. Information presented in the report prepared for the SVCD (Poole and Sanderson, 1981) showed that for a well with a capacity of 1.7 million gpd, drawdowns at a distance of 3000 feet away may be as much as 9.9 feet, based upon the constraints which are used to develop the aquifer model. However, at distances of one mile or more, the drawdown on the piezometric surface was estimated at less than two feet. Since the installation of SVCD's three initial production wells, SVCD has installed two additional pumping wells, one of which is located approximately 1400 feet west of Slurry No. 5. It should be noted that there are several high capacity irrigation wells in the area which are much closer to the SVCD wells. These may contribute to interference with SVCD's wells. Any future development on the part of the SVCD to install more wells or to expand its well field should take into account the impacts of water production from these sources as well.

Even though it is not anticipated that any adverse impacts will result to adjacent water levels, very little information was available to quantitatively assess the impacts of this operation on groundwater quality prior to the submittal of Revision No. 6. The method by which the applicant was previously disposing of its coarse refuse material was the primary concern. A cut and fill method was used during most of the life of the mine. Trenches were dug approximately thirty feet deep and the refuse was placed into them. With a thin clay cover of approximately less than ten feet, the material was being placed into the aquifer itself.

Under ambient conditions, measurements made by the applicant showed that the hydraulic gradient was quite low and hence any contamination would not move very far from the mine site. Additionally, once the production well at the mine began operating, any contaminant would tend to be localized at the mine site. With the installation of a high capacity well field in relatively close proximity to the refuse disposal area, it became necessary for the applicant to employ more sophisticated analytical methods for the prediction of impacts to the hydrologic balance.

Initially, the applicant used Random Walk, a mass transport groundwater model first developed by Prickett, et al. (1981). The program takes into account physical characteristics of the aquifer, water withdrawals or injection, pollutant loading and movement rates. The study looked at the increases to total dissolved solids (TDS). Ambient conditions for this area assumed that initial TDS levels were approximately 338 parts per million (ppm). Results show that the TDS levels are not increased at the SVCD wells as long as the mine operates its pumping wells. This is due to the fact that the mine's pumping wells produce a hydraulic gradient such that all infiltration at the mine goes to the mine's own supply well. However, when the wells at the mine are no longer active, the pollutants are predicted to move toward the SVCD wells. TDS is predicted to reach a maximum concentration of 388 ppm in the SVCD wells approximately 30 years after the anticipated mine closure. This is because the mine's water supply well would no longer be functioning and the municipal wells would be the controlling factor in the area's hydraulic gradient. As the site is reclaimed and cover is placed over all of the waste areas, the flow to the aquifer is anticipated to diminish from the refuse areas. This will result in a slight reduction of TDS concentration reaching the wells. The long term impact, 30 years from mine closure, to the SVCD wells is estimated at a final TDS concentration of 373 ppm or an increase of 10.4 percent. Such an increase is not anticipated to be an adverse impact to the public water supply, as even with this increase, the final level is still well below all applicable

drinking water standards. As a part of the study, several additional monitoring wells were installed to gather basic information and provide calibration for their modeling study. For the most part, these wells were installed directly between the waste disposal area and the adjacent SVCD wells.

In 1985, the Department required Peabody to perform a hydrogeologic investigation of the site prior to issuance of Permit No. 34. The investigation utilized a numerical groundwater flow model and included an assessment of potential impacts to the Henry Aquifer by mining activities. The investigation showed that no significant groundwater impacts were occurring outside the mine site permit boundary. The report was accepted by the Department and Permit No. 34 was approved.

In 1992, Peabody conducted a subsurface exploration for the proposed construction of Slurry Cell No. 6. Additionally, Peabody commissioned a groundwater quality assessment in 1992 as a requirement of a permit modification for the installation of Slurry No. 1A. The assessment consisted of a geophysical delineation of the extent of impacted groundwater. The results showed that extent of groundwater impacted by mining activities was largely limited to the area within the permit boundary. Both IEPA and the Department responded favorably to the report but required additional characterization of the nature and extent of impacted groundwater.

Most recently, a site characterization report and corrective action plan was prepared for the Peabody Coal Company Eagle No. 2 Mine by GeoSyntec Consultants. The site characterization addressed concerns regarding the effects to groundwater quality from coal refuse areas and the potential effects to nearby groundwater users. The additional characterization of impacted groundwater implemented by the 1992 study was incorporated by the site characterization report.

A total of 25 monitoring wells were monitored biweekly beginning on December 13, 1994 and continued through March 23, 1995. The wells were sampled and analyzed for selected Class I water quality constituents. The results of the site characterization activities determined that groundwater quality consists of elevated total dissolved solids (TDS) and sulfate concentrations which are limited to the area within the Permit No. 34 boundary except for small areas along the northern edge of the site. Sulfate comprises about 40 to 60 percent of the elevated TDS. Chloride, iron and manganese concentrations and pH observed from groundwater samples collected are within the ranges of background values for this area. Geochemical testing showed that the coal refuse material contains 9 to 19 percent pyrite which generates acid rock drainage (ARD) upon exposure to air and water. The ARD is the primary factor contributing to the elevated TDS in the groundwater.

The site characterization defined borrow areas which would provide suitable material for constructing a final cover system for the coal refuse materials. With this information, a corrective action plan (CAP) was developed utilizing the site characterization results to supplement the reclamation plan. The CAP has two main elements: coal refuse (ARD) source control, and groundwater impact mitigation. The ARD source control element consisted of an enhanced final cover system for the coal refuse area to limit infiltration of precipitation and prevent further generation of ARD, which would help in decreasing TDS levels. The second element consists of three additional shallow groundwater extraction wells to mitigate the areas beneath the site with greatest effects on groundwater.

II. Findings

Surface Water The applicant proposes to leave 3.0 acres of developed water resources and 116.0 acres of wetland wildlife in the permit area. The pre-mining conditions indicate that 17 acres of developed water resources existed. This reduction is a result of some of the area being changed to wetland wildlife.

Surface water quality should not be significantly deteriorated as a result of these activities. Downstream increases may occur for some parameters such as total dissolved solids, but the increases should not be so high as to cause adverse impacts in downstream water usage. Additionally, the applicant must at all times comply with all applicable State and Federal effluent limits. Adherence to these limits will help to ensure that no adverse impacts occur to the hydrologic balance outside the permit area.

Groundwater The proposed permit area is located in an area of excellent groundwater potential. The amount of groundwater still used by this operation will contribute to a constant drawdown of the piezometric surface in and adjacent to the permit area. However, based on information available to the Department, this usage combined with careful development of the aquifer by future users, should ensure that the proposed operation will not adversely affect adjacent groundwater yields.

Groundwater quality is not expected to be further impacted negatively with the approval of Revision No. 6. Previous waste disposal practices initially caused concern that nearby municipal water supplies might be degraded. Revision No. 6 incorporates the initiation of the corrective action plan, which consists of placement of an enhanced final cover system over the waste disposal area and additional groundwater extraction wells. The extraction wells will allow the operator to remove elevated TDS from the groundwater system in order to facilitate groundwater impact mitigation at the waste disposal area.

In summary, the mine operated as an underground coal mining facility from 1968 until July 1993. The surface operations included six coal refuse management impoundments. Four of the six disposal areas initiated refuse disposal prior to the implementation of OMM's permanent program regulations. In 1982 SVCD constructed its well field consisting of three pumping wells which are located to the southwest of Peabody's surface facilities. Since the initial well field construction, SVCD has installed two more wells, the last one being installed in late 1995. Prior to the installation of the last SVCD well, the mine ceased operation and initiated reclamation. The operator, through Revision No. 6, submitted a site characterization and corrective action plan which evaluates site characteristics and a plan to remediate impacts produced by refuse disposal at the site. The Department finds that the operator has submitted a plan that will positively impact effects of refuse disposal on the underlying aquifer.

Therefore, the assessment and findings of the probable cumulative impact of all anticipated reclamation in the area on the hydrologic balance finds that the corrective action plan has been designed to mitigate groundwater impacts and prevent material damage to the hydrologic balance outside the permit area.

REFERENCES

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- GeoSyntec Consultants, 1995, Site Characterization Report and Corrective action Plan for Peabody Coal Company Eagle No. 2 Mine Site.
- Nelson, J.W. and D.K. Lumm, 1984, Structural Geology of South Eastern Illinois and Vicinity. Illinois State Geological Survey Contract Report 1984-2, July, 127 p.
- Poole, V.L. and E.W. Sanderson, 1981, Groundwater Resources in the Saline Valley Conservancy District, Saline and Gallatin Counties, Illinois. ISGS Contract/Grant Report: 1981-2.
- Prickett, T.A., T.G. Naymik and C.G. Longquist, 1981, A "Random Walk" Solute Transport Model for Selected Ground Water Quality Evaluations. Illinois State Water Survey Bulletin No. 65, 103 p.
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- U.S.G.S., 1990, Water Resources Data-Illinois Water Year, 1989, U.S.G.S. Water Data Report, IL-89, 2 volumes.
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- Zuehls, E.E. et al., 1981, Hydrology of area 35, Eastern region, interior coal province, Illinois and Kentucky. United States Geological Survey Water - Resources Investigations 81-403, May.

APPENDIX D

DECISION ON PROPOSED POST-MINING LAND USE OF PERMIT AREA

Post-mining land use has been approved in accordance with the requirements of 62 Ill. Adm. Code 1817.133. The surface land areas affected by underground mining activities will be restored in a timely manner to conditions that are capable of supporting the uses which they were capable of supporting before any mining, or to higher or better uses achievable under the criteria and procedures of 62 Ill. Adm. Code 1817.133.

The premining, approved post-mining and revised post-mining land use acreage of the Eagle No. 2 area are as follows:

	<u>Original Pre-mining</u>	<u>Approved Post-mining</u>	<u>Proposed Post-mining</u>
Cropland	182.0	56.3	56.3
Water Resources	17.0	1.3	3.0
Pastureland	26.0	513.8	363.8
Residential	0.0	0.2	0.2
Industrial/Commercial	323.0	16.0	21.5
Wildlife Habitat / Wetland	0.0	0.0	142.8
Forest	10.0	0.0	0.0
Undeveloped	20.0	0.0	0.0
Total	<u>578.0</u>	<u>587.6</u>	<u>587.6</u>

IBR 1 added 2.0 acres on October 28, 1995, IBR 2 added 2.0 acres on May 28, 1996, IBR 3 added 1.0 acre on October 22, 1996, and IBR 7 added 4.6 acres on July 24, 1992. This is an increase of 9.6 acres that was added to the original pre-mining permit.

Proposed wetland wildlife with 116.0 acres and proposed fish and wildlife (herbaceous) with 26.8 have been combined in the proposed wildlife habitat/wetland category and equal 142.8 acres.

A change in post mining land use is proposed due to the retention of the make-up and fresh water lakes as well as the proposed east and south borrow areas. The proposed land use change includes an increase in water acres, an increase in wildlife habitat/wetland acres, and a decrease in pasture acres. The retention of the permanent impoundments will compliment the planned land use of pasture which is the currently approved land use for the Eagle No. 2 slope area. In addition several power lines and roads are proposed to be retained for permanent access and future use by the local utility.

The Department thus finds the land areas affected by surface coal mining activities will be restored in a timely manner to conditions that are capable of supporting the use which they were capable of supporting before mining or to higher or better use achievable under the criteria and procedures of 62 Ill. Adm. Code 1817.133. The plan of restoration submitted by Peabody does not present any actual or probable hazard to public health or safety nor does it pose any actual threat of water

diminution or pollution as indicated in Appendix C, and the proposed land uses following mining are not impractical or unreasonable as all the post-mining land uses existed prior to mining and are found in the adjacent surrounding areas. The land uses are not inconsistent with any applicable land use policy or plan known to the Department and no objections were heard from any governmental agency with such authority. The plan does not involve unreasonable delay in implementation and is not in violation of any other applicable law known to the Department

COMPANY MEMORANDUM

TO: J. B. Coyne
D. G. McDonald

DATE: August 12, 1983

FROM: K. D. Gastreich

RE: Potential Ground Water Effects of Long Term Coal Refuse
Disposal at Eagle #2

I have reviewed Lee Wohlwend's July 28, 1983 memo regarding coal refuse disposal at Eagle #2. Based on normal refuse disposal procedures and the information outlined below, I believe there is a very high potential for pollution of a major aquifer used for public water supply.

- The proposed refuse disposal lies immediately above the sand and gravel outwash of the Henry Formation which is a major shallow aquifer in that part of Illinois. Yields of 500 gpm or more are possible.
- The area in question lies in an area designated as having a high ground water contamination potential because of the high hydraulic conductivity of the overlying unconsolidated material, shallow bedrock, and a high water table. (U.S. Geological Survey, 1981).
- Proposed gob areas No.3, No.4 and No.5 lie approximately 2,000, 1,500 and 1,400 feet respectively, updip of the Saline Valley Conservancy District water supply wells.
- The refuse will be disposed of above or at the area ground water table.

All of the above information indicates the potential for serious problems unless some type of impermeable barrier is placed beneath the refuse to be disposed of. In addition, Allen Oertel, Illinois Department of Mines and Minerals Hydrologist, has experience and a special concern for the effects of this type of refuse disposal. Any type of refuse disposal plan submitted to IDM&M would likely have to meet very strict anti pollution criteria particularly in an environmentally critical area such as this.

J. B. Coyne
D. G. McDonald

August 12, 1983

I recommend that the Environmental Services Department work closely with Engineering to develop an acceptable plan for future refuse disposal at Eagle #2.

Kent D. Gastreich
K. D. Gastreich

KDG:ls

cc: R. A. Hill
S. L. Wohlwend

PC00897

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

PEOPLE OF THE STATE OF ILLINOIS,)	
)	
Complainant,)	
)	
v.)	PCB 99-134
)	
HERITAGE COAL COMPANY, LLC,)	
)	
Respondent.)	

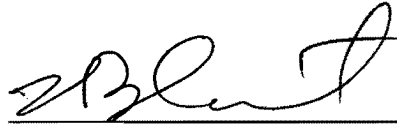
RESPONDENT HERITAGE COAL COMPANY, LLC'S RESPONSE TO
COMPLAINANT'S REQUEST FOR ADMISSION

Respondent, Heritage Coal Company, LLC ("HCC"), hereby responds to the Request To Admit Genuineness Of Document directed to Heritage by Complainant, People of the State of Illinois, on or about May 24, 2010, as follows:

REQUEST: Please admit the genuineness of the attached document entitled "Company Memorandum" dated August 12, 1983, from K.D. Gastreich to J.B. Coyne and D.G. McDonald, regarding "Potential Ground Water the effects of Long Term Coal Refuse Disposal at Eagle #2," previously produced by the Respondent.

RESPONSE: HCC admits that the document that is the subject of Complainant's request is a true, accurate, and complete copy of a document located in files possessed by Peabody Coal Company, LLC ("PCC") at the time that PCC produced certain documents contained in those files in response to requests for the production of documents directed by Complainant to PCC when PCC was the named Respondent in this matter.

Date: June 22, 2010



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**ATTORNEYS FOR RESPONDENT,
HERITAGE COAL COMPANY, LLC**

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing **RESPONDENT HERITAGE COAL COMPANY, LLC'S RESPONSE TO COMPLAINANT'S REQUEST FOR ADMISSION** has, this 22nd day of June, 2010, been placed in the U.S. Mail, first-class postage paid, addressed to:

Thomas Davis
Environmental Bureau
Attorney General's Office
500 South 2nd Street
Springfield, Illinois 62706



W. C. Blanton
HUSCH BLACKWELL SANDERS LLP
4801 Main Street, Suite 1000
Kansas City, MO 64112

AFFIDAVIT OF RICHARD P. COBB

Richard P. Cobb, Professional Geologist ("P.G."), being first duly sworn, states as follows:

1. The statements made in this affidavit are based upon my personal knowledge, and I am competent to testify thereto.

2. I am currently employed by the Illinois Environmental Protection Agency ("Illinois EPA"), located at 1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276, as Deputy Manager of the Division of Public Water Supplies ("Division") and Manager of the Groundwater Section in the Bureau of Water ("BOW"). I have been employed by the Illinois EPA since July 1, 1985. My responsibility includes managing the Groundwater Section, Field Operation Section, and the Administrative Support Unit of the Division. I also directly manage the BOW's Groundwater Section. The Groundwater Section applies Geographic Information System ("GIS") programs, global positioning system ("GPS") technology, hydrogeologic models, 3D geologic visualization, vadose zone, groundwater flow, groundwater particle tracking, solute transport, and geochemical models, and geostatistical programs for groundwater protection and remediation projects. I have worked on the development of ground water legislation, rules and regulations. Specifically, I have served as a primary Illinois EPA witness before Senate and House legislative committees, and at Illinois Pollution Control Board ("Board") proceedings in the matter of groundwater quality standards, technology control regulations, cleanup regulations, regulated recharge areas, maximum setback zone, and water well setback zone exceptions. Furthermore, I have served as primary Illinois EPA witness in enforcement matters. (Attachment IV.)

3. During late 1990 and early 1991, I served as a member of the Illinois EPA's Groundwater Standards Team and participated in the development of Section 620.450(b)(4) and (5) of the Board regulations. Section 620.450(b)(4) and (5) were promulgated to prohibit the use of an aquifer above an underground coal mine as a zone of attenuation for refuse disposal areas and impoundments that contain sludge, slurry, and precipitated process material coal preparation plants. Staff from the Illinois EPA's Mine Pollution Control Program ("MPCP") provided input to the Illinois EPA's Groundwater Standards Team regarding their difficulties with protecting resource groundwater in relation to refuse disposal areas, and impoundments that contain sludge, slurry, and precipitated process material at coal preparation plants at underground coal mines. These difficulties are clearly documented in the Illinois Department of Natural Resources ("IDNR") Office of Mines and Minerals ("OMM"), *Results of Review, dated 9/27/96, for Revision Application No. 6 to Permit No. 34-Eagle No. 2 Mine, Appendix C Assessment And Findings Of Probable Cumulative Hydrologic Impact* as follows:

Even though it is anticipated that any adverse impacts will result to adjacent water levels, **very little information was available to quantitatively assess the impacts of this operations on groundwater prior to the submittal of Revision No. 6.** The method by which the applicant was previously disposing of its coarse refuse material was the primary concern. A cut and fill method was used during most of the life of the mine. Trenches were dug approximately thirty feet deep and the refuse was placed into them. With a thin clay cover of approximately less than ten feet, the material was being paced into the aquifer itself. (Emphasis added)

It is fair to say that any assessment by IDNR is only as accurate and valid as the baseline data as to pre-existing conditions and the predictive determination of probable consequences that may be documented by the permit applicant. This is especially true when we now know that the following input from Peabody's own in-house expert (*Peabody Coal*

Company Memorandum, August 12, 1983, From: K. D. Gastreich, To: J. B. Coyne and D. G. McDonald) was not consistent with the predictive modeling submitted to IDNR:

“...that there was a very high potential for pollution of a major aquifer used for a public water supply...a potential for serious groundwater contamination problems from “proposed gob areas No.3, No. 4 and No. 5 updip of the Saline Valley Conservancy District water supply wells...unless some type of impermeable barrier is placed beneath the refuse to be disposed of.”

(Emphasis added)

Mr. Gastreich's memo indicates that, even in 1983, the state of the art design for refuse disposal areas, and impoundments that contain sludge, slurry, and precipitated process material at coal preparation plants located in the recharge zone of a major aquifer above an underground coal mine should include an impermeable barrier (i.e. liner). Appendix I, attached to this Affidavit, illustrates a map of the Major Sand and Gravel Aquifers in Illinois (developed by the Illinois State Water Survey). The Board's Class I: Potable Resource Groundwater classification system was in part based on the operational definition of an aquifer used to prepare this map (Cobb R89-14(B) Testimony, p. 3, 1991). Water that moves into the saturated zone and flows downward, away from the water table is recharge. Generally, only a portion of recharge will reach an aquifer. The overall recharge rate is affected by several factors, including intensity and amount of precipitation, surface evaporation, vegetative cover, plant water demand, land use, soil moisture content, depth and shape of the water table, distance and direction to a stream or river, and hydraulic conductivity of soil and geologic materials. Appendix II, attached to this Affidavit, illustrates the Illinois' Potential for Aquifer Recharge Map (developed by the Illinois State Geological Survey and the Illinois State Water Survey), which is based on the probability of precipitation reaching the uppermost aquifer. The map is based on a simplified function of depth to the aquifer, occurrence of major aquifers, and the potential infiltration rate of the soil. This simplification assumes that recharge rates are primarily a function of leakage from an

overlying aquitard (fine grained non-aquifer materials). Moreover, recharge may also be occurring from outside of a watershed boundary. The Henry Aquifer above the Heritage Coal Company, LLC ("HCC") Eagle No. 2 underground coal mine ("Eagle No. 2") is in an area with a very high potential for aquifer recharge, as shown in Appendix I. In addition, the Henry Aquifer is a sole source of Class I groundwater in southeastern Illinois, as illustrated in Appendix II.

The reason that refuse disposal areas and sludge, and slurry, and precipitated process material at a coal preparation plant are a significant threat, without proper containment measures, is because precipitation will move through the refuse disposal areas and sludge, and slurry, and precipitated process material producing a concentrated leachate high in inorganic contaminants and with a low pH that will migrate directly into the groundwater. This plume of contaminated groundwater will move down gradient as contaminants continue to be recharged through these refuse disposal areas and sludge, and slurry, and precipitated process materials. In the example of HCC, the refuse disposal areas were placed into the water table with no containment measures or devices and did contaminate Class I groundwater. Once an aquifer is contaminated with these inorganic contaminants and pH ordinary treatment techniques at a potable water supply well cannot be used to remove these contaminants. This represents significant degradation to existing and future beneficial uses of resource groundwater.

Therefore, the Illinois EPA's Groundwater Standards Team that I participated in revised the standards so that the appropriate standards for inorganic constituents or pH in groundwater should apply within an excavation at the surface of an underground mine. Further, the Illinois EPA developed a draft that included different provisions for refuse disposal areas and sludge, slurry, and precipitated process material at coal preparation plants at underground coal mines to prevent contamination from migrating horizontally and vertically beyond a conservative

point of compliance, while still maintaining appropriate standards for surface coal mines. The following revisions were done to include these provisions for refuse disposal areas and sludge, slurry, and precipitated process material at coal preparation plants located within the recharge area of an aquifer above an underground coal mine. First, the following provisions were stricken:

~~e) Alternate Coal Mine Standards~~

- ~~1) Notwithstanding Sections 620.310(a) and 620.320(a), after reclamation at a coal mine has been completed, the concentration of total dissolved solids (TDS) shall not exceed:
 - ~~A) The post mining ambient level or 3000 mg/l, whichever is less, for groundwater within an area:
 - ~~i) Bounded by a perimeter located 200 feet around the area from which overburden has been removed; or~~
 - ~~ii) From which coal has been extracted from an underground coal mine; or~~~~
 - ~~B) The post mining ambient level or 5000 mg/l, whichever is less, for groundwater in underground coal mines and in areas reclaimed after surface coal mining if the Illinois Department of Mines and Minerals and the Agency have determined that no significant resource groundwater existed prior to mining.~~
 - ~~C) The chloride and sulfate standards specified in Sections 620.310 and 620.320 do not apply to ground waters subject to the alternate TDS standard established by this section.~~~~
- ~~2) The standards set forth in subsection (e) (1) shall apply only if the coal mine has been permitted by the Illinois Department of Mines and Minerals, and applicable groundwater quality monitoring has been performed and reported to such Department.~~
- ~~3) The standards set forth in subsection (e) (1) shall apply only in aquifers.~~

The requirements above were replaced by 620.450(b). Section 620.450(b)(1) states that the narrative standards found in 620.450(b)(2) and (b)(3) for inorganic constituents or pH in groundwater apply within an underground coal mine and not in the entire cumulative hydrologic impact area ("CHIA") clear up to the land surface as they do for surface coal mines. Unlike in an underground coal mine, where the overburden is left in place, the overburden and any aquifers found within it are literally removed at a surface coal mine. Section 620.450(b)(1)

states that the narrative standards laid out in 620.450(b)(2) and (b)(3) apply to surface coal mines as noted below:

b) Coal Reclamation Groundwater Quality Standards

- 1) Any inorganic chemical constituent or pH in groundwater, within an underground coal mine, or within the cumulative impact area of groundwater for which the hydrologic balance has been disturbed from a permitted coal mine area pursuant to the Surface Coal Mining Land Conservation and Reclamation Act [225 ILCS 720] and 62 Ill. Adm. Code 1700 through 1850, is subject to this Section.
- 2) Prior to completion of reclamation at a coal mine, the standards as specified in Sections 620.410(a) and (d), 620.420(a) and (d), 620.430 and 620.440 are not applicable to inorganic constituents and pH.
- 3) After completion of reclamation at a coal mine, the standards as specified in Sections 620.410(a) and (d), 620.420(a), 620.430, and 620.440 are applicable to inorganic constituents and pH, except:
 - A) The concentration of total dissolved solids (TDS) must not exceed:
 - i) The post-reclamation concentration or 3000 mg/L, whichever is less, for groundwater within the permitted area; or
 - ii) The post-reclamation concentration of TDS must not exceed the post-reclamation concentration or 5000 mg/L, whichever is less, for groundwater in underground coal mines and in permitted areas reclaimed after surface coal mining if the Illinois Department of Mines and Minerals and the Agency have determined that no significant resource groundwater existed prior to mining (62 Ill. Adm. Code 1780.21(f) and (g)); and
 - B) For chloride, iron, manganese and sulfate, the post-reclamation concentration within the permitted area must not be exceeded.
 - C) For pH, the post-reclamation concentration within the permitted area must not be exceeded within Class I: Potable

Resource Groundwater as specified in Section
620.210(a)(4).

The phrase "not contained within the area from which overburden has been removed" was used to distinguish between mining practices at underground mines and surface mining. As stated above, the overburden is not removed at an underground mine because the mineral is extracted in the subsurface. That is the reason that subsidence is a concern in an underground mine because the overburden is still in place above the underground mine.

Surface mining is a type of mining in which soil and rock overlying the mineral deposit (overburden) is removed and stock piled. Surface mining is used when commercially useful coal deposits are found near the surface. Refuse disposal areas and sludge, and slurry, and precipitated process material at a coal preparation plant had not been a threat to groundwater at surface coal mines. The Illinois Surface Coal Mining Land Conservation and Reclamation (SMCRA) at (225 ILCS 720 at Section 1.03(a)(24) includes a definition for surface mining operations which includes the term overburden pile, as follows:

Surface mining operations" means (A) activities conducted on the surface of lands in connection with a surface coal mine or surface operations. Such activities include excavation for the purpose of obtaining coal including such common methods as contour, strip, auger, mountaintop removal, box cut, open pit, and area mining, coal recovery from coal waste disposal areas, the uses of explosives and blasting, and in situ distillation or retorting, leaching or other chemical or physical processing, and the cleaning, concentrating, or other processing or preparation, loading of coal at or near the mine site; and (B) the areas on which such activities occur or where such activities disturb the natural land surface. Such areas include any adjacent land the use of which is incidental to any such activities, all lands affected by the construction of new roads or the improvement or use of existing roads to gain access to the site of such activities and for haulage, and excavations, workings, impoundments, dams, refuse banks, dumps, stockpiles, overburden piles, spoil banks, culm banks, tailings, holes or depressions, repair areas, storage areas, processing areas, shipping areas and other areas upon which are sited structures, facilities, or other property or materials on the surface, resulting from or incident to such activities. (Emphasis added)

In contrast, the definition for underground mining operations at Section 1.03(a)(26) of SMCRA does not include the phrase overburden piles because there is no overburden removed to create such a pile.

For a surface coal mine, if there was an aquifer present it must be removed to mine the exposed coal seam. Therefore, there is no aquifer material present above the coal that is being mined in a surface coal mine. Thus, if refuse disposal areas, or sludge, slurry, and precipitated process material associated with a coal preparation plant are located in the pit of a surface mine, there is much less of a threat to groundwater contamination. However, because overburden is not removed at underground mine, placing refuse disposal areas and sludge, slurry, and precipitated process material at a coal preparation plant on or in the recharge area of an aquifer, without state of the art containment measures and devices, poses a significant threat to groundwater. The reason that refuse disposal areas and sludge, slurry, and precipitated process material at a coal preparation plant are a significant threat, without state of the art containment measures and devices, is because precipitation will move through the refuse disposal areas and sludge, slurry, and precipitated process material producing a leachate high in inorganic contaminants and low pH that will migrate directly into the groundwater. This plume of contaminated groundwater moves down gradient as contaminants continue to be recharged through the uncontained refuse disposal areas and sludge, slurry, and precipitated process materials. Once an aquifer is contaminated with these inorganic contaminants and pH ordinary treatment techniques at a potable water supply well cannot be used to remove these contaminants. Therefore, Section 620.450(b)(4) and (5) were promulgated to require compliance with Subparts B, C, and D, and the Groundwater Quality Standards as follows:

- 4) A refuse disposal area (not contained within the area from which overburden has been removed) is subject to the inorganic chemical constituent and pH requirements of:
- A) 35 Ill. Adm. Code 302.Subparts B and C, except due to natural causes, for such area that was placed into operation after February 1, 1983, and before the effective date of this Part, provided that the groundwater is a present or a potential source of water for public or food processing;
 - B) Section 620.440(c) for such area that was placed into operation prior to February 1, 1983, and has remained in continuous operation since that date; or
 - C) Subpart D of this Part for such area that is placed into operation on or after the effective date of this Part.
- 5) For a refuse disposal area (not contained within the area from which overburden has been removed) that was placed into operation prior to February 1, 1983, and is modified after that date to include additional area, this Section applies to the area that meets the requirements of subsection (b)(4)(C) and the following applies to the additional area:
- A) 35 Ill. Adm. Code 302.Subparts B and C, except due to natural causes, for such additional refuse disposal area that was placed into operation after February 1, 1983, and before the effective date of this Part, provided that the groundwater is a present or a potential source of water for public or food processing; and
 - B) Subpart D for such additional area that was placed into operation on or after the effective date of this Part.
- 6) A coal preparation plant (not located in an area from which overburden has been removed) which contains slurry material, sludge or other precipitated process material, is subject to the inorganic chemical constituent and pH requirements of:
- A) 35 Ill. Adm. Code 302.Subparts B and C, except due to natural causes, for such plant that was placed into operation after February 1, 1983, and before the effective date of this Part, provided that the groundwater is a present or a potential source of water for public or food processing;
 - B) Section 620.440(c) for such plant that was placed into operation prior to February 1, 1983, and has remained in continuous operation since that date; or

C) Subpart D for such plant that is placed into operation on or after the effective date of this Part.

7) For a coal preparation plant (not located in an area from which overburden has been removed) which contains slurry material, sludge or other precipitated process material, that was placed into operation prior to February 1, 1983, and is modified after that date to include additional area, this Section applies to the area that meets the requirements of subsection (b)(6)(C) and the following applies to the additional area:

A) 35 Ill. Adm. Code 302.Subparts B and C, except due to natural causes, for such additional area that was placed into operation after February 1, 1983, and before the effective date of this Part, provided that the groundwater is a present or a potential source of water for public or food processing; and

B) Subpart D for such additional area that was placed into operation on or after the effective date of this Part.

5. The provisions for refuse disposal areas and sludge, and slurry, and precipitated process material were written to take into account when mines were permitted as well as the Board's groundwater quality standards that applied under 35 Ill. Adm. Code 302 Subparts B and C. The Board adopted the first groundwater standards that applied in Illinois in 1971. In addition to the Section 620.450(b), new provisions for refuse disposal areas and sludge, and slurry, and precipitated process material were added to Section 620.240 to establish a three dimensional area around these potential sources of groundwater contamination. These provisions are parallel to the zone of attenuation ("ZOA") established by the Board for solid waste landfills at 811 and 814. The applicable groundwater standards are intended to apply beyond the following boundaries:

f) Groundwater which underlies a coal mine refuse disposal area not contained within an area from which overburden has been removed, a coal combustion waste disposal area at a surface coal mine authorized under Section 21(s) of the Act, or an impoundment that contains sludge, slurry, or precipitated process material at a coal preparation plant, in which contaminants may be present, if such area or impoundment was placed into operation after February 1, 1983, if the

owner and operator notifies the Agency in writing, and if the following conditions are met:

- 1) The outermost edge is the closest practicable distance, but does not exceed:
 - A) A lateral distance of 25 feet from the edge of such area or impoundment, or the property boundary, whichever is less; and
 - B) A depth of 15 feet from the bottom of such area or impoundment, or the land surface, whichever is greater;
- 2) The source of any release of contaminants to groundwater has been controlled;
- 3) Migration of contaminants within the site resulting from a release to groundwater has been minimized;
- 4) Any on-site release of contaminants to groundwater has been managed to prevent migration off-site; and
- 5) No potable water well exists within the outermost edge as provided in subsection (e)(1). (Emphasis added)

6. The Board's groundwater quality standards also were amended to include a requirement for addressing groundwater contamination through the implementation of a groundwater management zone ("GMZ") pursuant to Section 620.250.

7. The Illinois EPA and Illinois Pollution Control Board amended Section 620.505 to establish the points of compliance for refuse disposal areas and sludge, and slurry, and precipitated process material at a coal preparation plant. Because groundwater monitoring in the aquifer at land surface prior to the start of mining in an underground mine should be the basis for determining the classification of groundwater in the surficial aquifer, Section 620.505 Compliance Determination was amended as follows:

- 3) For groundwater that underlies a coal mine refuse disposal area, a coal combustion waste disposal area, or an impoundment that contains sludge, slurry, or precipitated process material at a coal preparation plant, the outermost edge as specified in Section 620.240(f)(1) or location of monitoring wells in existence as of the effective date of this Part on a permitted site.

8. These amendments were presented at a groundwater standards workshop on January 22, 1991. The Illinois Coal Association was invited to this workshop, and Zeigher Coal

Company participated. Following this workshop, the Illinois EPA's third amended proposal was filed with the Board. Another groundwater standards workshop was sponsored by the Illinois EPA for additional stakeholder input on March 28, 1991. The Illinois Coal Association was also invited to this workshop.

9. On May 31, 1991 a revised proposal under Board Docket B [R89-14(b)] was submitted. This was supported by page 27 of my testimony provided to the Board on May 31, 1991, as follows:

Previous provisions for coal mine standards in this proposed regulation did not provide standards for certain type of coal wastes that are disposed of on the land surface, and are not contained within the area from which overburden has been removed. These units should be subject to standards if they are outside of the area in which overburden has been removed. These units typically contain coal refuse disposal waste, coal combustion waste or slurry material, sludge or other precipitated process material in a impoundment at a coal preparation plant. The Agency's mine pollution control program has been working with these waste units to assure that they have proper controls where usable groundwaters or surface waters would be potentially impacted.

10. Eagle No. 2 is an underground mine. Appendix III, attached to this Affidavit, illustrates a geologic cross section (prepared by Carl Kamp, P.G., of my staff) based on a geologic well log from the mine. This cross section shows 250 to 278 feet of geologic materials, or overburden, above the Number 5 Coal. The overburden of geologic materials was not removed for the mining of the Number 5 Coal at Eagle No. 2, or to create the refuse disposal areas. Appendix I shows that this is a sole source of Class I groundwater in southeastern Illinois. Moreover, Appendix II shows that there is a very high potential for aquifer recharge into the Henry Aquifer.

The Henry Aquifer is located around and beneath the refuse disposal areas at the Mine, from a depth of approximately ten feet down to 125 feet below the ground surface. The refuse disposal areas were placed in a trench excavated down to the water table in the Henry

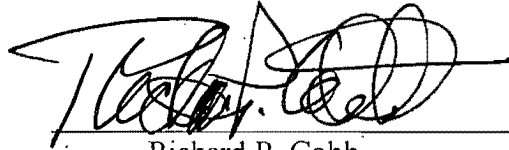
Aquifer¹ which is Class I groundwater. The reason that refuse disposal areas and sludge, slurry, and precipitated process material at a coal preparation plant are a significant threat, without proper containment measures or devices, is because precipitation will move through refuse disposal areas and sludge, slurry, and precipitated process material producing a concentrated leachate high in inorganic contaminants and low pH that will migrate directly into the groundwater. This plume of contaminated groundwater did move down gradient as contaminants continued to be recharged through the Mine's refuse disposal areas causing groundwater contamination.

The natural circumstances surrounding the Henry Aquifer increase the need to protect the groundwater resources because the aquifer and Saline Valley Conservancy District community water supply ("CWS") wells are located in an area where potentially suitable aquifers are limited, as illustrated Appendix I. In the southern half of the State, the glacial deposits tend to be a thin layer 20-50 feet thick, dominated by clayey tills or loess. Low permeability rock is usually underneath these glacial deposits. Sand and gravel, which are good aquifer material, usually occurs in thin and discontinuous stringers of sand, except in river valleys.

The Saline Valley Conservancy District CWS wells are located within a river valley, and they draw from the Henry sand and gravel aquifer. Protecting this aquifer is critical, because sites for replacement wells would be difficult to find given the hydrogeology of Southern Illinois. Moving laterally away from the river would yield groundwater that lacks the quality and quantity available from the wells the Saline Valley Conservancy District currently operates. Replacement wells would have to be located upstream or downstream along the river, and

¹ *Results of Review, dated 9/27/96, for Revision Application No. 6 to Permit No. 34-Eagle No. 2 Mine, Appendix C Assessment And Findings Of Probable Cumulative Hydrologic Impact*

constructing new wells and the necessary water mains to connect to existing infrastructure is costly.

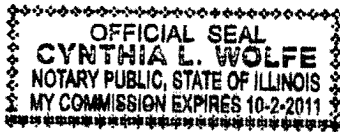


Richard P. Cobb

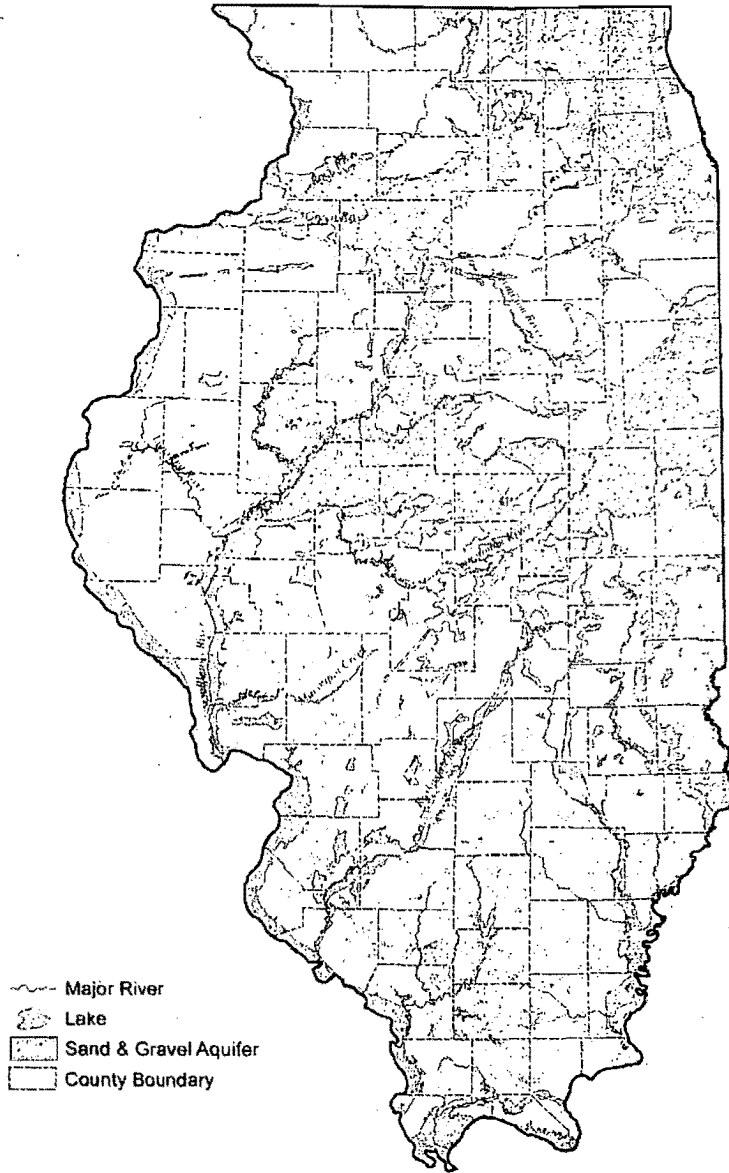
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this 7th day of April, 2011.



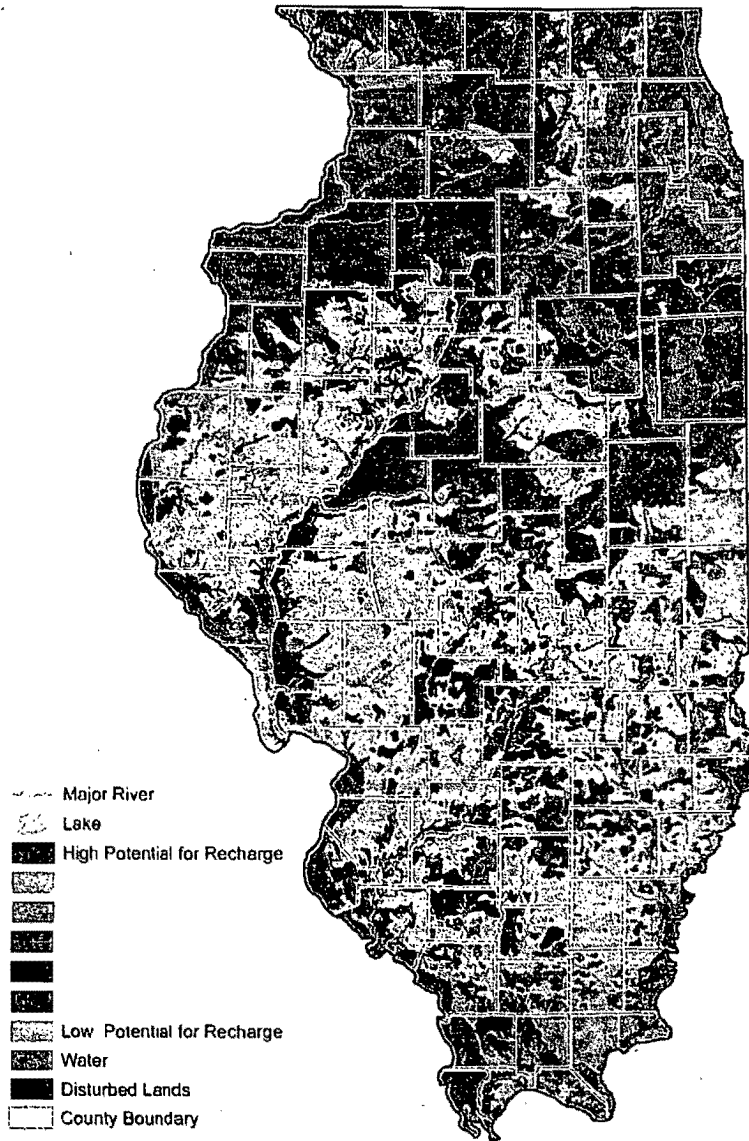
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Appendix I. Major Sand and Gravel Aquifers in IL

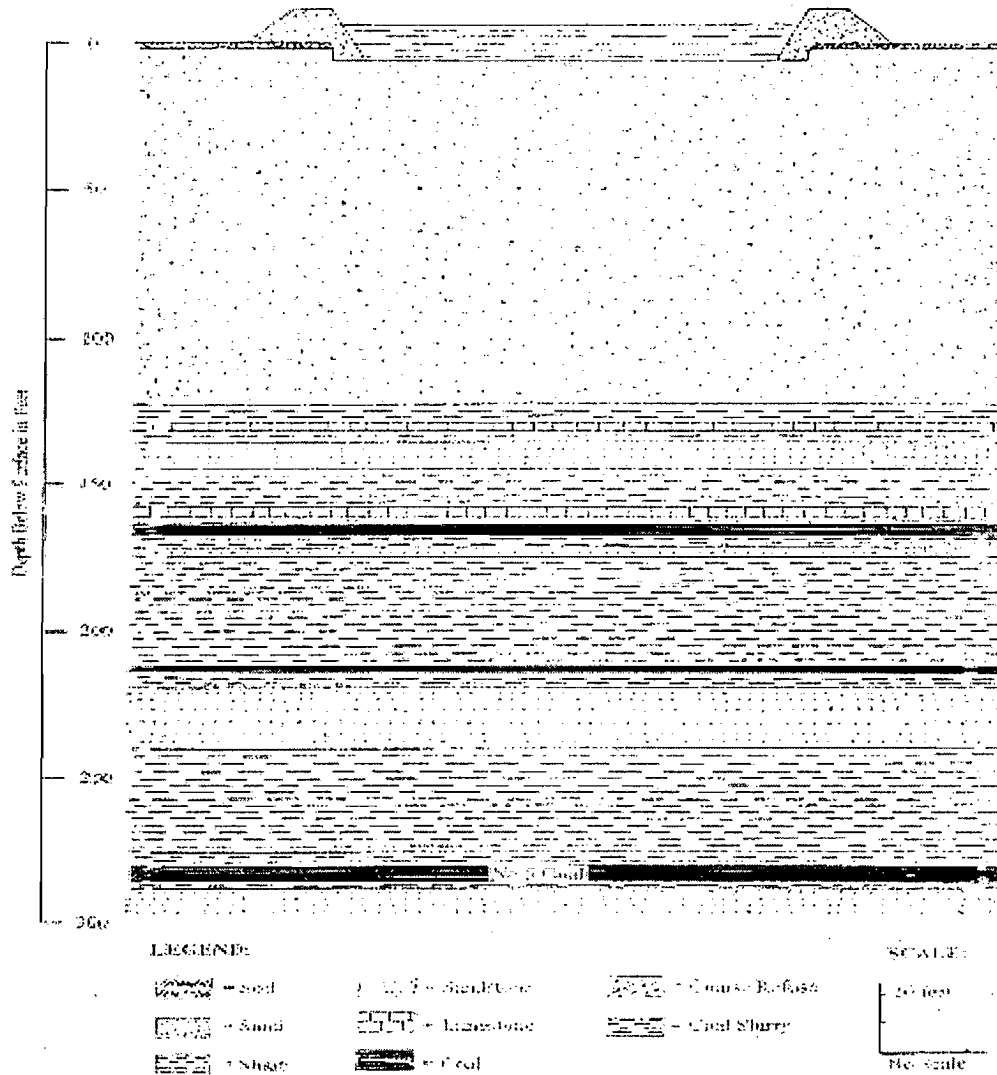


Appendix II. Potential for Aquifer Recharge in Illinois



Appendix III

Geologic Cross Section at Peabody Coal Company, Eagle No. 11 Underground Mine



Appendix IV

CURRICULUM VITAE of
RICHARD P. COBB, P.G.

Work Experience

Deputy Manager, Division of Public Water Supplies (DPWS), Bureau of Water (BOW), Illinois Environmental Protection Agency (EPA). (5/02- Present) My primary responsibilities include managing the: Groundwater Section, Field Operation Section, and the Administrative Support Unit of the Division. Further, I assist with administering the public water supervision program under the federal Safe Drinking Water Act ("SDWA") and the Wellhead Protection Program ("WHPP") approved by the United States Environmental Protection Agency ("U.S. EPA"). Additionally, my responsibility includes the integration of source water protection with traditional water supply engineering and treatment practices, and to further assist with linking Clean Water Act and SDWA programs. I also directly manage the BOW's Groundwater Section. The Groundwater Section applies Geographic Information System ("GIS") programs, global positioning system ("GPS") technology, hydrogeologic models (3D geologic visualization, vadose zone, groundwater flow, groundwater particle tracking, solute transport, and geochemical models), and geostatistical programs for groundwater protection and remediation projects. The Groundwater Section also continues to operate a statewide ambient groundwater monitoring program for the assessment of groundwater protection and restoration programs. I also do extensive coordination with federal, state and local stakeholders including the Governor appointed Groundwater Advisory Council ("GAC"), the Interagency Coordinating Committee on Groundwater ("ICCG"), four Priority Groundwater Protection Planning Committees, Illinois Source Water Protection Technical and Citizens Advisory Committee, and with the Ground Water Protection Council ("GWPC"), Association of State Drinking Water Administrators ("ASDWA"), and the Association of State and Interstate Water Pollution Control Administrators ("ASWIPCA") to develop and implement groundwater protection policy, plans, and programs. I represent the BOW on Illinois EPA's: Contaminant Evaluation Group ("CEG"); Strategic Management Planning Team; Environmental Justice Committee; GIS Steering Committee; Information Management Steering Committee; and Leadership in Energy and Environmental Design for Existing Building ("LEED-EB") Committee. Since starting with Illinois EPA in 1985, I have worked on the development of legislation, rules and regulations. I have also served as a primary Illinois EPA witness before Senate and House legislative committees, and at Illinois Pollution Control Board ("Board") proceedings in the matter of groundwater quality standards, technology control regulations, cleanup regulations, regulated recharge areas, maximum setback zone, and water well setback zone exceptions. Furthermore, I have served as primary Illinois EPA witness in enforcement matters.

Manager, Groundwater Section, DPWS, BOW, Illinois EPA. (9/92-5/02) My primary responsibilities included development and implementation of Illinois statewide groundwater quality protection, USEPA approved WHPP, and source water protection program. The Groundwater Section worked with the United States Geological Survey ("USGS") to refine Illinois EPA's ambient groundwater monitoring network using a random stratified probability based design. The Groundwater Section continued to operate a statewide ambient groundwater monitoring program for the assessment of groundwater protection and restoration programs

based on the new statistically-based design. I co-authored a *Guidance Document for Conducting Groundwater Protection Needs Assessments* with the Illinois State Water and Illinois State Geological Surveys. I also continued to conduct extensive coordination with federal, state and local stakeholders including the Governor appointed GAC, the ICCG, four Priority Groundwater Protection Planning Committees, Illinois Source Water Protection Technical and Citizens Advisory Committee, and at the national level as Co-chair of the GWPC Ground Water Division to develop and implement groundwater protection policy, plans, and programs. I also served periodically as Acting Manager for the Division of Public Water Supplies. Additionally, the Groundwater Section provided hydrogeologic technical assistance to the BOW Permit Section and Mine Pollution Control Program to implement source water protection, groundwater monitoring and aquifer evaluation and remediation programs. I continued to work on the development of legislation, rules and regulations. I also served as a primary Illinois EPA witness at Board proceedings in the matter of groundwater quality standards, technology control regulations, regulated recharge areas and water well setback zone exceptions. Furthermore, I served as an Agency witness in enforcement matters.

Acting Manager, Groundwater Section, DPWS, BOW, Illinois EPA. (7/91-9/92) My responsibilities included continued development and implementation of Illinois statewide groundwater quality protection, U.S. EPA approved WHPP, and ambient groundwater monitoring program. The Groundwater Section developed the Illinois EPA's WHPP pursuant to Section 1428 of the SDWA and was fully approved by U.S. EPA. Illinois EPA was the first state in U. S. EPA Region V to obtain this approval. I performed extensive coordination with state and local stakeholders including the Governor appointed GAC, the ICCG to develop and implement groundwater protection, plans, policy, and programs. Developed and implemented the establishment of Illinois' Priority Groundwater Protection Planning Committees. Developed and implemented Pilot Groundwater Protection Needs Assessments. The Groundwater Section also provided hydrogeologic technical assistance to the BOW Permit Section and Mine Pollution Control Program staff to develop groundwater monitoring and aquifer evaluation, remediation and/or groundwater management zone programs. I also served as a primary Agency witness at Board proceedings in the matter of groundwater quality standards and technology control regulations. Additionally, I served as an Agency total quality management ("TQM") facilitator, and TQM trainer.

Manager of the Hydrogeology Unit, Groundwater Section, DPWS, Illinois EPA (7/88-7/91) Managed a staff of geologists and geological engineers that applied hydrogeologic and groundwater modeling principals to statewide groundwater protection programs. Developed, and integrated the application of GIS, GPS, geostatistical, optimization, vadose zone, solute transport, groundwater flow and particle tracking computer hardware/software into groundwater protection and remediation projects. Conducted extensive coordination with state and local stakeholders including the Governor appointed GAC and ICCG to develop and implement groundwater protection policy, plans, and programs. Developed and implemented a well site survey program to inventory potential sources of contamination adjacent to community water supply wells. Additionally, I worked on the development of rules to expand setback zones based on the lateral area of influence of community water supply wells. Furthermore, I provided administrative support to the Section manager in coordination, planning, and supervision of the groundwater program. I also assisted with the development of grant applications and subsequent

management of approved projects. In addition, I assisted the section manager with regulatory and legislative development in relation to the statewide groundwater quality protection program. I also served on the Illinois EPA's Cleanup Objectives Team ("COT").

Environmental Protection Specialist I, II, and III, Groundwater Section, DPWS, Illinois EPA. (7/85-7/88) I was the lead worker and senior geologist in the development and implementation of Illinois statewide groundwater quality protection program. I worked on the development of Illinois EPA's ambient groundwater monitoring network, and field sampling methods and procedures with the USGS. I published the first state-wide scientific paper on volatile organic compound occurrence in community water supply wells in Illinois. In addition, I assisted with the development of *A Plan for Protecting Illinois Groundwater*, and the legislation that included the *Illinois Groundwater Protection Act*.

Consulting Well Site Geologist, Geological Exploration (GX) Consultants, Denver Colorado. (3/81-12/83) I worked as a consulting well site geologist in petroleum exploration and development for major and independent oil companies. I was responsible for the geologic oversight of test drilling for the determination and presence of petroleum hydrocarbons. Prepared geologic correlations and performed analysis of geophysical logs, drilling logs and drill cuttings. Supervised and analyzed geophysical logging. Made recommendations for conducting and assisted with the analysis of drill stem tests and coring operations. In addition, I provided daily telephone reports and final written geologic reports to clients.

Undergraduate Teaching Assistant, Geology Department, Illinois State University. (3/79-3/81) I was responsible for teaching and assisting with lecture sessions, lab sessions, assignment preparation and grading for Petrology, Stratigraphy and Geologic Field Technique courses.

Undergraduate Education

B.S Geology, 1981, Illinois State University ("ISU"). Classes included field geology at South Dakota School of Mines and Technology, and Marine Ecology Paleocology at San Salvador Field Station, Bahamas

Post Graduate Education

Applied Hydrogeology, 1984, ISU Graduate Hydrogeology Program

Engineering Geology, 1984, ISU Graduate Hydrogeology Program

Geochemistry for Groundwater Systems, 1986, USGS National Training Center

Hydrogeology of Waste Disposal Sites, 1987, ISU Graduate Hydrogeology Program

Hydrogeology of Glacial Deposits in Illinois, 1995, ISU Graduate Hydrogeology Program

MODFLOW, MODPATH and MT3D groundwater modeling, 1992, USGS National Training Center

24 Hour Occupational Health & Safety Training, 1994

Computer Modeling of Groundwater Systems, 1995, ISU Graduate Hydrogeology Program

Introduction to Quality Systems Requirements and Basic Statistics, 2001, U.S. EPA

Source Water Contamination Prevention Measures, 2001, U.S.EPA, Drinking Water Academy

Fate and Transport Processes and Models, 2006, Risk Assessment and Management Group, Inc.,

National Response Framework (NRF) IS-800.b, 2010, EMI

National Response Plan (NRP), an Introduction IS-800.a, 2007, EMI

National Incident Management System (NIMS) an Introduction IS-00700, 2006, Emergency Management Institute (EMI),

Intermediate ICS for Expanding Incidents IS-00300, 2008, EMI

ICS for Single Resources and Initial Action Incidents IS-00200, 2006, EMI,

Introduction to the Incident Command System (ICS) IS-00100, 2006, EMI

License

Licensed Professional Geologist 196-000553, State of Illinois, expires 3/31/2013

Certification

Certified Professional Geologist 7455, Certified by the American Institute of Professional Geologists 4/88

Certified Total Quality Management Facilitator, 5/92, Organizational Dynamics Inc.,

Summary of Computer Skills

I have utilized the following computer programs ARC VIEW, Aqtesolv, SURFER, WHPA, DREAM, AQUIFEM, MODFLOW, MODPATH, and MT3D.

Professional Representation

Illinois EPA liaison to the *GAC* and representative on the *ICCG* (1988 – present)

Senate Working Committee on Geologic Mapping.

Illinois EPA representative and subcommittee chairman, ***State Certified Crop Advisory Board, and Ethics and Regulatory Subcommittee*** established in association with the American Society of Agronomy/American Registry of Certified Professionals in Agronomy, Crops and Soils (1995 – 2001)

Illinois groundwater quality standards regulations technical work group (1988 – 1991).

ICCG State Pesticide Management Plan Subcommittee for the protection of groundwater.

Illinois EPA representative, ***State task group involved with developing the siting criteria for a low level radioactive waste site in Illinois.***

Fresh Water Foundation's Groundwater Information System (GWIS) project in the great lakes basin.

Illinois EPA technical advisor, ***four priority regional groundwater protection planning committees*** designated by the Director to advocate groundwater protection programs at the local level (1991 – present)

Groundwater Subcommittee of the National Section 305(b) Report, of the Clean Water Act Consistency Workgroup.

Ground Water Protection Council's Wellhead Protection Subcommittee.

Co-Chair, ***Groundwater Division of the GWPC*** on (September 1997 to 2003)

Chairman, ***Illinois' Source Water Protection Technical and Citizens Advisory Committee.***

United States Environmental Protection Agency National Ground Water Report Work Group. One of 10 state representatives serving on a work group sponsored by U.S. EPA headquarters charged with development of a national report to be submitted to the U.S. Congress on the status and needs for groundwater protection programs across the country. (January 1999 to July 2000)

Illinois EPA representative, ***Northeastern Illinois Planning Commission Water Supply Task Force.*** The purpose of this task force is to assist the Commission in the development of a Strategic Plan for Water Resource Management. (March 1999 to 2001)

GWPC/U.S. EPA Futures Forum Work Group providing input on source water protection for the next 25 years. (January 1999 to 2001)

GWPC/ASDWA work group providing input into the U.S. EPA Office of Ground and Drinking Water Strategic Plan for Source Water Protection. June 2000 to March 2005.

Co-Chair, *U.S. EPA Headquarters/GWPC/ASDWA/ASWIPCA workgroup to develop the second Ground Water Report to Congress*. March 2002 –present.

Chair, *ICCG Groundwater Contamination Response Subcommittee* responsible for developing a new strategy for responding to groundwater contamination and the subsequent notification of private well owners. March 2002 – April 2002.

Illinois EPA representative, *ICCG Water Quantity Planning Subcommittee* working on development of a surface and groundwater quantity- planning program for Illinois. June 2002 – January 2003

Chair, *ICCG Right-to-Know (RTK) Subcommittee, 2006*

GWPC, Groundwater Science and Research Advisory Board, 2007

Professional Affiliation

American Institute of Professional Geologists

Illinois Groundwater Association

Ground Water Protection Council

National Groundwater Association -Association of Groundwater Scientists and Engineers

Sigma Xi – The Scientific Research Society

Honors

Sigma Xi - Elected to *Sigma Xi* The Scientific Research Society for undergraduate research conducted and presented to the Illinois Academy of Science. 4/81

Director's Commendation Award - Participation in the development of the City of Pekin, Il. Groundwater Protection Program and commitment to the protection of Illinois groundwater. 7/95

Certificate of Appreciation - Outstanding contribution to the development of the Ground Water Guidelines for the National Water Quality Inventory 1996 Report to Congress from the United States Environmental Protection Agency Office of Ground Water and Drinking Water. 8/96

Groundwater Science Achievement Award - Illinois Groundwater Association for outstanding leadership and service in the application of groundwater science to groundwater protection in Illinois and in the development of the wellhead protection program and pertinent land-use regulations. 11/97

Certificate of Appreciation - GWPC for distinguished service, remarkable dedication, valuable wisdom and outstanding contribution as a GWPC member, division co-chair and special committee member. 9/99

Drinking Water Hero Recognition - United States Environmental Protection Agency Administrator Carol Browner at the 25th Anniversary of the Federal Safe Drinking Water Act Futures Forum in Washington D.C. 12/99.

Certificate of Recognition - United States Environmental Protection Agency Region V Administrator Fred Lyons for outstanding achievements in protecting Illinois' groundwater resources. 12/99

Exemplary Systems in Government (ESIG) Award - Nomination by the Governor's Office of Technology from the Urban and Regional Information Systems Association (URISA) for the Illinois EPA's Source Water Assessment and Protection Internet Geographic Information System. 6/01

Expert Witness Experience

IN THE MATTER OF: GROUNDWATER QUALITY STANDARDS (35 ILL. ADM. CODE 620), R89-14(B) (Rulemaking). Subject: I served as the principal witness recommending adoption of this Illinois EPA Agency proposal. R89-14(B) was adopted by the Board. The standards became effective January 1991.

STATE OIL COMPANY vs. DR. KRONE, McHENRY COUNTY and ILLINOIS EPA, PCB 90-102 (Water Well Exception). Subject: This case involved obtaining an exception from the owner of a non-community water supply well for placing new underground gasoline storage tanks within the 200-foot setback zone of well. I served as the principal witness for Illinois EPA on this case. The Board granted the exception with conditions.

People vs. AMOCO OIL COMPANY and MOBIL CORPORATION, Case no. 90-CH-79, Tenth Judicial Court, Tazewell County, Illinois. Subject: Groundwater contamination resulting from releases at above ground bulk petroleum storage terminals resulting in violation of Illinois' Groundwater Quality Standards Regulations (35 Illinois Administrative Code 620). I served as the principal Illinois EPA witness on this case. The case was settled with a penalty of \$125,000 and the requirement of a comprehensive corrective action program.

IN THE MATTER OF: GROUNDWATER PROTECTION: REGULATIONS FOR EXISTING AND NEW ACTIVITIES WITHIN SETBACK ZONES AND REGULATED RECHARGE AREAS (35 ILL. ADM. CODE 601, 615, 616 and 617), R89-5 (Rulemaking). Subject: I served as the principal Illinois EPA witness supporting adoption of this Agency proposal. R89-5 was adopted by the Board and became effective January 1992.

HOUSE BILL 171 METHYL TERTIARY BUTYL ETHER (MTBE) ELIMINATION ACT, House Environmental and Energy Committee. Subject: This law required the phase out MTBE within 3 years of enactment. I served as a principal Illinois EPA witness in support of the proposed legislation. The legislation was adopted as Public Act 92-0132 on July 24 2001. PA 92-132 required the ban of MTBE within three years.

IN THE MATTER OF: GROUNDWATER QUALITY STANDARDS (35 ILL. ADM. CODE 620), R93-27 (Rulemaking). Subject: I served as the principal Illinois EPA witness recommending amendments of new constituent standards in this Agency proposal.

SHELL OIL COMPANY vs. COUNTY of DuPAGE and THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, PCB 94-25 (Water Well Setback Exception). Subject: A new underground gasoline storage tank was seeking an exception from the Illinois Pollution Control Board in relation to a private drinking water supply well setback zone. The DuPage County and the Illinois EPA held that the tank would be a significant hazard and opposed the exception. I served as the principal Illinois EPA witness. Shell withdrew the petition from the Board after hearings were held.

People ex rel. Ryan v. STONEHEDGE, INC., 288 Ill.App.3d 318, 223 Ill.Dec. 764, 680 N.E.2d 497 (Ill.App. 2 Dist. May 22, 1997). Subject: The State brought Environmental Protection Act action against company engaged in business of spreading deicing salt, alleging that salt stored on company's industrial property leaked into area's groundwater supply, thereby contaminating it. The Circuit Court, McHenry County, James C. Franz, J., granted company's motion for summary judgment. State appealed. The Appellate Court, Colwell, J., held that: (1) wells existing before Illinois Water Well Construction Code was enacted are not "grandfathered" in as being in compliance with Code, so as to be automatically subject to testing for groundwater contamination, and (2) fact issues precluded summary judgment on claim arising from alleged deposit of at least 50,000 pounds of salt in pile within 200 feet of two existing water supply wells. Affirmed in part and reversed in part; cause remanded.

People vs. STONEHEDGE INC. Case no. 94-CH-46, Circuit Court of the 19th Judicial Circuit, McHenry County. Subject: This case involved a violation of the potable well setback zone provisions of Section 14.2 of the Illinois Environmental Protection Act. Stonehedge Inc. placed a salt pile of greater than 50,000 pounds within the 200 foot setback of multiple private drinking water supply wells. I served as an Agency principal witness. Stonehedge Inc. was found to be guilty of violating the setback prohibition in this case and was assessed a penalty of \$1,500 and attorneys fees of \$4,500.

SALINE VALLEY CONSERVANCY DISTRICT vs. PEABODY COAL COMPANY, Case No. 99-4074-JLF, United States District Court for the Central District of Illinois. Subject: Groundwater contamination from the disposal of 12.8 million tons of coarse coal refuse, slurry and gob. Witness for the Illinois EPA. This is an on-going case.

IN THE MATTER OF: PROPOSED REGULATED RECHARGE AREAS FOR PLEASANT VALLEY PUBLIC WATER DISTRICT, PROPOSED AMENDMENTS TO (35 ILL. ADM. CODE 617), R00-17 (Rulemaking). Subject: I served as the principal Illinois EPA witness supporting adoption of this Agency proposal. The proposal was adopted on July 26, 2001 and became effective September 1, 2001.

IN THE MATTER OF: PROPOSED AMENDMENTS TO TIERED APPROACH TO CORRECTIVE ACTION OBJECTIVES (35 Ill. Adm. Code 742), (R00-19(A) and R00-19(B))

(Rulemaking). Subject: I served as a supporting Illinois EPA witness recommending inclusion of MTBE in this Agency proposal.

IN THE MATTER OF: NATURAL GAS-FIRED, PEAK-LOAD ELECTRICAL GENERATION FACILITIES (PEAKER PLANTS), R01-10 (Informational Hearing) Subject: I served as a supporting Illinois EPA witness to discuss the impact of peaker plants on groundwater.

IN THE MATTER OF: GROUNDWATER QUALITY STANDARDS AND COMPLIANCE POINT AMENDMENTS (35 ILL. ADM. CODE 620), R01-14 (Rulemaking). Subject: I served as the principal Illinois EPA witness recommending amendments of a groundwater standard for MTBE and compliance point determinations in this Agency proposal. The Board adopted the proposal unanimously on January 24, 2002.

TERESA LeCLERCQ; AL LeCLERCQ; JAN LeCLERCQ; WALT LeCLERCQ, individually; and on behalf of all persons similarly situated vs. THE LOCKFORMER COMPANY, a division of MET-COIL SYSTEMS CORPORATION, Case no. 00 C 7164, United States District Court, Northern District of Illinois. Subject: I was called as a witness by Lockformer Company to testify about a Well Site Survey prepared and published in 1989 by the Illinois EPA for Downers Grove community water supply.

TERESA LeCLERCQ; AL LeCLERCQ; JAN LeCLERCQ; WALT LeCLERCQ, individually; and on behalf of all persons similarly situated vs. THE LOCKFORMER COMPANY, a division of MET-COIL SYSTEMS CORPORATION, Case no. 00 C 7164, United States District Court, Northern District of Illinois. Subject: I was called as a witness by Lockformer Company to testify about groundwater contamination in the Lisle and Downers Grove area.

HOUSE BILL 4177 PRIVATE WELL TESTING PROPERTY TRANSFER and DISCLOSURE ACT, House Environmental and Energy Committee. Subject: Legislation to require volatile organic chemical contamination testing of private wells at the time of property transfer and reporting to the Illinois Department of Public Health and the Illinois EPA. I served as a principal Illinois EPA witness in support of the proposed legislation. The legislation was not supported due to the opposition from the realtors association.

MATTER OF PEOPLE vs. PEABODY COAL, PCB 99-134 (Enforcement). Subject: the State of Illinois developed an amended complaint against Peabody Coal Company (PCC) for violation of the groundwater quality standard for total dissolved solids, chloride, iron, manganese, and sulfate. I developed testimony to address PCC's affirmative defense of challenging the basis for the groundwater quality standards for these contaminants.

IN THE MATTER OF: PROPOSED AMENDMENTS TO TIERED APPROACH TO CORRECTIVE ACTION OBJECTIVES (35 Ill. Adm. Code 742) (TACO), (Rulemaking). Subject: I served as the Illinois EPA witness supporting amendments TACO to include wellhead protection areas. September 2004.

MAXMIUM SETBACK ZONES FOR MARQUETTE HEIGHTS PUBLIC WATER SUPPLY (35 ILL. ADM. CODE 618), R05-09 (Rulemaking). Subject: Pursuant to request by the Village of Marquette Heights the Illinois EPA developed a maximum setback zone for the Marquette Heights community water supply wells. I served as Illinois EPA's principal witness. The proposal was adopted on May 4, 2006.

IN THE MATTER OF: STANDARDS AND REQUIREMENTS FOR POTABLE WATER WELL SURVEYS AND FOR COMMUNITY RELATIONS ACTIVITIES PERFORMED IN CONJUNCTION WITH AGENCY NOTICES OF THREATS FROM CONTAMINATION UNDER P.A. 94-134 (35 Ill. Adm. Code 1505), R06-023 (Rulemaking), JANUARY 2006. I served as an Agency panel witness to support the adoption of the RTK regulation.

IN THE MATTER OF: PROCEDURES REQUIRED BY P. A. 94-849 FOR REPORTING RELEASES OF RADIONUCLIDES AT NUCLEAR POWER PLANTS: NEW 35 Ill. Adm. Code 1010, R07-20. I served as the Agency primary witness in this proceeding.

IN THE MATTER OF: GROUNDWATER QUALITY STANDARDS (35 ILL. ADM. CODE 620), R08-18 (Rulemaking). Subject: I served as the principal witness recommending amendments and updates to the exiting regulation. These regulatory amendments are still pending before the Board.

IN THE MATTER OF: IN THE MATTER OF: AMEREN ASH POND CLOSURE RULES (HUTSONVILLE POWER STATION): PROPOSED 35 ILL. ADM. CODE PART 840.101 THROUGH 840.144 (R09-21) (Rulemaking – Land) Subject: I served as the one of principal witnesses on this site specific regulation. These regulatory amendments were adopted by the Board on January 20, 2011.

PEOPLE OF THE STATE OF ILLINOIS vs., EXELON CORPORATION (No. 06 MR 248), Will County Circuit Court. Subject: I served as one of the primary Illinois EPA technical witnesses in a case where the State of Illinois and Will County sued Exelon for water pollution and exceeding groundwater standards beginning in 2001 at its Dresden Nuclear Generating Station near Morris. **Exelon will pay more than \$1 million** to resolve three civil complaints stemming from radioactive tritium leaks at the Braidwood, Bryon and Dresden nuclear power plants.

Publications

Cobb, R.P., 1980. *Petrography of the Houx Limestone in Missouri*. Transactions of the Illinois Academy of Science Annual Conference, Illinois Wesleyan, Bloomington, IL.

A Plan for Protecting Illinois Groundwater, 1986, Illinois Environmental Protection Agency, January. 65 p.

Cobb, R.P., and Sinnott, C.L., 1987. *Organic Contaminants in Illinois Groundwater*. Proceedings of the American Water Resources Association, Illinois Section, Annual Conference, Champaign, IL, April 28-29, p. 33-43.

Clarke, R.P., and Cobb, R.P., 1988. *Winnebago County Groundwater Study*. Illinois Environmental Protection Agency. 58 pp.

Groundwater in Illinois: A Threatened Resource, A Briefing Paper Regarding the Need for Groundwater Protection Legislation, April 1987, Governors Office and Illinois Environmental Protection Agency, 34 pp.

Clarke, R.P., Cobb, R.P. and C.L. Sinnott, 1988. *A Primer Regarding Certain Provisions of the Illinois Groundwater Protection Act*. Illinois Environmental Protection Agency. 48 pp.

Cobb, R.P., etal, 1992. *Pilot Groundwater Protection Needs Assessment for the City of Pekin*. Illinois Environmental Protection Agency. 111 pp.

Cobb, R.P., 1994. *Briefing Paper and Executive Summary on the Illinois Groundwater Protection Act and Groundwater Protection Programs with Recommendations from the Illinois Environmental Protection Agency Regarding the Siting of a Low Level Radioactive Waste Site*. Presented to the Low Level Radioactive Waste Task Force on December 9, 1994 in Champaign-Urbana.

Cobb, R.P., 1994. *Measuring Groundwater Protection Program Success*. In the proceedings of a national conference on Protecting Ground Water: Promoting Understanding, Accepting Responsibility, and Taking Action. Sponsored by the Terrene Institute and the United States Environmental Protection Agency in Washington D.C., December 12-13, 1994.

Cobb, R.P., Wehrman, H.A., and R.C. Berg, 1994. *Groundwater Protection Needs Assessment Guidance Document*. Illinois Environmental Protection Agency. +94 pp.

Cobb, R.P., and Dulka, W.A., 1995. *Illinois Prevention Efforts: The Illinois Groundwater Protection Act Provides a Unified Prevention-Oriented Process to Protect Groundwater as a Natural and Public Resource*, The AQUIFER, Journal of the Groundwater Foundation, Volume 9, Number 4, March 1995. 3pp.

Cobb, R.P., 1995. *Integration of Source Water Protection into a Targeted Watershed Program*. In the proceedings of the Ground Water Protection Council's Annual Ground Water Protection Forum in Kansas City Missouri.

Dulka, W.A., and R.P. Cobb, 1995. *Grassroots Group Forges Groundwater Protection Law*. American Water Works Association, Opflow, Vol. 21 No. 3. 2pp.

Cobb, R.P., 1996. *A Three Dimensional Watershed Approach: Illinois Source Water Protection Program*. In the proceedings of the Ground Water Protection Council's Annual Ground Water Protection Forum in Minneapolis Minnesota.

Cobb, R.P., and W.A. Dulka, 1996. *Discussion Document on the Development of a Regulated Recharge Area for the Pleasant Valley Public Water District*. Illinois Environmental Protection Agency. pp 28.

Cobb, R.P., 1996. *Illinois Source Water Protection Initiatives-Groundwater Perspective*. In the proceedings of the American Water Works Association's Annual Conference and Exposition in Toronto Canada. pp 585- 594.

Cobb, R.P., and Dulka, W.A., 1996. *Illinois Community Examines Aquifer Protection Measures*. American Water Works Association Journal. p10.

Cobb, R.P., etal. October 1999, *Ground Water Report to Congress*, United States Environmental Protection Agency.

Cobb, R.P., December 2001. *Using An Internet Geographic Information System (GIS) to Provide Public Access to Hydrologic Data*, Association of Groundwater Scientists and Engineers, National Groundwater Association, National Conference Proceedings, Nashville, Tennessee.

Cobb, R.P., September 2001, *Regulated Recharge Area Proposal for the Pleasant Valley Public Water District*, Ground Water Protection Council Annual Forum Proceedings, Reno Nevada, 13 pp.

Wilson, S., Cobb, R.P., and K. Runkle, January 2002. *Arsenic in Illinois Groundwater*. Illinois State Water Survey, Illinois Environmental Protection Agency, and Illinois Department of Public Health. <http://www.epa.state.il.us/water/groundwater/publications/arsenic/index.html>, 7 pp.

R.P., Cobb, August 2002, *Development of Water Quantity Planning and Protection in Illinois – A New Direction*, Proceedings of the Annual Ground Water Protection Council Technical Forum, San Francisco, California, 10pp.

P.C. Mills, K.J. Halford, R.P. Cobb, and D.J. Yeskis, 2002. *Delineation of the Troy Bedrock Valley and evaluation of ground-water flow by particle tracking, Belvidere, Illinois*, U.S. Geological Survey Water-Resources Investigations Report 02-4062, 46 pp.

Illinois Environmental Protection Agency's *Homeland Security Strategy*, March 2003, 20pp.

Illinois Environmental Protection Agency' *Strategic Plan, Bureau of Water Section*, September 2003, pp.

Opinions and Conclusions of Richard Cobb for the Matter of People v. Peabody Coal, PCB 99-134 (Enforcement), May 23, 2003. 60 pp.

Cobb, R.P., Fuller, C., Neibergall, K., and M. Carson, February 2004. *Community Water Supply Well Shooting/Blasting near the Hillcrest Subdivision Lake County, Illinois Fact Sheet*. Illinois Environmental Protection Agency. 4 pp.

Additional Legislative Publications that I Participated in Developing

A Plan for Protecting Illinois Groundwater, Illinois Environmental Protection Agency, January 1986. 65 p.

Groundwater in Illinois: A Threatened Resource, A Briefing Paper Regarding the Need for Groundwater Protection Legislation, Governors Office and Illinois Environmental Protection Agency, April 1987. 34 pp.

Illinois Groundwater Protection Act, Public Act 85-0863, September 1987. 68 pp.

Public Act 92-0132 (*MTBE Elimination Act*), July 24 2001.

Executive Order #5 - requires the ICCG to designate a subcommittee to develop an integrated groundwater and surface water resources agenda and assessment report. The report shall analyze the burden's on Illinois finite water resources, quantify Illinois' water resources, and prioritize an agenda to plan for the protection of these water resources. The Director of the Department of Natural Resources chaired this subcommittee. The ICCG and GAC shall use the subcommittee's agenda and report to establish a water-quantity planning procedure for the State. The Governor signed executive order #5 on Earth Day April 22, 2001.

Amendments to Sections 2, 3 and 4 of the Illinois Groundwater Protection Act 415 ILCS 55/2 to establish a Groundwater and Surface Water Quantity Protection Planning Program, January 2002, 3 pp. These amendments were never adopted due to opposition from the Illinois Farm Bureau.

Public Act 92 -652 (Senate Bill 2072)- Amends the Illinois Groundwater Protection Act to require the Environmental Protection Agency to notify the Department of Public Health, unless notification is already provided, of the discovery of any volatile organic compound in excess of the Board's Groundwater Quality Standards or the Safe Drinking Water Act maximum contaminant level. The Governor signed this into law as Public Act 29-652 (effective July 25, 2002).

House Bill 4177 - Amends the Illinois Groundwater Protection Act. Provides that before property that has a well used for drinking water on it can be sold, the owner must have the well water tested for volatile organic chemical groundwater contaminants. Provides that if the well water does not meet the Illinois Pollution Control Board's Groundwater Quality Standards (35 Il Adm Code Part 620), the owner shall notify the Illinois Department of Public Health (IDPH) and the prospective buyer of the property. The realtors association July 2002 opposed House Bill 4177.

House Resolution 1010 - The resolution drafted by in cooperation with Senator Patrick Dunn' staff urge the Illinois Environmental Protection Agency to further strengthen its public outreach efforts by developing, after negotiations with individuals representing areas affected by contamination and other relevant State agencies, a procedure to notify property owners whenever

the Agency has confirmed an exceedence of applicable health and safety standards, using scientifically credible data and procedures under Illinois regulations. HR 1010 was adopted by voice vote on June 1, 2004.

Public Act 94-314 (Senate Bill 0214) – This is referred to as Right-to-Know (RTK) law. The law includes providing the Illinois EPA with administrative order authority (AO), information order authority, and established the requirements for providing notices to residents or business exposed or potentially exposed to contamination. The Illinois EPA had been seeking this type of AO authority for the past 35 years. Senate Bill 0214 was unanimously passed by both the Senate and the House May 2005. The legislation was signed into law by the Governor July 27, 2005.

Public Act 94-849 (House Bill 1620) - Amends the Environmental Protection Act. Requires the owner or operator of a nuclear power plant to report to the Environmental Protection Agency any unpermitted release of a contaminant within 24 hours. The bill was signed by the Governor on June 12, 2006.

Public Act 96-0603 (Crestwood Bill) - Amends the Environmental Protection Act. This law requires the owners and operators of community water systems to maintain certain documents and to make those documents available to the Agency for inspection during normal business hours. Provides that the Agency shall provide public notice within 2 days after it refers a matter for enforcement under Section 43 or issues a seal order under subsection (a) of Section 34. Further, the bill provides that the Agency must provide notice to the owners and operators of the community water system within 5 days after taking one of these actions. Moreover, the bill requires that within 5 days after receiving that notice, the owner or operator of the community water system must send a copy of the notice to all residents and owners of premises connected to the community water system. In addition, indirect notification of institutional residents is provided. Requires the owner or operator of the community water system to provide the Agency with proof that the notices have been sent. Sets forth similar notice requirements that must be complied with when groundwater contamination poses a threat of exposure to the public above the Class I groundwater quality standards. The bill creates a civil penalty for violations of these notice requirements, and makes it a felony to make certain false, fictitious, or fraudulent statements. The bill passed both houses on May 30, 2009. The bill was sent to the Governor for signature on June 26, 2009, and was signed into law on August 24, 2009.

Public Act 096-1366 – Amends the Environmental Protection Act. This new law requires public water supplies to submit a corrective action plan to the Illinois EPA upon the Agency's issuing a right-to-know notice upon verifying that the finished public water has in fact exceeded 50% of the MCL for carcinogenic VOCs. Requires the response plan to include periodic sampling to measure and verify the effectiveness of the response plan, but also requires the Illinois EPA to take into account the technical feasibility and economic reasonableness of the response plane in approving, modifying, or denying the response plan. Signed into law on July 28, 2010; effective July 28, 2010.

AFFIDAVIT OF WILLIAM E. BUSCHER

William E. Buscher, Professional Geologist ("P.G."), being first duly sworn, states:

1. I am currently employed by the Illinois Environmental Protection Agency ("Illinois EPA"), located at 1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276, as Manager of the Hydrogeology and Compliance Unit of the Groundwater Section of the Division of Public Water Supplies in the Bureau of Water.

2. I have been employed by the Illinois EPA since April 16, 1988. My responsibilities managing the Hydrogeology and Compliance Unit include the direct supervision of technical & professional staff implementing groundwater protection, assessment and remediation programs. Functions include construction & review of analytical and numerical groundwater flow models, evaluation of the hydrogeologic aspects of groundwater protection and remediation programs. (Exhibit 13)

3. My work on the Heritage Coal Company ("HCC") project included reviewing groundwater quality information for the refuse disposal areas located on the surface at the underground mine formerly known as Peabody Coal Company ("PCC") Eagle No. 2 Mine Site ("Eagle No. 2"). I reviewed documents submitted by HCC to request the establishment of a groundwater management zone ("GMZ") in accordance with 35 Il. Adm. Code 620.250 to remediate contaminated groundwater at the Eagle No. 2. The GMZ for Eagle No. 2 was approved on December 6, 2006. The GMZ requires a

corrective action plan that includes placing low permeability covers on the refuse disposal areas and operating wells to capture contaminated groundwater at Eagle No. 2.

4. In the course of my review, one of the documents I utilized was the *Results of Review, dated 9/27/96, for Revision Application No. 6 to Permit No. 34-Eagle No. 2 Mine, Appendix C, Assessment And Findings Of Probable Cumulative Hydrologic Impact* (“Assessment”) completed by the Illinois Department of Natural Resources (“IDNR”) Office of Mines and Minerals (“OMM”). (Exhibit 1) This document contains information which directly relates to the groundwater compliance issues at Eagle No. 2 and describes how OMM assessed the groundwater contamination at Eagle No. 2.

5. In its Assessment, OMM stated: *“Even though it is anticipated that any adverse impacts will result to adjacent water levels, very little information was available to quantitatively assess the impacts of this operations on groundwater prior to the submittal of Revision No. 6. The method by which the applicant was previously disposing of its coarse refuse material was the primary concern. A cut and fill method was used during most of the life of the mine. Trenches were dug approximately thirty feet deep and the refuse was placed into them. With a thin clay cover of approximately less than ten feet, the material was being paced into the aquifer itself.”*

Due to the coal waste being in contact with the water table, this disposal method is conducive for the leaching of contaminants from the coal waste. Based on the information disclosed by OMM, coal waste was disposed at an approximate depth of up to 20 feet into the aquifer material. (Exhibit 1)

6. The Henry Aquifer underlies the refuse disposal areas at Eagle No. 2. The Henry Aquifer is a Class I Potable Resource Groundwater. The average hydraulic conductivity value for pump tests completed on the Henry aquifer sands was 4.13×10^{-2} cm/sec. (Exhibit 2) The hydraulic conductivity values used in the modeling work completed by GeoSyntec to represent the Henry Aquifer ranged from 2×10^{-4} to 8×10^{-2} cm/sec. (Exhibit 2)

7. In its Assessment, OMM stated: *“Under ambient conditions, measurements made by the applicant showed that the hydraulic gradient was quite low and hence any contamination would not move very far from the mine site.”*

Contaminants did move off site and reach the Saline Valley Conservancy District (“SVCD”) well field. Gradient influences the velocity of the movement of contaminants in groundwater. It does not limit the distance traveled.

8. In its Assessment, OMM stated: *“Additionally, once the production well at the mine began operating, any contaminant would tend to be localized at the mine site.”*

Contamination was not localized at the Eagle No. 2 site. The production wells at the Mine have not prohibited contaminants from moving off site. OMM’s prediction assumes pumping rates at HCC are maintained, which has not always been the case. Pumpage at the Eagle No. 2 site has varied significantly over time.

9. In its Assessment, OMM stated: *“With the installation of a high capacity well field in relatively close proximity to the refuse disposal area, it became necessary for the applicant to employ more sophisticated analytical methods for the prediction of*

impacts to the hydrologic balance. Initially, the applicant used Random Walk, a mass transport groundwater model first developed by Prickett, et al. (1981). The program takes into account physical characteristics of the aquifer, water withdrawals or injection, pollutant loading and movement rates. The study looked at the increases to total dissolved solids (TDS). Ambient conditions for this area assumed that initial TDS levels were approximately 338 parts per million (ppm). Results show that the TDS levels are not increased at the SVCD wells as long as the mine operates its pumping wells. This is due to the fact that the mine's pumping wells produce a hydraulic gradient such that all infiltration at the mine goes to the mine's own supply well. However, when the wells at the mine are no longer active, the pollutants are predicted to move toward the SVCD wells. TDS is predicted to reach a maximum concentration of 388 ppm in the SVCD wells approximately 30 years after the anticipate mine closure. This is because the mine's water supply well would no longer be functioning and the municipal wells would be the controlling factor in the area's hydraulic gradient. As the site is reclaimed and cover is placed over all of the waste areas, the flow to the aquifer is anticipated to diminish from the refuse areas. This will result in a slight reduction of TDS concentration reaching the wells. The long term impact, 30 years from mine closure, to the SVCD wells is estimated at a final TDS concentration of 373 ppm or an increase of 10.4 percent."

TDS concentration in SVCD Well #3 on March 15, 2000 was 452 ppm. (Exhibit 3) At that time, the Eagle No. 2's pumping wells used to control contaminant migration were in operation. HCC predicted a maximum TDS concentration of 388 ppm in the SVCD wells approximately 30 years after pumpage at Eagle No. 2 was expected to cease.

This information indicates that the predicted impacts to the aquifer were not accurate and that while the HCC pumping wells were in use, the migration of contaminants was not controlled. The SVCD wells are located approximately 1400 feet west of the HCC site boundary. The concentration of contaminants in groundwater in some impacted areas on and off site at Eagle No. 2 exceed the applicable water quality standards. HCC has been notified of concentrations which exceeded the applicable groundwater quality standards ("GQS"). Wells GW4, GW6, GW9, GW11, MW 1 MW2, MW3 MW4, MW7, MW9, MW10, MW14, MW17, MW18, MW19, MW21, MW23, MW24, and MW25 show concentrations which exceeded the GQS on site. Wells GW15, GW16, GW17, and GW18 show concentrations that exceeded the GQS off site. Some of the highest chemical concentrations from on site groundwater sampling that exceeded the applicable water quality standards are as follows: iron 36.4 mg/l; sulfate 4,082.0 mg/l; chlorides 1,004.4 mg/l; manganese 2.3 mg/l; and, TDS 7,830.0 mg/l. Some of the highest chemical concentrations from offsite groundwater sampling that exceeded the applicable water quality standards are as follows: sulfate 726 mg/l and TDS 1,715 mg/l. (Exhibit 4) Site specific upgradient background groundwater quality at Eagle No. 2 has not been established by HCC. The concentrations in groundwater in the impacted area at Eagle No. 2 exceeded the Regional Average concentrations reported by GeoSyntec, which were as follows: iron-total 12.42 mg/l; sulfate 17.32 mg/l; chlorides 47 mg/l; manganese-total 0.114 mg/l; and, TDS 487 mg/l. (Exhibit 5)

10. In its Assessment, OMM stated: *"In 1985 the Department required Peabody to perform a hydrogeologic investigation of the site prior to issuance of Permit*

No. 34. The investigation utilized a numerical groundwater flow model and included an assessment of potential impacts to the Henry Aquifer by mining activities. The investigation showed that no significant groundwater impacts were occurring outside the mine site permit boundary. The report was accepted by the Department and Permit No. 34 was approved.”

Groundwater impacts occurring outside the Eagle No. 2 permit boundary were quite significant. In November of 1996, off site contamination, categorized as insignificant by OMM, was as high as 2260 mg/l for TDS and 1043 mg/l for sulfate, an indication that there was material damage outside the boundary of Permit # 34. (Exhibit 6)

11. In its Assessment, OMM stated: *“In 1992, Peabody conducted a subsurface exploration for the proposed construction of Slurry Cell No. 6. Additionally, Peabody commissioned a groundwater quality assessment in 1992 as a requirement of a permit modification for the installation of Slurry No. 1A. The assessment consisted of a geophysical delineation of the extent of impacted groundwater. The results showed that [the] extent of groundwater impacted by mining activities was largely limited to the area within the permit boundary.”*

The groundwater impacted by mining activities was not largely limited to the area within the permit boundary. The contamination at the Eagle No. 2 site categorized as largely limited to the area within the permit boundary appears to be an indication that there is the potential for material damage outside the boundary of Permit #

34. Numeric ground water quality standards have been exceeded outside the boundary of Permit # 34. (Exhibit 6)

12. The contamination at the Eagle No. 2 site categorized by OMM as “*limited to the area within the Permit No. 34 boundary except for small areas along the northern edge of the site*” is inaccurate. Numeric ground water quality standards were exceeded outside the boundary of Permit # 34 and the contamination has impacted much more area than the small areas along the northern edge of Eagle No. 2. (Exhibits 4, 6 and 3)

13. In its Assessment, OMM stated: “*Sulfate comprises about 40 to 60 percent of the elevated TDS. Chloride, iron and manganese concentrations and pH . . . are within the ranges of background values for this area. Geochemical testing showed that the coal refuse material contains 9 to 19 percent pyrite which generates acid rock drainage (ARD) upon exposure to air and water.*”

Site specific upgradient background groundwater quality at Eagle No. 2 has not been established by HCC. However, the concentrations in groundwater in the impacted area at Eagle No. 2 exceed the Regional Average concentrations reported by GeoSyntec, which were as follows: iron-total 12.42 mg/l; sulfate 17.32 mg/l; chlorides 47 mg/l; manganese-total 0.114 mg/l; and, TDS 487 mg/l. (Exhibit 5)

14. It is evident that throughout the life of the Eagle No. 2, HCC was aware of the impacts the refuse disposal areas were having on the groundwater at Eagle No. 2, but chose to disregard making changes which were recommended by Mr. Gastreich, who was employed by HCC, to protect the groundwater at Eagle No. 2. HCC knowingly

continued to do business in a manner which was degrading the groundwater at Eagle No. 2 including the groundwater utilized by the SVCD community water supply. In the HCC memorandum, K.D. Gastreich stated that there was a very high potential for pollution of a major aquifer used for the SVCD community water supply. K. D. Gastreich concluded from available information that there is a potential for serious groundwater contamination problems from "proposed gob areas No.3, No. 4 and No. 5 up dip of the Saline Valley Conservancy District water supply wells...unless some type of impermeable barrier is placed beneath the refuse to be disposed of." (Exhibit 7)

15. Prior to April 1985, HCC utilized the cut and fill method in the West Refuse Area from 1968 until 1978 and in South 40 Refuse Area from 1978 until 1984. (Exhibit 2). Coal refuse disposal occurred in trenches reported to be between 20 to 25 feet deep. Slurry No. 1 was used for slurry disposal from about 1968 until 1980. Slurry No. 2 was used for slurry disposal from 1978 until 1985. (Exhibit 4).

16. Subsequent to the K. D. Gastreich memorandum, HCC applied for construction authorization of Slurry No. 5. In the application process, HCC proposed to use the slurry material to seal the bottom of the impoundment. HCC did not install an impermeable barrier, as was recommended in the K. D. Gastreich memorandum, above the existing refuse contained in the West Refuse Area, or use a new location where the impermeable barrier could be placed on native materials between the refuse and the underlying groundwater of the Henry Aquifer. Instead, HCC proposed to place in excess of 20 feet of the fine-grained slurry material in the bottom of Slurry No. 5. (Exhibit 8). However, HCC had no way of determining that a uniform layer of slurry

would be deposited on the bottom of the impoundment. In addition, while the slurry fines were accumulating on the bottom of the impoundment, contaminants could leak through the bottom of the impoundment where no fines had accumulated. In 1987, Slurry No. 5 dikes were constructed from gob, and coal slurry disposal began. Coal slurry disposal continued until 1991. (Exhibit 4)

17. In the Construction Authorization letter approving Slurry No. 5, the Illinois EPA required that Well MW-19 (the contamination control well) not be abandoned or inactivated without approval of the Illinois EPA. Approval to inactivate or abandon the wells was to be granted only when pumping was no longer necessary for groundwater contamination control. (Exhibit 9)

18. During the construction of Slurry No. 1 in about 1967, the native sandy clay materials from the interior of Slurry No.1 were removed to build the perimeter dikes around Slurry No. 1. (Exhibit 4) Carbon recovery was performed on the waste in Slurry No. 1 from 1984 to 1991. Coarse refuse was later disposed in Slurry No. 1 and the dike heights were raised. This refuse area was then designated Slurry No. 1A. In 1991, when Slurry No 1A was constructed, HCC chose to use the slurry material to seal the bottom of the impoundment, as was done at Slurry No. 5 and Slurry No. 3. By its very nature, the placement of slurry material, which has questionable physical attributes to seal the bottom of an impoundment (with no controls to ensure uniform deposition thickness or any other quality control measures), did little toward protecting groundwater resources. In addition, while the slurry fines were accumulating on the bottom of a portion of the impoundment, contaminants from the slurry leaked through the bottom of

the impoundment completely unimpeded, where the slurry fines had not accumulated.

19. Furthermore, HCC was aware that lower permeability native materials had been removed from the Slurry No. 1 area when it was first constructed. In the Illinois EPA letter approving Slurry 1A, the Illinois EPA indicated that Wells MW-19 and MW-21 (the contamination control wells) could not be abandoned or inactivated without approval of Illinois EPA, and approval to inactivate or abandon the wells was to be granted only when pumping was no longer necessary for groundwater contamination control. (Exhibit 10)

20. Native sandy clay materials from the interior of Slurry No.3 were removed to build the perimeter dikes around Slurry No. 3. (Exhibit 4) Coarse refuse was later disposed in Slurry No. 3. At the time Slurry No 3 was proposed, the Illinois EPA indicated in a letter that 35 Ill. Adm. Code 405.106 (d) required special provisions to protect aquifer recharge areas, and requested further information regarding aquifer protection at Slurry No. 3. (Exhibit 11)

21. HCC indicated in a letter that the Henry Aquifer was immediately overlain by a clay layer with a thickness of several feet which would serve as a barrier to impede the flow of contaminants from the Slurry No. 3 to the underlying aquifer. (Exhibit 12) Supplemental information provided by HCC indicated that the clay layer did not cover the entire foot print of the proposed Slurry No. 3 area. (Exhibit 13) Due to the potential effect Slurry No. 3 could have on the aquifer beneath Eagle No. 2, HCC estimated the expected amount of infiltration through the bottom of the impoundment. The varied subsurface conditions at Slurry No. 3 required HCC to divide the

impoundment into eleven sub-areas and determine infiltration rates for each sub-area. HCC calculated the anticipated initial infiltration rate to be approximately 42,000 gallons per day for the entire Slurry No. 3 area. HCC indicated that, due to the Slurry No. 3 site conditions, it would not be surprising to see infiltration amounts somewhat larger than were indicated in the calculations. HCC further noted that the sub-areas that would contribute the most seepage to the Henry Aquifer would also be the sub-areas likely to receive the most fine-grained, least permeable slurry deposits once discharge into the impoundment commenced. In addition, HCC stated that: "Lastly, the final configuration and depth of the borrow area were such that the fine coal refuse, to be disposed of therein, will not be in direct contact with the gray sands of the Henry Formation aquifer anywhere on the site [Eagle No. 2 mine site]." Considering that some of the highest contaminant concentrations in groundwater at Eagle No. 2 are found near Slurry No. 3, HCC's reliance on the fine-grained slurry material to seal the impoundment has not proven effective through the years and it has failed to address groundwater contamination at Eagle No. 2.

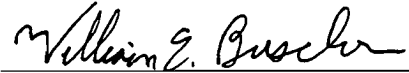
22. The technology that HCC proposed as its means of ensuring compliance with water quality standards with regard to the installation of Slurry No. 5, Slurry No. 1A, and Slurry No. 3 relied on the fine-grained slurry material to seal the impoundments. This approach has not proven to be effective through the years and has failed to prevent groundwater contamination. HCC had other alternatives available to it at the time, including alternative disposal techniques such as placing a properly engineered impermeable barrier beneath the refuse to be disposed prior to the placement of the

refuse. K. D. Gastreich indicated the need for such a barrier in his memorandum in August of 1983, but HCC failed to implement this technology. (Exhibit 7) The measures used by HCC have failed to protect the groundwater on and off the permit area at Eagle No. 2.

23. In its Assessment, OMM stated: *“In summary, the mine operated as an underground coal mining facility from 1968 until July 1993. The surface operations included six coal refuse management impoundments. Four of the six disposal areas initiated refuse disposal prior to the implementation of OMM’s permanent program regulations. In 1982 SVCD constructed this well field consisting of three pumping wells which are located southwest of Peabody’s surface facilities. Since the initial well field construction, SVCD has installed two more wells, the last one being installed in late 1995. Prior to the installation of the last SVCD well, the mine ceased operation and initiated reclamation. The operator, through revision No. 6 submitted a site characterization and corrective action plan which evaluates site characteristics and a plan to remediate impacts produced by refuse disposal at the site. The Department finds that the operator has submitted a plan that will positively impact effects of refuse disposal on the underlying aquifer.*

Therefore, the assessment and findings of the probable cumulative impact of all anticipated reclamation in the area on the hydrologic balance finds that the corrective action plan has been designed to mitigate groundwater impacts and prevent material damage to the hydrologic balance outside the permit area.”

Wells GW15, GW16, GW17, and GW18 showed concentrations that exceeded the GQS off site. (Exhibits 4 and 6) Some of the highest chemical concentrations from offsite groundwater sampling that exceeded the applicable water quality standards are as follows: sulfate 726 mg/l and TDS 1,715 mg/l. (Exhibit 4) In November of 1996, off site contamination, categorized as insignificant by OMM, was as high as 2260 mg/l for TDS and 1043 mg/l for sulfate, an indication that there was material damage outside the boundary of Permit # 34. (Exhibit 6) The exceedences of GQS off site at Eagle No. 2 indicated that there was material damage to the hydrologic balance outside the permit area which was not acknowledged by OMM.



William E. Buscher

SUBSCRIBED AND SWORN to before me
this 7th day of April, 2011.



NOTARY PUBLIC



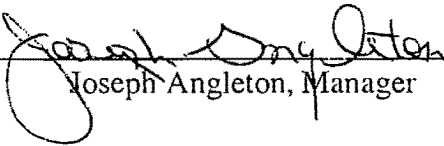
Exhibit List

- Exhibit 1- *Results of Review, dated 9/27/96, for Revision Application No. 6 to Permit No. 34 - Eagle No. 2 Mine, Appendix C, Assessment And Findings Of Probable Cumulative Hydrologic Impact* completed by the IDNR OMM
- Exhibit 2- Exhibit 2- Sanderson E.W., ISWS Contract Report 262 & GeoSyntec Report page 58 & Table 5-1
- Exhibit 3- TDS concentration in a SVCD Well #3 on March 15, 2000 was 452 ppm
- Exhibit 4- Third Amended Complaint Count II, ¶ 27
- Exhibit 5- GeoSyntec Report Table 2- 2.
- Exhibit 6- HCC quarterly monitoring data
- Exhibit 7- HCC memorandum (August 12, 1983, K. D. Gastreich to J. B. Coyne and D. G. McDonald
- Exhibit 8- February 6, 1987 McDonald to Bakowski
- Exhibit 9- February 27 1987, Bargans to Wohlwend
- Exhibit 10- August 24, 1992, Kerr to HCC
- Exhibit 11- June 12, 1984, Bakowski to HCC
- Exhibit 12- October 16, 1984 McDonald to Bakowski
- Exhibit 13- Received, October 16, 1984, (*Anticipated Infiltration Losses into Henry Formation Beneath Slurry #3 Settling Pond, Eagle # 2*)
- Exhibit 14- William E. Buscher Curriculum Vitae

Exhibit 1


STATE OF ILLINOIS
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF MINES AND MINERALS

I, Joseph Angleton, Manager of the Illinois Department of Natural Resources, Office of Mines and Minerals, hereby certify that I am authorized to hold custody of the public records for the Peabody Coal n/k/a Heritage Coal Company LLC in Gallatin County, Illinois, and specifically Results of Review, dated 9/27/96, for Revision Application No. 6 to Permit No. 34 – Eagle No. 2 Mine. The attached document is a true and correct copy of the public records in my custody.



Joseph Angleton, Manager

Sworn and authorized before me
this 11th day of February __, 2011



Notary Public



Results of Review
Permanent Program Revision Application No. 6 to Permit No. 34
Peabody Coal Company
Eagle No. 2 Mine

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 - D. Decision on Proposed Post-mining Land Use/Capability of Permit Area

The Illinois Department of Natural Resources (Department), Office of Mines and Minerals, Land Reclamation Division, the Regulatory Authority in Illinois under the Surface Mining Control and Reclamation Act of 1977 (Federal Act), 30 U.S.C. Section 1201 et seq. has reviewed Peabody Coal Company's (Peabody), Eagle No. 2 Mine application for revision No. 6 to Permit No. 34 in accordance with the Surface Coal Mining Land Conservation and Reclamation Act (State Act), 225 ILCS 720, and the Department's regulations at 62 Ill. Adm. Code 1700-1850.

Peabody has submitted in writing the modifications required by the Department's April 11, 1996, letter (Appendix A). These modifications have been reviewed and approved by the Department. Pursuant to 62 Ill. Adm. Code 1773.19, the Department has decided to approve the application as modified. The Department's decision is based upon a review of the record as a whole, and is supported and documented by the record. The finding and reasons for the Department's decision are set forth below. The period for administrative review under 62 Ill. Adm. Code 1847.3 commences as of the date of this decision.

I. SUMMARY OF REVISION APPLICATION NO. 6 TO PERMIT NO. 34

Surface coal mining and reclamation operations revision application No. 6 to Permit No. 34 submitted by Peabody, for its Eagle No. 2 Mine, proposes a revision on 587.6 acres. The proposed revision changes the post-mining land use to reflect the future of the Eagle No. 2 area. This revision decreases the acreage in pasture with a corresponding increase in the post-mining acreage designated as wildlife/wetland, water resources, and industrial/commercial.

The following is a summary of the pre-mining land uses shown by Peabody, and the proposed post-mining land uses:

	<u>Original Pre-mining</u>	<u>Approved Post-mining</u>	<u>Proposed Post-mining</u>
Cropland	182.0	56.3	56.3
Water Resources	17.0	1.3	3.0
Pastureland	26.0	513.8	363.8
Residential	0.0	0.2	0.2
Industrial/Commercial	323.0	16.0	21.5
Wildlife Habitat / Wetland	0.0	0.0	142.8
Forest	10.0	0.0	0.0
Undeveloped	20.0	0.0	0.0
Total	<u>578.0</u>	<u>*587.6</u>	<u>*587.6</u>

*There have been three (3) incidental boundary revisions which have added 9.6 acres to the original permit.

II. PROVISIONS FOR PUBLIC PARTICIPATION

The Department finds that the public participation requirements of 62 Ill. Adm. Code 1773.13 and 1773.14 have been met.

The 587.6 acre permit application was filed with the Department on September 29, 1995, and was deemed complete on November 6, 1995. The applicant placed a newspaper advertisement of the proposed operation in the Gallatin Democrat, a newspaper of general circulation in the area affected, published in Gallatin County, once a week for four consecutive weeks, beginning on November 30, 1995. The applicant filed two copies of the permit application with the County Clerk of Gallatin County, in accordance with 62 Ill. Adm. Code 1773.13(a)(2), on November 27, 1995. Copies of the application were sent to the following State Agencies: Illinois Department of Agriculture (IDOA), Illinois Environmental Protection Agency (IEPA), and Illinois Historic Preservation Agency (IHPA), and the Natural Resources Conservation Service (NRCS) on December 14, 1995, for review and comment. Written notification of the application was given to those governmental agencies and entities required to receive notice under 62 Ill. Adm. Code 1773.13(a)(3).

State Agency comments on this application have been received by the Department, with the source and date of comments as follows: IDOA (December 22, 1995); IEPA (January 10, 1996); IHPA (May 31, 1996); and Saline Valley Conservation District (January 3, 1996).

The NRCS did not comment on this application.

No requests for an informal conference or public hearing were received by the Department.

All comments received have been considered by the Department in reviewing this application. The Department's responses to these comments are set forth in Appendix B.

All comments received on permit revision application No. 6 to Permit No. 34 have been furnished to Peabody, and have been filed for public inspection at the office of the Gallatin County Clerk.

III. SUMMARY OF THE DEPARTMENT'S FINDINGS

The Department, upon completing its review of the information set forth in the application, the required modifications submitted (see Appendix A) and information otherwise available, as described below, and made available to the applicant, and after considering the comments of State Agencies, and all other comments received, makes the following findings:

A. Findings Required by 62 Ill. Adm. Code 1773.15

1773.15(b)(1) The Department finds that the applicant or any person who owns or controls the applicant is not currently in violation of the State Act, Federal Act or any other law or regulation referred to in Section 1773.15(b)(1).

1773.15(b)(3) The applicant, anyone who owns or controls the applicant, or the operator specified in the application does not control and has not controlled surface coal mining and reclamation operations with a demonstrated pattern of willful violations of the Federal or State Acts of such nature and duration and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the Federal or State Acts.

1773.15(c)(1) The permit application as modified is accurate and complete and all requirements of the Federal and State Acts and the regulatory program have been complied with.

1773.15(c)(2) Peabody has demonstrated that reclamation as required by the Federal and State Acts and the regulatory program can be accomplished under the reclamation plan contained in the permit application, as modified.

1773.15(c)(3)(A) The proposed permit area is not within an area under study or administrative proceedings under a petition, filed pursuant to 62 Ill. Adm. Code 1764, to have an area designated as unsuitable for surface coal mining operations.

1773.15(c)(3)(B) The proposed permit area is not within an area designated as unsuitable for mining pursuant to 62 Ill. Adm. Code 1762 and 1764 or subject to the prohibitions or limitations of 62 Ill. Adm. Code 1761.11 and 1761.12, except as delineated as follow:

1761.11(a) The proposed permit area does not include any lands within the boundaries of the National Park System, the National Wildlife Refuge System, the National System of Trails, the National Wilderness Preservation System, the Wild and Scenic Rivers System, and National Recreation Areas designated by Act of Congress.

1761.11(b) The proposed permit area is not on any Federal lands within the boundaries of any national forest.

1761.11(c) The proposed surface coal mining and reclamation operations will not adversely affect any publicly owned park or any privately owned or publicly owned places included on the National Register of Historic Places.

1761.11(d) The proposed permit area is within one hundred (100) feet of the outside right-of-way line of public roads in Gallatin County, described in the original findings for Permit No. 34 and incorporated herein by reference. This revision involves relocation of land uses and does not propose any mining activity that will affect any of the nearby public roads.

The Department finds the interests of the public and affected landowners will be protected from the proposed mining operations as a result of the measures to be taken by Peabody, described in the mining operations plan concerning these roads.

1761.11(e) The proposed permit area is within three hundred (300) feet of several occupied dwellings. These dwellings were addressed in the Revision No. 1 to Permit No. 34 findings and are herein incorporated by reference.

1761.11(f) The proposed permit area is not within three hundred (300) feet measured horizontally of any public building, school, community, or institutional building. A church has recently (within two years) been constructed across Route 13 from the mine entrance road and is within 300 feet of the permit area. This church is subject to valid existing rights. The permit area is not located adjacent to a public park.

1761.11(g) The proposed permit area is not within one hundred (100) feet measured horizontally of a cemetery.

1773.15(c)(4) Not applicable to this revision.

1773.15(c)(5) The Department has assessed the probable cumulative impacts of all anticipated coal mining on the hydrologic balance in the cumulative impact area, in accordance with 62 Ill. Adm. Code 1784 and finds that the operations proposed under the application have been designed to prevent material damage to the hydrologic balance outside the proposed permit area (see Appendix C).

1773.15(c)(6) Peabody has not proposed the use of existing structures in the permit application.

1773.15(c)(7) No additional fees are required as a result of this revision. The Department finds that the applicant has paid all reclamation fees from previous and existing operations as required by 30 CFR 870.

1773.15(c)(8) The requirements of 62 Ill. Adm. Code 1785 are not applicable to this revision.

1773.15(c)(9) The requirements of this section are not applicable to this revision.

1773.15(c)(10) The Department finds the proposed activities will not effect the continued existence of endangered or threatened species or result in the destruction or adverse modification to the critical habitats as determined under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

1773.15(c)(11) This section is not applicable to this application.

1773.15(c)(12) The effect of the proposed permitting action on properties listed on or eligible for listing on the National Register of Historic Places has been taken into account by the Department. The applicant performed a Phase I Archaeological survey on the undisturbed portion of the proposed revision area. On May 1, 1996, American Resources Group, LTD.,

recommended a project clearance. On May 31, 1996, the Illinois Historic Preservation Agency (IHPA) concurred with the recommendation. (See Appendix 'B' for comments made by the IHPA).

B. Findings Required by 62 Ill. Adm. Code 1785 (Applicable Sections)

1785.17 The requirements of this Section are not applicable to underground mining operations.

C. Compliance with 62 Ill. Adm. Code 1773.19

1773.19(a)(1) The Department has based its decision to approve, as modified, Peabody's application for Revision No. 6 to Permit No. 34, Eagle No. 2 Mine, on the complete application, public participation as provided by 62 Ill. Adm. Code 1773.13 and 1773.14, compliance with all applicable provisions of 62 Ill. Adm. Code 1785, and the processing and complete review of the application.

1773.19(a)(3) The Department is providing written notification of its final permit decision to the following persons and entities:

- A. The applicant, each person who filed comments or objections to the permit application, and each party to the public hearing;
- B. The Gallatin County Board; and,
- C. The Office of Surface Mining.

All materials supporting these findings are a part of the public record and are hereby incorporated by reference. Based upon the information contained in the Revision No. 6 application, information otherwise available and made available to the applicant, the comments of State Agencies, all findings and information contained herein and conditions set forth in Part IV, the Department is issuing, as modified, Peabody's application for Revision No. 6 to Permit No. 34.

Enter on behalf of the Illinois Department of Natural Resources, Office of Mines and Minerals, Land Reclamation Division as Regulatory Authority.

Brent Manning, Director
Illinois Department of Natural Resources



Fred Bowman, Director
Office of Mines and Minerals

Dated: _____

9/27/96

IV. Permit Conditions

- A. The permittee shall conduct surface coal mining and reclamation operations only on those lands specifically designated as the permit area on the maps submitted with the application and authorized for the term of the permit and that are subject to the performance bond or other equivalent guarantee in effect pursuant to 62 Ill. Adm. Code 1800.
- B. The permittee shall conduct all surface coal mining and reclamation operations as described in the approved application, except to the extent that the Department otherwise directs in the permit.
- C. The permittee shall comply with the terms and conditions of the permit, all applicable performance standards of the Federal and State Acts, and the requirements of the regulatory program.
- D. Without advance notice, delay, or a search warrant, upon presentation of appropriate credentials, the permittee shall allow the authorized representatives of the Department and Secretary of the United States Department of the Interior to:
 - 1. Have the right of entry provided for in 62 Ill. Adm. Code 1840.12; and,
 - 2. Be accompanied by private persons for the purpose of conducting an inspection in accordance with 62 Ill. Adm. Code 1840, when the inspection is in response to an alleged violation reported to the Department by the private person.
- E. The permittee shall take all possible steps to minimize any adverse impacts to the environment or public health and safety resulting from noncompliance with any term or condition of this permit, including, but not limited to:
 - 1. Accelerated or additional monitoring necessary to determine the nature and extent of noncompliance and the results of the noncompliance;
 - 2. Immediate implementation of measures necessary to comply; and,
 - 3. Warning, as soon as possible after learning of such noncompliance, any person whose health and safety is in imminent danger due to the noncompliance.
- F. As applicable, the permittee shall comply with 62 Ill. Adm. Code 1700.11(d) for compliance, modification, or abandonment of existing structures.
- G. The permittee shall pay all reclamation fees required by 30 CFR 870 for coal produced under this permit for sale, transfer, or use.
- H. Within thirty (30) days after a cessation order is issued under 62 Ill. Adm. Code 1843.11, for operations conducted under the permit, except where a stay of the cessation order is granted and remains in effect the permittee shall either submit to the Department the following information, current to the date the cessation order was issued, or notify the Department in writing that there has been no change since the immediately preceding submittal of such information:

1. Any new information needed to correct or update the information previously submitted to the Department by the permittee under 62 Ill. Adm. Code 1778.13(c);
or
 2. If not previously submitted, the information required from a permit application by 62 Ill. Adm. Code 1778.13(c).
-
- I. In the event the use of reduced soil cover (less than 4 feet) to reclaim the refuse areas proves unsuccessful, the Department will require the refuse to be covered with four feet of the best available non-toxic and noncombustible material pursuant to 62 Ill. Adm. Code 1817.83.
 - J. The applicant has proposed to utilize an alternative cover plan for coal refuse area Nos. 1, 3 and 5. This plan includes a one-foot, compacted layer to be constructed over the existing gob surface. The applicant shall continue to provide the Department with documentation of the density/moisture data for all areas subject to the compaction standard as outlined in the permit application.



ILLINOIS
APPENDIX A
DEPARTMENT OF
NATURAL RESOURCES
Office of Mines and Minerals

524 South Second Street, Springfield 62701-1787

Jim Edgar, Governor ● Brent Manning, Director

April 11, 1996

Certified Mail No. 991 535

Mr. Larry Reuss
Peabody Coal Company
521 North Borders Street
Suite 101
Marissa, Illinois 62257

Dear Mr. Reuss:

The Department, after reviewing the information contained in the permit application and information otherwise available, and made available to the applicant, and after considering the comments of the Interagency Committee, and all other comments received, has determined that modification of Peabody Coal Company's Eagle No. 2 Mine, Revision No. 6 to Permit Application No. 34 is necessary. The modifications to the application shall comply with the requirements of 62 Ill. Adm. Code 1777.11. The modifications required by the Department are enclosed here. Absent the modifications required by the Department, the application does not demonstrate compliance with the requirements of the Illinois Surface Coal Mining Land Conservation and Reclamation Act, Regulations and Regulatory Program.

The Department will issue a decision approving the Peabody Coal Company's Permit Revision No. 6 to Application No. 34 when it receives and approves the modifications specified. If the applicant does not desire to modify the permit application as described below, it may, by filing a written statement with the Department, deem the permit revision application denied, and such denial shall constitute final action.

The period for administrative review (62 Ill. Adm. Code 1775.11) shall commence upon:

- 1) Receipt by the applicant of a written decision from the Department, approving the application as modified; or
- 2) if the applicant's modifications are insufficient, or if the applicant fails to submit the required modifications, receipt by the applicant of a written decision from the Department denying the permit application; or
- 3) receipt by the Department of the applicant's denial statement.

The modifications required by the Department are as follow:

- 1) Pursuant to 62 Ill. Adm. Code 1783.25(b), 1784.16(a) and 1784.23(c) and as required by Part I-10-B of the application, the Department is requiring the applicant to modify the application by submitting engineering certifications where the modifications result in changes to maps, plans or cross sections submitted under the original application.
- 2) Pursuant to 62 Ill. Adm. Code 1777.11(c) and as required by Part I-1 of the application, the Department is requiring the submittal of a verification by a responsible official of the applicant for the information being submitted as a result of this modification letter.
- 3) Peabody has proposed five permanent impoundments. The intended use is specified as support for pasture. NRCS (formerly SCS) Engineering Field Manual, 1984, recommends minimum pond depths for our region as 9 feet over 25 percent of the pond area. Pursuant to 62 Ill. Adm. Code 1817.49(b), the Department is requiring modification of the proposed plan to design all impoundments intended for agricultural use to meet the NRCS design guidelines with respect to pond depth or to designate another use for the proposed ponds. The Department notes that the sizes and configurations of the proposed ponds (make-up lake, east borrow area pond, borrow area #5 pond, and freshwater lake) are well suited for wetlands if properly designed and constructed. Should the applicant wish to propose wetlands for these four ponds, the following information shall be required (pursuant to Sections 1784.13 and 1817.97) in addition to the items required by Section 1817.49(b)(1-10).
 - A) Characterization of soils which are to comprise the bottom substrate of the wetlands. If any toxic- or acid-forming materials are present a complete acid/base accounting is required. If such materials are to be covered by less than four feet of non-toxic earth materials a contingency plan is required in the event the lesser cover proves inadequate.
 - B) A map of the watershed for each wetland is required along with an acreage figure for that watershed. (Watershed maps may be 1:24,000 scale or larger.)
 - C) Anticipated water quality information is required for any pond which does not have an NPDES monitoring point.
 - D) Discharge structures must be properly designed.
 - E) A plan for vegetating the wetland with acceptable species is required.

- F) Any additional wetland enhancement features (i.e., nest site development, etc.) should be specified.

If the land uses are changed the Post-Mining Land Use Map and Part V of the application shall be modified to accurately identify the land uses.

- 4) The applicant has proposed to retain two existing lakes as permanent impoundments. It is also proposed that three additional permanent impoundments be created as the result of borrow activities necessary to provide soil cover for the coal refuse area. Section 1817.49(a) and (b) of 62 Ill. Adm. Code allows the Department to approve permanent impoundments providing that a demonstration of the requirements set forth in section are met. In order to assure compliance with the above regulation, the applicant shall address the following items.

A) MAKEUP LAKE:

62 Ill. Adm. Code 1817.49(a)(8) requires a combination of principal and emergency spillways. The plans submitted indicate a single 12-inch CMP drop inlet structure. The applicant shall provide appropriate design information for an emergency spillway.

B) EAST BORROW AREA:

The plan view of the east borrow area impoundment indicates a perimeter berm will be constructed where needed to control drainage. The applicant shall provide more specific details as to the location, extent and geometry of the perimeter berm.

C) SOUTH BORROW AREA:

The plan view of the south borrow area shows a levee with a top elevation of 362.0 feet. The applicant shall provide more specific details as to the locations, extent and geometry of the levee.

D) ALL IMPOUNDMENTS:

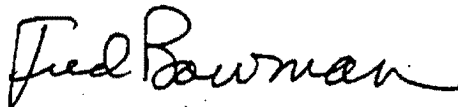
Part IV 7-J-1-a of the UCM-1 application requires that impoundments, dam locations and watershed limits be shown on the Mining Operations Map. Based on the maps provided it is not possible to determine the watershed limits. Additionally, the applicant has proposed considerable levee and berm construction which appears to limit the drainage area. In order to assure accurate watershed data and that the water level will be sufficiently stable and be capable of supporting the intended use, the applicant shall provide maps which delineate the watershed for each impoundment. In the

event that any acreage figures are revised, it will be necessary to provide updated DAMS2 computer runs to reflect these changes.

- 5) The applicant has proposed that several roads be retained to facilitate the post-mining land use of the site, yet the map indicates one permanent access road for farming use. The applicant shall provide clarification as to which roads are being proposed as permanent. Part V 1-C-5 of the UCM-1 application details the information required for permanent roads.
- 6) Pursuant to 62 Ill. Adm. Code 1817.22, response II-13-F must be modified to describe the removal and disposition of the topsoil in the new borrow area. Areas of new disturbance with a topsoil replacement liability must either have topsoil replaced or have an approved substitute material.
- 7) 62 Ill. Adm. Code 1784.14(b) requires each application to contain baseline hydrologic information on all surface water bodies, such as streams, lakes and impoundments, the location of any discharge into any surface water body in the proposed permit and adjacent areas, and information on the surface water quality and quantity sufficient to demonstrate seasonal variation and water usage. The applicant must submit a completed Schedule A for the proposed permanent impoundment to be identified as the East Borrow Area Pond with Discharge No. 009 as required by Part III 2-D-3-c. of the UCM-1 application.
- 8) Pursuant to 62 Ill. Adm. Code 1817.83, response V 4-B must be modified to incorporate the provisions of IPR 62, its imposed conditions and the Site Characterization and Corrective Action Plan. Any proposed expansions of the cover variance area must also be addressed.
- 9) Pursuant to 62 Ill. Adm. Code 1783.12, the applicant shall submit additional information to enable the Department to identify and evaluate the potential cultural, archaeological and historic resources at the proposed borrow areas. This information may include a completed Phase I cultural resource survey of the area. Upon receipt of the applicant's submittal, and consultation with the Illinois Historic Preservation Agency, the Department will make a determination of the effects the proposed mining activities will have on properties listed on or eligible for listing on the National Register of Historic Places. Sufficient information must be provided to the Department to enable it to develop the prerequisite finding at 62 Ill. Adm. Code 1773.15(c)(12).

If you have any questions please feel free to contact this office at (217) 782-4970 or (618) 439-9111.

Sincerely,

A handwritten signature in cursive script that reads "Fred Bowman".

Fred Bowman, Director
Office of Mines and Minerals

FB:RM:js

cc: R.Morgenstern
OSMRE

APPENDIX B

CONSIDERATION OF COMMENTS AND OBJECTIONS

62 Ill. Adm. Code 1773.13(b) allows submission of written comments on applications for a revision. The following are comments received from the State Agencies, County Board and other members of the public and the Department's response to those comments.

Illinois Department of Agriculture

Comment - IDOA has reviewed revision 6 and has no comments to offer.

Response - Comment forwarded to the operator.

Illinois Environmental Protection Agency

The Illinois Environmental Protection Agency has completed its review of the subject mining permit application and finds that additional information and/or clarification is needed as follows:

Comment - This revision proposes a new permanent impoundment to be identified as the East Borrow Area Pond with Discharge 009. Although Discharge 009 was initially proposed in IPR 60 to OMM Permit No. 34, no Schedule A, effluent quality estimate, as required by 62 Ill. Adm. Code 1784.14 b) 2) was found.

The applicant should submit a Schedule A for this discharge and indicate the receiving waters.

Response - The Department addressed this comment in Appendix A, Modification question No. 7.

Comment - The selected Curve Number (CN value) of 75 may be too low considering the proposed final water surface area for the East Borrow Area Pond. This could cause inadequate spillway design as required by 62 Ill. Adm. Code 1817.49(b)(9). The applicant should further justify the selection of this value considering the proposed water surface area.

Response - The applicant has revised the Curve Number to a value of 85 in response to the Illinois Environmental Protection Agency comments through modification to the original design. This value appears to be appropriate in reflecting current field conditions. The change was incorporated into the applicants response to the Department's April 11, 1996 modification letter.

Comment - Initially, Pond 009 may not have sufficient sediment storage of detention time during the course of the excavation of the East Borrow Area Pond as required by 62 Ill. Adm. Code 1817.46(c)(1)(C)(i) and (ii). The applicant should provide storage volume below spillway elevation.

Response - Approval to construct Pond 009 was granted by the Department in IPR No. 6 on September 25, 1995. Since that time Pond 009 has served to control surface runoff within the borrow area primarily by pumpage. As such, detention times are significantly extended beyond that of the normal inflow/outflow situations. Sediment storage capacity will be monitored in the field and corrective maintenance action will be required if conditions warrant.

Comment - Spillways shall be designed for a 25 year 6 hour precipitation event in accordance with 62 Ill. Adm. Code 1817.40 b) 9). It appears all calculations are based on a 10 year 24 hour event. All impoundment spillways proposed in this revision should be evaluated for this precipitation event.

Response - The applicant has revised the design to reflect a 25 year - 6 hour event in response to Illinois Environmental Protection Agency comments. Since adequate capacity was available in the initial design, the configuration of the open channel spillway remains unchanged. The change was incorporated into the applicants response to the Department's April 11, 1996 modification letter.

Comment - An approximate final contour map is required by 62 Ill. Adm. Code 1784.13 b)3). At a minimum, the applicant should show on an appropriate map general surface flow directions, all permanent diversions and delineate final watersheds reporting to each impoundment. Also, drainage should be shown to be controlled through the duration of the reclamation activities.

Response - For those areas subject to change under this revision adequate cross-sectional drawings were provided to depict approximate final topography. This revision does not significantly alter the surface configuration from that of the currently approved plan, except for the borrow areas which are necessary as cover material for coal refuse within the permit area. In response to Illinois Environmental Protection Agency comments, the applicant has also provided an additional map which shows flow directions, permanent impoundment and watersheds. The change was incorporated into the applicants response to the Department's April 11, 1996 modification letter.

Comment - The drainage area tributary to the East Borrow Area Pond may be insufficient to sustain stable water levels as required by 62 Ill. Adm. Code 1817.49 b)3). This, in conjunction with the indefinite depth of excavation, may result in sizable changes in water surface area. The applicant should show that there will be sufficient inflow to maintain a stable water level.

Response - The applicant has revised the post-mining plan to leave this area as a wetland/wildlife area in response to Appendix A, Modification Question No. 3. Seasonal fluctuations in the water level will serve to mimic those found in natural wetlands creating areas that will transition between moist soil units and water.

Comment - This operation is presently covered under Illinois Environmental Protection Agency Permit No. IL0044661. Since changes are now proposed from that previously permitted, a modified permit will be required.

Response - This comment must be addressed by Peabody Coal Company through direct correspondence with the Illinois Environmental Protection Agency.



Illinois Historic Preservation Agency

Comment - The Phase I survey and assessment of the archaeological resources appear to be adequate. Accordingly, we have determined, based upon this report, that no significant historic, architectural, and archaeological resources are located in the project area.

Response - Comment forwarded to the operator.

Saline Valley Conservancy District

Comment - There are no boring logs presented for the proposed impoundments.

Response - A total of eight borings were drilled within the area encompassing the proposed impoundments. The borings were presented in Insignificant Permit Revision No. 62 to Permit No. 34 which is on file with the Gallatin County Clerk for public inspection.

Comment - The depths of the impoundments are not indicated.

Response - Cross-sectional drawings were included in the application which show the anticipated water depths.

Comment - The separation between the bottom of the impoundments and the underlying aquifer is not indicated.

Response - Since no refuse is to be deposited in the impoundments, this information is not pertinent to this revision. The borrow pits will be utilized to provide additional soil cover for the coal refuse areas.

Comment - There is no information provided which indicates the separation of the existing gob and slurry which is on the permit area and proposed to be covered and the underlying aquifer.

Response - As indicated in the comment, the gob and slurry areas currently exist and no change concerning these refuse areas is proposed. The revision addresses borrow areas to cover the refuse and a reclamation plan change to allow the borrow areas to remain as permanent impoundments. Information concerning the separation between the refuse areas and the aquifer is not pertinent to this revision.

Comment - There was no discussion as to how groundwater contamination is going to be avoided both presently and long term on the site. Please keep in mind that the Saline Valley Conservation District anticipates operating in its well field for over 50 years.

Response - This was addressed by Modification No. 8. As a response, Peabody incorporated the site characterization report and corrective action plan. The corrective action plan objectives were

developed based on site characterization activities, and the geochemical, groundwater flow and precipitation infiltration models and discussions with the Department and IEPA. The objectives include groundwater impact control and mitigation.

Comment - No existing groundwater information from monitoring wells was submitted as a part of this application in order to determine the effect of this application on present and future groundwater quality.

Response - See Modification No. 8. Peabody has, since issuance of Permit No. 34, monitored groundwater for quality and quantity. The existing network of 14 active monitoring wells was augmented with 25 additional observation wells. The additional wells were installed to provide adequate information to assess the water quality for the site characterization report and corrective action plan.

APPENDIX C

ASSESSMENT AND FINDINGS OF PROBABLE CUMULATIVE HYDROLOGIC IMPACT

The applicant must submit a determination of probable hydrologic consequences of the proposed mining and reclamation operations, both on and off the permit area, as required by 62 Ill. Adm. Code 1784.14(e).

Pursuant to 62 Ill. Adm. Code 1773.15(c)(5), the Department must make an assessment of the probable cumulative impacts of all anticipated coal mining on the hydrologic balance in the cumulative impact area, in accordance with 62 Ill. Adm. Code 1784.14(f), and find in writing that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

The following assessment and findings are intended to fulfill the above requirements.

I. Assessment

Cumulative Hydrologic Impact Area The permitted area was for surface support facilities for the underground mining of the Harrisburg (No.5) Coal. The mine was opened in 1968 and most of the necessary facilities were constructed, and gob and slurry disposal was performed, prior to any permitting requirements. Revision Nos. 1, 2, 3, 4, and 5 in addition to one incidental boundary revision, added approximately 6,635 shadow area acres to the original surface 578.0 acres permitted.

The mine is located within the watershed of Cypress Ditch. This is a man-made waterway created several years ago when the indigenous cypress forest was removed and the surrounding land converted to agricultural uses. The waterway drains to the Saline River approximately three miles downstream of the permit area. A U.S.G.S. monitoring station is maintained on the Saline River (No. 03383530) approximately three miles downstream of the convergence. At this site the Saline River has a drainage area of approximately 1062 square miles (Zuehls, et al., 1981).

Literally dozens of other mine sites, both active and abandoned, exist in the Saline River watershed. Clearly, assessment of a watershed of this size would not provide an accurate understanding of the impacts of this operation. In this particular site, significant groundwater resources exist which must also be considered. The aquifer considered in this assessment may extend beyond the watershed of Cypress Ditch and will be considered as well.

However, for the purposes of this assessment, the cumulative hydrologic impact area is considered to be the watershed of Cypress Ditch and the underlying aquifer.

Surface Water The operation created several surface water impoundments to facilitate the operations. Prior to these operations, there were no developed water resources in the permit area. For this site, the applicant listed 17.0 acres of impoundments as developed water resources, primarily sediment control ponds and the fresh water lake. In post-mining conditions, the applicant originally

proposed to remove all of these impoundments and return the area to a mixture of pasture and cropland. Revision No. 6 proposes 3.0 acres of developed water resources to remain for post-mining land uses. Additionally, this revision proposes 116.0 acres to remain as wetland wildlife. These changes were incorporated to acquire additional cover material to facilitate reclamation of the waste disposal areas. The post-mining land uses, therefore, will change the amount of developed water resources and wetland wildlife available to 3.0 acres and 116.0 acres, respectively.

Surface water quality information was also collected by the applicant at several locations. Four locations on Cypress Ditch were utilized as collection points. Stations 701 and 702 are both upstream of all mining and associated activities on separate tributaries of Cypress Ditch. Station 703 is located downstream of 702 and receives discharges from underground pumpage. Lastly, station 704 is located downstream of all previous points and of all mining and associated activities. A summary of the data from stations 701, 703, and 704 are presented in Table 1.

Table 1. Ambient Water Quality Data

	<u>Sta. 701</u>			<u>Sta. 703</u>			<u>Sta. 704</u>		
	<u>Max</u>	<u>Min</u>	<u>Ave</u>	<u>Max</u>	<u>Min</u>	<u>Ave</u>	<u>Max</u>	<u>Min</u>	<u>Ave</u>
pH	8.3	6.6	-	8.0	6.4	-	8.2	6.8	-
TDS	1090	130	495	1685	188	416	1249	115	475
TSS	243	6	45.3	50	3	14.1	151	4	55.2
Acid	-42	-282	-191	-117	-356	-255	-31	-320	-228
Fe	7.7	0.29	1.91	524	0.5	15.6	8.7	0.32	2.76
Mn	1.75	0.04	0.34	13.6	0.04	0.69	0.71	0.07	0.28

The data in this table indicates only relatively minor impacts from the existing operation. The pH at all stations ranges from just below neutral to slightly alkaline. It is at all times within acceptable limits. Total dissolved solids (TDS) are also relatively low with downstream TDS actually less than upstream values. The highest values are recorded just below Station 703 which received pumpage discharge from the underground workings. However, there is no data to suggest that this high level is a result of this operation. In the general area there are many oil wells which in some cases have historically been shown to discharge oil brines which have been a problem in these and similar areas of southern Illinois. In any case, this high level is not so high as to cause concern. Total suspended solids (TSS) range widely with some very high values occurring. These high values are more likely due to much of the area surrounding the mine being used for row-crop agriculture, than from the actual mining operation. Net acidity values also show that alkalinity is much greater than acidity. Iron values are increased downstream in the area. Downstream of station 703, a very high iron value of 524 mg/l was recorded on one occasion. As with TDS, the downstream values, while slightly elevated on the average, are not so high as to cause concern by themselves.

During the active operations, and now reclamation, at this facility, the applicant will be required to comply with all applicable State and Federal effluent limits. Adherence to these limits will help to ensure that no adverse impacts occur to the hydrologic balance as a result of these operations.

Groundwater The operation is situated in an area of extremely good groundwater potential. Preliminary reports by both Pryor (1956) and Zuehls, et al. (1981) indicated that the probability of developing a reliable groundwater supply was excellent in this area. Reliable groundwater supplies may be developed in the sands and gravels adjacent to the Ohio River, and have been in nearby Old Shawneetown. Quite different conditions exist within and adjacent to the permit area. During the Wisconsin glacial stage, slackwater dams formed which impounded vast amounts of melting water from the receding glaciers. Approximately 13,000 years ago, one such dam gave way and the ensuing flood waters entered the area approximately two miles north of Shawneetown skirting the nearby Shawneetown Hills (Nelson and Lumm, 1984). Following an old course of the Ohio River, the flood waters forced their way through the gap between the nearby Wildcat and Gold Hills and from there flowed along the present course of the Saline River. In the wake of this event, known as the Maunie Flood, the channel filled with over 100 feet of sand and gravel, and is now classified as the Henry Formation (Willman, et al., 1975). It is this filled channel that is currently being used for the public and private water supplies adjacent to the mine site.

Structural geology of the area is quite complex, with several major faults and associated structures in the area. The Henry Formation is located approximately 200 feet above the No. 5 Coal over most of the area, however, the West Inman Fault is located on the eastern boundary of the shadow area added by Revision No. 4. Here, the coal lies approximately 300 feet below the Henry Formation. This mine is considered "wet" as it proposed to pump approximately 300,000 gallons per day (gpd) from the underground works. Cartwright and Hunt (1978), stated that in a study of 15 underground works only 4 mines pumped volumes of between approximately 80,000 and 1.3 million gpd. The water originated from drips from the sandstone unit directly overlying the No. 5 Coal. Information presented in Nelson and Lumm (1984) suggests that at places not too distant from the mine workings, this overlying unit may be exposed at the base of the unconsolidated material. Should this be the case, this unit may be receiving direct recharge from the Henry Formation. However, as stated earlier, over the mining area, this unit is 200 to 300 feet below the bottom of the glacial meltwater channel and separated from it by very low permeability limestones, shales and occasional sandstones. Potential to encounter additional water existed as mining progressed toward the West Inman Fault, a nearly vertical normal fault, as faults may act as a secondary permeability feature which may transmit water both from the surface and/or other formations. However, in modifications to Revision No. 4, the mine plan stated that as mining progressed towards this area, mining would cease should conditions degrade.

The operation consumed a total of approximately 1.5 million gpd of groundwater. This came from primarily two sources. Of this total, 300,000 gpd were pumped from the underground works, and the remainder was withdrawn directly from the Henry Formation for such uses as makeup water in the preparation plant, sanitary water supplies and for underground dust suppression. However, the withdrawal of this amount was not anticipated to have any detrimental impacts to water quantity in the area. This conclusion is based on a report prepared for the Saline Valley Conservancy District (SVCD) by the Illinois State Water and Geological Surveys. The Surveys prepared a report on the feasibility of installing municipal water wells into the same aquifer that underlies the permit area. The report suggested a site approximately one half mile to the northwest of the permit area but easement problems forced the SVCD to install the three wells approximately 2500 feet from the

southwest corner of the permit area. Information presented in the report prepared for the SVCD (Poole and Sanderson, 1981) showed that for a well with a capacity of 1.7 million gpd, drawdowns at a distance of 3000 feet away may be as much as 9.9 feet, based upon the constraints which are used to develop the aquifer model. However, at distances of one mile or more, the drawdown on the piezometric surface was estimated at less than two feet. Since the installation of SVCD's three initial production wells, SVCD has installed two additional pumping wells, one of which is located approximately 1400 feet west of Slurry No. 5. It should be noted that there are several high capacity irrigation wells in the area which are much closer to the SVCD wells. These may contribute to interference with SVCD's wells. Any future development on the part of the SVCD to install more wells or to expand its well field should take into account the impacts of water production from these sources as well.

Even though it is not anticipated that any adverse impacts will result to adjacent water levels, very little information was available to quantitatively assess the impacts of this operation on groundwater quality prior to the submittal of Revision No. 6. The method by which the applicant was previously disposing of its coarse refuse material was the primary concern. A cut and fill method was used during most of the life of the mine. Trenches were dug approximately thirty feet deep and the refuse was placed into them. With a thin clay cover of approximately less than ten feet, the material was being placed into the aquifer itself.

Under ambient conditions, measurements made by the applicant showed that the hydraulic gradient was quite low and hence any contamination would not move very far from the mine site. Additionally, once the production well at the mine began operating, any contaminant would tend to be localized at the mine site. With the installation of a high capacity well field in relatively close proximity to the refuse disposal area, it became necessary for the applicant to employ more sophisticated analytical methods for the prediction of impacts to the hydrologic balance.

Initially, the applicant used Random Walk, a mass transport groundwater model first developed by Prickett, et al. (1981). The program takes into account physical characteristics of the aquifer, water withdrawals or injection, pollutant loading and movement rates. The study looked at the increases to total dissolved solids (TDS). Ambient conditions for this area assumed that initial TDS levels were approximately 338 parts per million (ppm). Results show that the TDS levels are not increased at the SVCD wells as long as the mine operates its pumping wells. This is due to the fact that the mine's pumping wells produce a hydraulic gradient such that all infiltration at the mine goes to the mine's own supply well. However, when the wells at the mine are no longer active, the pollutants are predicted to move toward the SVCD wells. TDS is predicted to reach a maximum concentration of 388 ppm in the SVCD wells approximately 30 years after the anticipated mine closure. This is because the mine's water supply well would no longer be functioning and the municipal wells would be the controlling factor in the area's hydraulic gradient. As the site is reclaimed and cover is placed over all of the waste areas, the flow to the aquifer is anticipated to diminish from the refuse areas. This will result in a slight reduction of TDS concentration reaching the wells. The long term impact, 30 years from mine closure, to the SVCD wells is estimated at a final TDS concentration of 373 ppm or an increase of 10.4 percent. Such an increase is not anticipated to be an adverse impact to the public water supply, as even with this increase, the final level is still well below all applicable

drinking water standards. As a part of the study, several additional monitoring wells were installed to gather basic information and provide calibration for their modeling study. For the most part, these wells were installed directly between the waste disposal area and the adjacent SVCD wells.

In 1985, the Department required Peabody to perform a hydrogeologic investigation of the site prior to issuance of Permit No. 34. The investigation utilized a numerical groundwater flow model and included an assessment of potential impacts to the Henry Aquifer by mining activities. The investigation showed that no significant groundwater impacts were occurring outside the mine site permit boundary. The report was accepted by the Department and Permit No. 34 was approved.

In 1992, Peabody conducted a subsurface exploration for the proposed construction of Slurry Cell No. 6. Additionally, Peabody commissioned a groundwater quality assessment in 1992 as a requirement of a permit modification for the installation of Slurry No. 1A. The assessment consisted of a geophysical delineation of the extent of impacted groundwater. The results showed that extent of groundwater impacted by mining activities was largely limited to the area within the permit boundary. Both IEPA and the Department responded favorably to the report but required additional characterization of the nature and extent of impacted groundwater.

Most recently, a site characterization report and corrective action plan was prepared for the Peabody Coal Company Eagle No. 2 Mine by GeoSyntec Consultants. The site characterization addressed concerns regarding the effects to groundwater quality from coal refuse areas and the potential effects to nearby groundwater users. The additional characterization of impacted groundwater implemented by the 1992 study was incorporated by the site characterization report.

A total of 25 monitoring wells were monitored biweekly beginning on December 13, 1994 and continued through March 23, 1995. The wells were sampled and analyzed for selected Class I water quality constituents. The results of the site characterization activities determined that groundwater quality consists of elevated total dissolved solids (TDS) and sulfate concentrations which are limited to the area within the Permit No. 34 boundary except for small areas along the northern edge of the site. Sulfate comprises about 40 to 60 percent of the elevated TDS. Chloride, iron and manganese concentrations and pH observed from groundwater samples collected are within the ranges of background values for this area. Geochemical testing showed that the coal refuse material contains 9 to 19 percent pyrite which generates acid rock drainage (ARD) upon exposure to air and water. The ARD is the primary factor contributing to the elevated TDS in the groundwater.

The site characterization defined borrow areas which would provide suitable material for constructing a final cover system for the coal refuse materials. With this information, a corrective action plan (CAP) was developed utilizing the site characterization results to supplement the reclamation plan. The CAP has two main elements: coal refuse (ARD) source control, and groundwater impact mitigation. The ARD source control element consisted of an enhanced final cover system for the coal refuse area to limit infiltration of precipitation and prevent further generation of ARD, which would help in decreasing TDS levels. The second element consists of three additional shallow groundwater extraction wells to mitigate the areas beneath the site with greatest effects on groundwater.

II. Findings

Surface Water The applicant proposes to leave 3.0 acres of developed water resources and 116.0 acres of wetland wildlife in the permit area. The pre-mining conditions indicate that 17 acres of developed water resources existed. This reduction is a result of some of the area being changed to wetland wildlife.

Surface water quality should not be significantly deteriorated as a result of these activities. Downstream increases may occur for some parameters such as total dissolved solids, but the increases should not be so high as to cause adverse impacts in downstream water usage. Additionally, the applicant must at all times comply with all applicable State and Federal effluent limits. Adherence to these limits will help to ensure that no adverse impacts occur to the hydrologic balance outside the permit area.

Groundwater The proposed permit area is located in an area of excellent groundwater potential. The amount of groundwater still used by this operation will contribute to a constant drawdown of the piezometric surface in and adjacent to the permit area. However, based on information available to the Department, this usage combined with careful development of the aquifer by future users, should ensure that the proposed operation will not adversely affect adjacent groundwater yields.

Groundwater quality is not expected to be further impacted negatively with the approval of Revision No. 6. Previous waste disposal practices initially caused concern that nearby municipal water supplies might be degraded. Revision No. 6 incorporates the initiation of the corrective action plan, which consists of placement of an enhanced final cover system over the waste disposal area and additional groundwater extraction wells. The extraction wells will allow the operator to remove elevated TDS from the groundwater system in order to facilitate groundwater impact mitigation at the waste disposal area.

In summary, the mine operated as an underground coal mining facility from 1968 until July 1993. The surface operations included six coal refuse management impoundments. Four of the six disposal areas initiated refuse disposal prior to the implementation of OMM's permanent program regulations. In 1982 SVCD constructed its well field consisting of three pumping wells which are located to the southwest of Peabody's surface facilities. Since the initial well field construction, SVCD has installed two more wells, the last one being installed in late 1995. Prior to the installation of the last SVCD well, the mine ceased operation and initiated reclamation. The operator, through Revision No. 6, submitted a site characterization and corrective action plan which evaluates site characteristics and a plan to remediate impacts produced by refuse disposal at the site. The Department finds that the operator has submitted a plan that will positively impact effects of refuse disposal on the underlying aquifer.

Therefore, the assessment and findings of the probable cumulative impact of all anticipated reclamation in the area on the hydrologic balance finds that the corrective action plan has been designed to mitigate groundwater impacts and prevent material damage to the hydrologic balance outside the permit area.

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- Zuehls, E.E. et al., 1981, Hydrology of area 35, Eastern region, interior coal province, Illinois and Kentucky. United States Geological Survey Water - Resources Investigations 81-403, May.

APPENDIX D

DECISION ON PROPOSED POST-MINING LAND USE OF PERMIT AREA

Post-mining land use has been approved in accordance with the requirements of 62 Ill. Adm. Code 1817.133. The surface land areas affected by underground mining activities will be restored in a timely manner to conditions that are capable of supporting the uses which they were capable of supporting before any mining, or to higher or better uses achievable under the criteria and procedures of 62 Ill. Adm. Code 1817.133.

The premining, approved post-mining and revised post-mining land use acreage of the Eagle No. 2 area are as follows:

	<u>Original Pre-mining</u>	<u>Approved Post-mining</u>	<u>Proposed Post-mining</u>
Cropland	182.0	56.3	56.3
Water Resources	17.0	1.3	3.0
Pastureland	26.0	513.8	363.8
Residential	0.0	0.2	0.2
Industrial/Commercial	323.0	16.0	21.5
Wildlife Habitat / Wetland	0.0	0.0	142.8
Forest	10.0	0.0	0.0
Undeveloped	20.0	0.0	0.0
Total	<u>578.0</u>	<u>587.6</u>	<u>587.6</u>

IBR 1 added 2.0 acres on October 28, 1995, IBR 2 added 2.0 acres on May 28, 1996, IBR 3 added 1.0 acre on October 22, 1996, and IBR 7 added 4.6 acres on July 24, 1992. This is an increase of 9.6 acres that was added to the original pre-mining permit.

Proposed wetland wildlife with 116.0 acres and proposed fish and wildlife (herbaceous) with 26.8 have been combined in the proposed wildlife habitat/wetland category and equal 142.8 acres.

A change in post mining land use is proposed due to the retention of the make-up and fresh water lakes as well as the proposed east and south borrow areas. The proposed land use change includes an increase in water acres, an increase in wildlife habitat/wetland acres, and a decrease in pasture acres. The retention of the permanent impoundments will compliment the planned land use of pasture which is the currently approved land use for the Eagle No. 2 slope area. In addition several power lines and roads are proposed to be retained for permanent access and future use by the local utility.

The Department thus finds the land areas affected by surface coal mining activities will be restored in a timely manner to conditions that are capable of supporting the use which they were capable of supporting before mining or to higher or better use achievable under the criteria and procedures of 62 Ill. Adm. Code 1817.133. The plan of restoration submitted by Peabody does not present any actual or probable hazard to public health or safety nor does it pose any actual threat of water

diminution or pollution as indicated in Appendix C, and the proposed land uses following mining are not impractical or unreasonable as all the post-mining land uses existed prior to mining and are found in the adjacent surrounding areas. The land uses are not inconsistent with any applicable land use policy or plan known to the Department and no objections were heard from any governmental agency with such authority. The plan does not involve unreasonable delay in implementation and is not in violation of any other applicable law known to the Department

Exhibit 2

R 30

Groundwater resources in the Saline Valley Conservancy District, Saline and Gallatin Counties, Illinois

VICKIE L. POOLE
Geological Survey Division, INR

ELLIS W. SANDERSON
Water Survey Division, INR

September 1981

ILLINOIS STATE GEOLOGICAL SURVEY
Natural Resources Building
615 East Peabody Drive
Champaign, IL 61820

between transmissivity, storage, and the lowering of water levels in the vicinity of a pumped well.

During the December 1980 test, the effects of pumping Test Well No. 1 were measured in the pumped well and in three observation wells. The locations of the wells used during the test are shown in figure 5. The drillers logs of the wells are included in appendix B-1. The test well was pumped continuously for 1430 minutes at a constant rate of 1090 gpm (69 L/s). Drawdowns were determined by comparing water levels measured before pumping started with water levels measured during the pumping period. The data collected are included in appendix B-2.

During the test pumping period, several water samples were collected to determine the mineral quality of the groundwater. The samples were analyzed by the laboratories of the Illinois Environmental Protection Agency and the State Water Survey. Appendix C gives results of the analysis of the sample collected after pumping 23 hours.

The aquifer test data and the nonequilibrium formula (Walton, 1962) were used to calculate the hydraulic properties of the sand and gravel aquifer. Results of the analysis indicate that the transmissivity (T) of the aquifer averages about 80,500 gpd/ft (1.16×10^{-2} m²/sec) and the hydraulic conductivity (K) is about 875 gpd/ft² (4.13×10^{-4} m/sec), a reasonable value for the fine-to-medium sand encountered at the test well site. The storage coefficient (S) in the vicinity of the test well was computed to be about 0.00063, a value representative of artesian conditions. Hydraulic properties determined from the well test data analysis are summarized in table 1.

Aquifer model

The effects of a groundwater development can be simulated using aquifer models that have straight-line boundaries and an effective width, length, and thickness.

TABLE 1. Transmissivity and storage coefficient at the aquifer test site.

Well	Method of analysis	Transmissivity(T) (gpd/ft) ($\times 1.438 \times 10^{-7} = \text{m}^2/\text{s}$)	Storage coefficient (S)
OW1	Time-drawdown (Theis)	73,500	.00077
	Time-drawdown (Jacob)	78,800	.00062
OW2	Time-drawdown (Theis)	78,100	.00064
	Time-drawdown (Jacob)	84,600	.00053
OW3	Time-drawdown (Theis)	78,100	.00067
	Time-drawdown (Jacob)	92,800	.00048
TW	Time-drawdown (Jacob)	80,000	—
	Distance-drawdown	78,100	.00067
T average = 80,500 gpd/ft (1.16×10^{-2} m ² /s)			
Hydraulic conductivity (K) = 875 gpd/ft ² (4.13×10^{-4} m/s)			
S average = .00063			

clean sand according to Freeze and Cherry [1979]. These initial estimates of the hydraulic conductivity values were adjusted during the calibration process. The final values utilized in the ground-water flow model were in the range of 0.55 to 240 ft/d (2×10^{-4} to 8×10^{-2} cm/s) throughout the site.

$$\text{SVC Well 41-K} = 675 \sqrt{\text{data}} = 117.25 \text{ ft/day}$$

The areal distributions of hydraulic conductivity representing the shallow and deep ground-water zones in the model are shown in Figure 5-5 and 5-6. These values are within the range of the field data. Five hydraulic conductivity zones in the shallow ground-water zone and three hydraulic conductivity zones in the deep ground-water zone are presented in the calibrated model to account for the difference in material properties for the observed configuration of the aquifer potentiometric surfaces. This approach is valid for two reasons: (i) field hydraulic conductivity cannot be known everywhere within the model domain; and (ii) the water table configuration has been formed in response to material properties and external hydraulic stresses.

Hydraulic Heads of the Aquifers

Cell values of hydraulic head for both shallow and deep ground-water zones are solved numerically by the MODFLOW model through an iterative process. To start the solution, an arbitrary value of the hydraulic head is given for each node of the model grid for each layer. An arbitrary starting head value is permitted since the numerical solution is for steady-state conditions. The only criteria that must be applied is for the starting head to be specified above the base elevation of the model layer (i.e., allow for initial saturated conditions). A hydraulic head value of 450 ft (137 m) was assigned to each cell as the starting head for both layer 1 and layer 2.

5.3.1.4 Boundary Conditions

Ideally, model boundaries are chosen to coincide with hydrologic boundaries that do not shift the time or conditions of the model analysis. In this study, natural boundaries such as the major discharge areas (Saline River) and the western limit of the sand and gravel aquifer, extend beyond the study area, which makes it impractical to configure the model boundaries with natural aquifer boundaries. Therefore the model

TABLE 5-1

HYDRAULIC CONDUCTIVITY VALUES
USED IN MODEL CONSTRUCTION

Data Source	Sample Date	Hydraulic Conductivity ⁽⁴⁾	
		gpd/ft ²	cm/s
Shallow Ground-Water Zone			
• Peabody Soil Boring (Sand)	28 April 1992	—	5.6×10^{-4}
• Peabody Soil Boring (Silty, Clay)	28 April 1992	—	4.7×10^{-6}
• Peabody Well MW-13	6-7 October 1984	905	4.3×10^{-2}
Deep Ground-Water Zone			
• Peabody Well TH-1	7-8 December 1989	630	3.0×10^{-2}
• SVCD Well TW-1	16-17 December 1980	875	4.1×10^{-2}

Notes: (1) SVCD TW-1 data from Poole and Sanderson [1981], all others from Peabody files.

(2) gpd/ft² = gallons per day per foot per foot.

(3) cm/s = centimeters per second.

(4) Values for soil borings represent laboratory permeability measurements; hydraulic conductivities in wells calculated from pumping tests.

Exhibit 3



Larson Laboratory

529 Broadway / Cape Girardeau, MO / 63701 / 573-334-8910
800-334-2336

NVLAQ

Lab Code No. 1415

March 27, 2000

Saline Valley Conservancy District
ATTN: Rick Deadmond
11905 Highway 142
Equality, IL 62934

Sampled: 03/15/00
Received: 03/16/00
Reported: 03/24/00

REF: Wells

Lab Number: 0003045-1343
Sample: water

ANALYSIS RESULTS

DIFFERENCE FROM
2/16/00 TEST

Sample Identification: SVCD Well #1

Method: 150.1

pH

7.29

>

+ 0.17 ph units

Method: 325.3

Chloride

16.5

mg/L >

+ 0.1 mg/l

Method: 375.4

Sulfate

37.5

mg/L <

- 2.3 mg/l

Method: 236.1

Iron

2.35

mg/L >

+ 0.11 mg/l

Method: 160.1

TDS

378

mg/L >

+ 6 mg/l

Method: 243.1

Manganese

0.150

mg/L >

+ 0.016 mg/l

Method: 2340-B

Hardness

485

mg/L >

+ 198 mg/l ??

#1 Meter 677,323,000 HR 1501.7 - Since 2/16/00 11,927,000 GAL 248.1 HRS

Sample Identification: SVCD Well #2

Method: 150.1

pH

7.22

>

+ 0.1 ph units

Method: 325.3

Chloride

5.5

mg/L <

- 0.9 mg/l

Method: 375.4

Sulfate

34.5

mg/L <

- 1.2 mg/l

Method: 236.1

Iron

2.03

mg/L >

+ 0.19 mg/l

Method: 160.1

TDS

326

mg/L >

+ 16 mg/l

Method: 243.1

Manganese

0.108

mg/L >

+ 0.018 mg/l

Method: 2340-B

Hardness

301

mg/L <

- 1 mg/l

#2 Meter 454,356,000 HRS 11,332.1 - Since 2/16/00 12,673,000 GAL 264.6 HRS



Larron Laboratory

529 Broadway / Cape Girardeau, MO / 63701 / 573-334-8910
800-334-2336

NVLAB
Lab Code No. 3415

March 27, 2000

Saline Valley Conservancy District
ATTN: Rick Deadmond
11905 Highway 142
Equality, IL 62934

Sampled: 03/15/00
Received: 03/16/00
Reported: 03/24/00

REF: Wells

Lab Number: 0003046-1343
Sample: water

ANALYSIS RESULTS

Sample Identification: Well #4

Method	Parameter	Value	Comparison	Difference From 2/16/00 TEST
Method: 150.1	pH	7.36	>	+ 0.11 ph units
Method: 325.3	Chloride	4.8 mg/L	<	- 4.1 mg/l
Method: 375.4	Sulfate	3.9 mg/L	>	+ 0.4 mg/l
Method: 236.1	Iron	2.09 mg/L	<	- 10.21 mg/l
Method: 160.1	TDS	354 mg/L	>	+ 4 mg/l
Method: 243.1	Manganese	<0.100 mg/L	<	- 0.197 mg/l
Method: 2340-B	Hardness	429 mg/L	<	- 46 mg/l

#4 meter 628,526,000 HR GAGE 12,565.5 - Since 2/16/00 26,225,000 GAL 495.6 HRS

Sample Identification: Well #5

Method	Parameter	Value	Comparison	Difference From 2/16/00 TEST
Method: 150.1	pH	7.11	>	+ 0.08 ph units
Method: 325.3	Chloride	16.5 mg/L	>	+ 0.7 mg/l
Method: 375.4	Sulfate	194 mg/L	>	+ 11 mg/l
Method: 236.1	Iron	3.92 mg/L	>	+ 1.41 mg/l
Method: 160.1	TDS	639 mg/L	>	+ 15 mg/l
Method: 243.1	Manganese	0.318 mg/L	>	+ 0.134 mg/l
Method: 2340-B	Hardness	507 mg/L	>	+ 224 mg/l

#5 METER 632,299,000 HR GAGE 5394.3 - Since 2/16/00 9,455,000 GAL 179.1 HRS

Sample Identification: SVCD Lagoon

Method	Parameter	Value	Comparison	Difference From 2/16/00 TEST
Method: 160.2	TSS	<1.0 mg/L	N/A	

PChiles
Patty Chiles
Chemist

M.F. Cummings
Mark F. Cummings
Laboratory Manager

Larson Laboratory
 LL# 0003045-1343
 Page 2

Sample Identification: SVCD Well #3

Method: 150.1

Method: 325.3 pH 7.12

Method: 375.4 Chloride 10.8 mg/L

Method: 236.1 Sulfate 76.5 mg/L

Method: 160.1 Iron 3.39 mg/L

Method: 243.1 TDS 452 mg/L

Method: 2340-B Manganese 0.161 mg/L

Method: 2340-B Hardness 329 mg/L

DIFFERENCE FROM
 2/16/00 TEST

> + 0.05 pH units

> + 0.1 mg/L

< - 1.8 mg/L

> + 0.8 mg/L

> + 46 mg/L

> + 0.012 mg/L

> + 13 mg/L

3 METER 629,758,000 HRS 10,571.8 - Since 2/16/00 14,895,000 GAL 309 HRS

PChiles
 Patty Chiles
 Chemist

Mark P. Cummings
 Mark P. Cummings
 Laboratory Manager

Post-it® Fax Note 7671

To <i>Carl</i>	Date <i>4-3</i>	# of pages <i>3</i>
Co./Dept. <i>SVCD</i>	From <i>Larson</i>	
Phone #	Co. <i>Saline Valley</i>	
Fax #	Phone #	
	Fax #	

Exhibit 4

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

RECEIVED
CLERK'S OFFICE

SEP 16 2002

PEOPLE OF THE STATE OF ILLINOIS,

Complainant,

v.

PEABODY COAL COMPANY,
a Delaware corporation,

Respondent.

PCB NO. 99-134
(Enforcement)

STATE OF ILLINOIS
Pollution Control Board

NOTICE OF FILING

To: David R. Joest
Peabody Coal Company
1951 Barrett Court
P.O. Box 1990
Henderson, KY 42420-1990

Stephen F. Hedinger
Attorney at Law
1225 South Sixth Street
Springfield, IL 62703-2407

W. C. Blanton
Blackwell Sanders Peper Martin LLP
2300 Main Street, Suite 1000
Kansas City, MO 64108

PLEASE TAKE NOTICE that on this date, I mailed for filing with the Clerk of the Pollution Control Board of the State of Illinois, a THIRD AMENDED COMPLAINT, a copy of which is attached hereto and herewith served upon you. Failure to file an answer to this Complaint within 60 days may have severe consequences. Failure to answer will mean that all allegations in this Complaint will be taken as if admitted for purposes of this proceeding. If you have any questions about this procedure, you should contact the hearing officer assigned to this proceeding, the Clerk's Office or an attorney.

FURTHER, please take notice that financing may be available, through the Illinois Environmental Facilities Financing Act, 20 ILCS 3515/1 (1994), to correct the pollution alleged in the Complaint filed in this case.

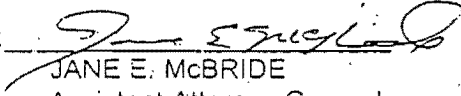
Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS

JAMES E. RYAN
Attorney General of the
State of Illinois

MATTHEW J. DUNN, Chief
Environmental Enforcement/Asbestos
Litigation Division

BY:


JANE E. McBRIDE
Assistant Attorney General
Environmental Bureau

500 South Second Street
Springfield, Illinois 62706
217/782-9031
Dated: September 11, 2002

CERTIFICATE OF SERVICE

I hereby certify that I did on September 11, 2002, send by First Class Mail, with postage thereon fully prepaid, by depositing in a United States Post Office Box a true and correct copy of the following instruments entitled NOTICE OF FILING and THIRD AMENDED COMPLAINT

To: David R. Joest
Peabody Coal Company
1951 Barrett Court
P.O. Box 1990
Henderson, KY 42420-1990

Stephen F. Hedinger
Attorney at Law
1225 South Sixth Street
Springfield, IL 62703-2407

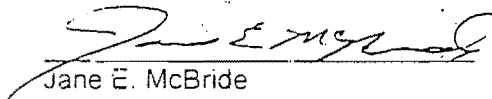
W. C. Blanton
Blackwell Sanders Peper Martin LLP
2300 Main Street, Suite 1000
Kansas City, MO 64108

and the original and ten copies by First Class Mail with postage thereon fully prepaid of the same foregoing instrument(s):

To: Dorothy Gunn, Clerk
Illinois Pollution Control Board
State of Illinois Center
Suite 11-500
100 West Randolph
Chicago, Illinois 60601

A copy was also sent by First Class Mail with postage thereon fully prepaid.

To: Steve Langhoff
Hearing Officer
Pollution Control Board
600 South Second Street, Ste. 402
Springfield, Illinois 62704


Jane E. McBride
Assistant Attorney General

This filing is submitted on recycled paper.

RECEIVED
CLERK'S OFFICE

SEP 16 2002

STATE OF ILLINOIS
Pollution Control Board

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

PEOPLE OF THE STATE OF ILLINOIS,)	
)	
Complainant,)	
)	
v.)	PCB NO. 99-134
)	(Enforcement)
)	
PEABODY COAL COMPANY,)	
a Delaware corporation)	
)	
Respondent.)	

THIRD AMENDED COMPLAINT

Complainant, PEOPLE OF THE STATE OF ILLINOIS, by JAMES E. RYAN, Attorney General of the State of Illinois, complains of Respondent PEABODY COAL COMPANY, as follows:

COUNT I

WATER POLLUTION VIOLATIONS

1. This Count is brought by the Attorney General on his own motion and at the request of the Illinois Environmental Protection Agency ("Illinois EPA"), pursuant to the terms and provisions of Section 31 of the Illinois Environmental Protection Act ("the Act"), 415 ILCS 5/31 (1998).

2. The Illinois EPA is an agency of the State of Illinois created by the Illinois General Assembly in Section 4 of the Act, 415 ILCS 5/4 (1998), and charged, *inter alia*, with the duty of enforcing the Act in proceedings before the Illinois Pollution Control Board ("Board").

3. This Count is brought pursuant to Section 31 of the Act, 415 ILCS 5/31 (1998), after providing the Respondent with notice and the opportunity for a meeting with the Illinois EPA.

4. The Respondent, Peabody Coal Company ("Peabody"), is and was at all times relevant to this Complaint, a Delaware corporation in good standing and authorized to do

business in the State of Illinois. Its registered agent is CT Corporation System, 208 South LaSalle Street, Chicago, IL 60604-1135.

5. The Peabody Coal Eagle No. 2 mine site ("Eagle No. 2") is located in Gallatin County, Illinois. Its main offices are located at the Peabody Coal Company, Midwest Business Unit, 1100 State Route 175 South, Graham, Kentucky 42344. Peabody is a subsidiary of the Peabody Holding Company, Inc. of St. Louis, Missouri. Eagle No. 2 was operated as an underground coal mining facility under a permit issued by the Office of Mines and Minerals of the Illinois Department of Natural Resources from 1968 until July 1993. Eagle No. 2 is located on a 250 acre tract of land, approximately one mile northwest of Shawneetown, Illinois at the base of the west side of the Shawneetown Hills. The surface portion of Eagle No. 2 is located in Sections 15, 16, 21 and 22 of Township 9 South, Range 9 East, Gallatin County.

6. Eagle No. 2 is located at the eastern edge of the Henry Aquifer, one of the few Class 1 groundwater resources in southern Illinois. The Saline Valley Conservancy District ("SVCD") public water supply wells are located to the southwest and hydraulically down-gradient from Eagle No. 2.

7. The SVCD public water supply provides water for 17 communities and water supplies located in four counties serving a total of 27,814 people. The well field consists of five wells. Wells 1, 2 and 3 were constructed in 1982, Well 4 was constructed in 1991, and Well 5 was constructed in 1995.

8. The above-ground activities of Eagle No. 2 included coal processing and refuse disposal. From 1968 until 1993, Peabody constructed and operated the coal preparation plant and six coal refuse disposal areas. Peabody disposed of approximately 12.76 million tons of coarse coal mine waste, coal slurry waste, and other related wastes in the six coal refuse disposal areas at Eagle No. 2. Upon information and belief, none of the six refuse disposal

areas have liners or other forms of barrier to prevent or minimize the leaching of contaminants into the underlying aquifer. Upon information and belief, according to Peabody's accounts, at least two of the refuse disposal areas consist of trenches which were excavated 20 to 25 feet below the surface. The coal mine refuse, and other related wastes at Eagle No. 2 contain such inorganic chemicals, including, but not limited to: chlorides, manganese, total dissolved solids, sulfates, and iron, which have leached from the mine refuse at Eagle No. 2 into the groundwater on-site and have migrated off-site of Eagle No. 2.

9. Inorganic chemicals from Eagle No. 2 have contaminated the groundwater on-site and off-site of Eagle No. 2 and threaten the SVCD well field. The water quality is deteriorating at the SVCD Wells 1, 2, 3, and especially at SVCD Well 5. SVCD Wells 1, 2, and 3 are experiencing significant increases of sulfate and chloride in the waters drawn from each well. In SVCD Well 5, the well closest to Eagle No. 2, the sulfate concentration are as follows:

<u>Date</u>	<u>Concentration Milligrams Per Liter (mg/l)</u>
July 1996	48.9
June 1997	118
May 1998	141
March 1999	167
April 1999	171
May 1999	180
June 1999	183
July 1999	189
August 1999	209
September 1999	214
October 1999	198
November 1999	199
December 1999	191
January 2000	189
February 2000	183
March 2000	194
April 2000	185

The U.S. Environmental Protection Agency's Secondary Maximum Contaminant Level for sulfate is 250 mg/l.

10. On January 28, 1997, the Illinois EPA sent the Respondent a Violation Notice Letter, Violation Notice: M-1997-00010, concerning inorganic chemical groundwater quality violations at Eagle No. 2. On February 14, 1997, the Respondent sent the Illinois EPA a letter which disputed the Illinois EPA's characterization of the groundwater quality violations at Eagle No. 2 and claimed that there were no groundwater quality violations on or off-site at Eagle No. 2. On March 13, 1997, a meeting of representatives of the Illinois EPA and the Respondent was held, pursuant to Section 31(a)(4), 415 ILCS 5/31(a)(4)(1996).

11. On March 17, 1997, the Respondent requested an extension of time to respond to the alleged violations. On March 31, 1997, the Illinois EPA denied the extension of time. Respondent provided a timely response, pursuant to Section 31(a)(5), 415 ILCS 5/31(a)(5) (1996). On April 23, 1997, the Illinois EPA sent the Respondent a letter in which the Illinois EPA rejected Respondent's Compliance Commitment Agreement. On September 26, 1997, the Illinois EPA sent the Respondent a Notice of Intent to Pursue Legal Action ("NITPLA"). On October 6, 1997, the Respondent responded to the NITPLA and requested a meeting with the Illinois EPA.

12. On December 23, 1997, the Illinois EPA sent the Respondent a second Violation Notice Letter, Violation Notice: M-1997-00133, concerning additional inorganic chemical Class I groundwater quality violations at Eagle No. 2. On January 19, 1998, the Respondent sent a letter to the Illinois EPA in which it again questioned the Illinois EPA's characterization of the groundwater quality violations for the on and off-site monitoring wells at Eagle No. 2. On January 28, 1998, representatives of the Illinois EPA and the Respondent met. On April 21, 1998, the Illinois EPA sent the Respondent a Notice of Intent to Pursue Legal Action ("NITPLA") regarding the second Violation Notice Letter.

13. Section 620.505 of the Board's Groundwater Quality Standards ("GQS"), 35 Ill.

Adm. Code 620.505 (1996), in pertinent part, establishes the groundwater compliance determination location for coal mine refuse disposal areas, as follows:

Compliance Determination

- a) 3) For groundwater which underlies a coal mine refuse disposal area, a coal combustion disposal area, or an impoundment that contains sludge, slurry, or precipitated process material at a coal preparation plant, the outermost edge as specified in Section 620.240(f)(1) or location of monitoring wells in existence as of the date of this part on a permitted site.

14. Under Sections 620.450(b)(4) and (b)(5) of the Board's GQS, 35 Ill. Adm. Code 620.450(b)(4), (b)(5)(1996), the coal refuse disposal areas are subject to the following standards as groundwater quality standards for respective disposal areas:

Alternative Groundwater Quality Standards

b) Coal Reclamation Groundwater Quality Standards

- 4) A refuse disposal area (not contained within the area from which overburden has been removed) is subject to the inorganic chemical constituent and pH requirements of:
 - A) 35 Ill. Adm. Code 302.Subparts B and C, except due to natural causes, for such area that was placed into operation after February 1, 1983, and before the effective date of this Part [November 25, 1991], provided that the groundwater is a present or a potential source of water for public or food processing;
 - B) Section 620.440(c) [35 Ill. Adm. Code 620.440(c)] for such area that was placed into operation prior to February 1, 1983, and has remained in continuous operation since that date; or
 - C) Subpart D [35 Ill. Adm. Code 620.410] for such area that is placed into operation on or after the effective date of this Part [November 25, 1991].

- 5) For a refuse disposal area (not contained within the area from which overburden has been removed) that was placed into operation prior to February 1, 1983, and is modified after that date to include additional area, this Section applies to the area that meets the requirements of subsection (b)(4)(C) and the following applies to the additional area:
- A) 35 Ill. Adm. Code 302. Subparts B and C, except due to natural causes, for additional refuse disposal area that was placed into operation after February 1, 1983, and before the effective date of this Part [November 25, 1991], provided that the groundwater is a present or a potential source of water for public or food processing; and
 - B) Subpart D [35 Ill. Adm. Code 620.410] for such additional area that was placed into operation on or after the effective date of this Part [November 25, 1991].

15. Upon information and belief, dates of modification, the monitoring wells within the outermost edge, and the applicable groundwater quality standards for each refuse disposal area at Eagle No. 2 are listed below.

<u>Disposal Area Number</u>	<u>Permits/Authorizations Permit Modifications</u>	<u>Applicable Regulation*</u>
Slurry No. 1A	Slurry No 1 was placed into operation prior to 2/1/83. This disposal area was modified to include additional area through vertical and lateral expansion after 11-25-91 and designated Slurry 1A. Slurry 1A was placed into operation after 11-25-91. Subtitle D Permit No. 1992-MD-6977 was issued on 8-24-92.	35 Ill. Adm. Code 620.410 pursuant to 35 Ill. Adm. Code 620.450(b)(5)(B)

Monitoring wells within outermost edge of Slurry 1A: GW-9

Slurry No. 2	Subtitle D Permit No. 1972-MD-1618-OP5 was issued on 6-8-78. Slurry No. 2 was placed into operation prior to	35 Ill. Adm. Code 620.440(c) pursuant to 35 Ill. Adm. Code 620.450(b)(4)(B)
--------------	--	---

2-1-83.

Slurry No. 3
(Refuse No.3)

Proposed Supplemental Construction Authorization was granted on 10-23-84. NPDES Permit No. IL0044661 was issued on 7-28-88. Slurry No. 3 was placed into operation after 2-1-83 and before 11-25-91.

35 Ill. Adm. Code 302, Subpart C Section 302.304 pursuant to 35 Ill. Adm. Code 620.450(b)(4)(A). Groundwater within the outermost edge of Slurry No. 3 is a potential source of water for public or food processing use.

Monitoring wells within outermost edge of Slurry No. 3: GW-4, GW-6, MW-17

Slurry No. 5

The predecessor to Slurry No. 5, the West Refuse Area was placed into operation prior to 2-1-83 and was modified to include additional area through vertical expansion after 2-1-83 and before 11-25-91. Slurry No. 5 Proposed Supplemental Construction Authorization was granted 2-27-87. Slurry No. 5 NPDES Permit No. IL0044661 was issued on 7-28-88. Slurry No. 5 was placed into operation after 2-1-83 and before 11-25-91.

35 Ill. Adm. Code 302, Subpart C Section 302.304 pursuant to 35 Ill. Adm. Code 620.450(b)(4)(A). Groundwater within the outermost edge of Slurry No. 5 is a potential source of water for public or food processing use.

Monitoring wells within outermost edge of Slurry No. 5:
GW-11, MW-14, MW-18, MW-23, MW-24 & MW-25

South 40
Refuse Area

Subtitle D Permit No. 1972-MD-1618-OP-4 was issued on 10-17-77. The South 40 Refuse Area was placed into operation prior to 2-1-83.

35 Ill. Adm. Code 620.440(c) pursuant to 35 Ill. Adm. Code 620.450(b)(4)(B).

Groundwater Not Located in ,
Outermost Edge
of Refuse
Disposal Area

This groundwater lies outside of the compliance points for coal mine refuse disposal areas.

Class I:Potable Resource Groundwater pursuant to 35 Ill. Adm. Code 620.210(a)(4) subject to 35 Ill. Adm. Code 620.410 Class I standards.

and Extending
Off Site

Monitoring wells which are not located within the outermost edge of the coal refuse disposal areas:

GW-13, GW-14, GW-15, GW-16, GW-17, GW-18, GW-19, GW-20,
GW-26, MW-1, MW-2, MW-3, MW-4, MW-7, MW-9, MW-10, MW-19, & MW-21

*Compliance Point

Pursuant to 35 Ill. Adm. Code 620.505(a)(3) compliance with the standards for groundwater that underlies a coal mine refuse disposal area is to be determined at the outer most edge as specified in 35 Ill. Adm. Code 620.240(f)(1) or the location of monitoring wells in existence as of November 25, 1991.

16. Section 302.304 of the Board's Subtitle C: Water Pollution regulations, 35 Ill.

Adm. Code 302.304 (1996), provide, in pertinent part, as follows:

The following levels of chemical constituents shall not be exceeded:

<u>CONCENTRATION CONSTITUENT</u>	<u>STORET NUMBER</u>	<u>(mg/l)</u>
Chloride	00940	250.
Iron (dissolved)	01046	0.3
Manganese (total)	01055	0.15
Sulfates	00945	250.
Total Dissolved Solids	70300	500.

17. Section 620.201(a) of the Board's GQS, 35 Ill. Adm. Code 620.201(a) (1996), establishes four classes of groundwater. Section 620.201(a)(1) of the Board's GQS, 35 Ill. Adm. Code 620.201 (1996), provides for Class I: Potable Resource Groundwater. Section 620.210 of the Board's GQS, 35 Ill. Adm. Code 620.210 (1996), provides in pertinent part:

Section 620.210 Class I: Potable Resource Groundwater

Except as provided in Sections 620.230, 620.240, or 620.250, Potable Resource Groundwater is:

a) Groundwater located 10 feet or more below the land surface and within:

2) Unconsolidated sand, gravel or sand and gravel which is 5 feet or more in

thickness and that contains 12 percent or less of fines (i.e. fines which pass through a No. 200 sieve tested according to ASTM Standard Practice D2488-84, incorporated by reference at Section 620.125);

* * *

- 4) Any geologic material which is capable of a:
 - A) Sustained groundwater yield, from up to a 12 inch borehole, of 150 gallons per day or more from a thickness of 15 feet or less; or
 - B) Hydraulic conductivity of 1×10^{-4} cm/sec or greater using one of the following test methods or its equivalent:
 - i) Permeameter;
 - ii) Slug test; or
 - iii) Pump test.

18. The groundwater not located within the outermost edge of the coal refuse disposal areas at Eagle No. 2 and extending off-site to areas including the SVCD well fields is a Class I, Potable Resource Groundwater as that term is defined in Section 620.210 of the Board's GQS, 35 Ill. Adm. Code 620.210 (1996), and is subject to the Class I, Potable Resource Groundwater Quality Standards of Section 620.410(a) of the Board's GQS, 35 Ill. Adm. Code 620.410(a) (1996).

19. Section 620.410(a) of the Board's GQS, 35 Ill. Adm. Code 620.410 (1996), in pertinent part, provides Class I: Inorganic Chemical Constituents, as follows:

Groundwater Quality Standards for Class I: Potable Resource Groundwater

a) Inorganic Chemical Constituents (Pertinent Parts)

Except due to natural causes or as provided in Section 620.450, concentrations of the following chemical constituents must not be exceeded in Class I groundwater:

<u>CONSTITUENT</u>	<u>UNITS</u>	<u>STANDARD</u>
Chloride	mg/l	200.
Iron (dissolved)	mg/l	5
Manganese (total)	mg/l	0.15
Sulfate	mg/l	400.
Total Dissolved Solids	mg/l	1200.

20. The following sampling results from the monitoring wells at Eagle No. 2 referenced in paragraph 15 indicate exceedences of groundwater quality and water quality standards:

GROUNDWATER and WATER QUALITY SAMPLE RESULTS AT EAGLE NO. 2

All Results and Applicable Standards are Milligrams Per Liter ("mg/l")

GW-4, which is located in the northwest quadrant of Refuse no. 3, was drilled on 11/08/94, penetrates coarse refuse to a 24.5 foot depth. GW-4 has a depth of 37 feet and is screened from 32 to 37 feet. GW-4 was last sampled on 06/22/95. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
01/10/95			1330	516	
01/24/95			1405	593	
02/08/95			1595	572	
02/21/95			1475	533	
03/07/95			1380	551	
03/23/95			1295	532	
04/04/95			1295	490	
04/18/95			1340	468	
05/03/95			1360	513	
05/16/95			1340	525	
06/22/95			1345	427	

GW-6 is located within the southwest quadrant of Refuse no. 3, was drilled on 11/08/94, penetrates coarse refuse to 34 feet. GW-6 has a depth of 42 feet and is screened from 37 to 42 feet. GW-6 was last sampled on 06/22/95. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
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Applicable Standards 35 Ill. Adm. Code 302.304	250	0.15	500	250	0.3*
01/10/95	1004.4		7830	3950	
01/24/95	476.5		7445	3358	
02/08/95	421.4		7395	3661	
04/04/95	387.7		6950	4082	
04/18/95	205.9		6400	3703	
05/03/95	251.4		6160	3263	
05/16/95	303.3		6415	3613	
06/22/95	292.7		5885	2747	

GW-9 is located within the inside toe of the Slurry no. 1A east berm, was drilled on 11/07/94, penetrates coarse refuse to 39 feet, has a depth of 55 feet, and is screened from 47.5 to 52.5 feet deep. GW-9 was last sampled on 06/22/95. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards 35 Ill. Adm. Code 620.410(a)	200	0.15	1200	400	5.0
01/10/95			3340	1916	
01/24/95			3270	1403	
02/08/95			3430	1825	
02/21/95			3615	2022	
03/07/95			3485	1902	
03/23/95			3130	1905	
04/04/95			3160	1905	
04/18/95			3240	1763	
05/03/95			2930	1631	
05/16/95			2835	1555	
06/22/95			2845	1295	

GW-11 is located approximately within the Slurry no. 5 east berm, was drilled on 11/07/94, penetrates coarse refuse from surface to 14 feet, coal slurry from 14 to 28 feet, and coarse refuse from 28 to feet deep to 53, has a depth of 60 feet, and is screened from 53 to 58 feet deep. GW-11 was last sampled on 06/22/95. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
01/10/95			1820	884	
01/24/95			2755	1209	
02/08/95			2345	1120	
02/21/95			3110	1452	
03/07/95			2905	1119	
03/23/95			3200	1735	
04/04/95			3005	1610	
04/18/95			2750	1573	
05/03/95			3805	2076	
05/16/95			3755	2017	
06/22/95			3710	1147	

GW-15 is located approximately 200 feet west of the Refuse no. 3 west berm, was drilled on 11/17/94, has a depth of 51.5 feet, and is screened from 44.3 to 49.3 feet. GW-15 was last sampled on 03/23/95. Peabody has plugged and abandoned this monitoring well before the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill Adm Code 620.410(a)</small>	200	0.15	1200	400	5.0
01/10/95			1525	711	
01/24/95			1480	683	
02/08/95			1635	680	

02/21/95			1715	726	
03/07/95			1650	717	
03/23/95			1485	716	

GW-16 is located approximately 200 feet northeast of the Slurry no.1-A north berm, was drilled on 11/17/94, has a depth of 20.5 feet, and is screened from 14.8 to 19.8 feet deep. GW-16 was last sampled on 03/23/95. Peabody has plugged and abandoned this monitoring well before the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0
02/21/95			1235	467	
03/07/95			1270	489	
03/23/95			1225	532	

GW-17 is located approximately 400 feet north of the Slurry no. 1-A north berm, was drilled on 11/18/94, has a depth of 51.5 feet, and is screened from 44.8 to 49.8 feet deep. GW-17 was last sampled on 03/23/95. Peabody has plugged and abandoned this monitoring well before the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0
02/21/95			1250	437	
03/07/95				405	
03/23/95				405	

GW-18 is located approximately 700 feet north of the Slurry no. 5 berm, was drilled on 11/18/94, has a depth of 50 feet, and is screened from 45 to 50 feet. GW-18 was last sampled on 03/23/95. Peabody has plugged and abandoned this monitoring well before the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0

01/10/95			1340	559	
01/24/95			1375	613	
02/08/95			1685	673	
02/21/95			1550	615	
03/07/95			1540	627	
03/23/95			1430	635	

MW-2 is approximately 47 feet outside of the northwest corner of the Slurry no. 2 berm, was drilled on 03/10/87, has a depth of 50 feet, and is screened from 40 to 50 feet deep. MW-2 was last sampled on 11/22/96. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0
06/22/95		0.61			
07/20/95		0.88		644	
09/19/95		0.68			
10/17/95		0.60			
11/14/95		0.54			
01/16/96		0.31			
04/18/96		0.48			
07/31/96		0.83			
10/16/96		0.86			

MW-7 is located within the northeast corner of the Slurry no. 1A berm, was drilled on 03/16/87, penetrates coarse refuse to 25 feet, has a depth of 50 feet, and is screened from 40 to 50 feet deep. MW-7 is located over 15 feet vertically from the Slurry No. 1A impoundment. MW-7 was last sampled on 10/16/96. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
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Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0
07/31/96				437	
10/16/96				423	

MW-9 is located 50 feet from the northwest corner of the Slurry no. 1A berm, was drilled on 06/13/80, has a depth of 132 feet, and is screened from 119 to 131 feet deep. Figure 3-5A of Cross Section B of the Plans and Specifications of the PCC Site Characterization Report and the Corrective Action Plan locates MW-9 beyond the 302.304 compliance point from Slurry no. 1A. MW-9 was last sampled on 11/09/99. Peabody continues to sample this monitoring well quarterly.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0
01/10/95		0.47	1750	812	
01/24/95		0.44	1660	717	
02/08/95		0.45	2110	738	
02/21/95		0.43	1760	770	
03/07/95		0.45	1815	745	
03/23/95		0.42	1728	821	
04/04/95		0.35	1700	809	
04/18/95		0.49	1820	839	
05/03/95		0.41	2085	713	
05/16/95		0.27		483	
06/22/95		0.46	1755	642	
07/20/95		0.54	1855	849	
08/18/95			1950	865	
09/19/95		0.56	1915	865	
10/17/95	249	0.55	1905	819	
11/14/95		0.58	1860	946	

12/12/95		0.53	1865	861	
01/16/96		0.50	1815	606	
04/18/96		0.47	1765	820	
07/31/96		0.53	1935	771	
10/16/96		-0.56	1845	861	
05/21/97		0.45	1835	819	
07/31/97		0.58	1855	875	

MW-14 is located 14 feet from the Slurry no. 5 west berm, was drilled on 09/13/84, has a depth of 100 feet, and is screened from 60 to 100 feet deep. MW-14 was last sampled on 11/09/99. Peabody continues to sample this monitoring well quarterly.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
01/10/95		0.33	1685	768	
01/24/95		0.36	1570	683	
02/08/95		0.30	1460	594	
02/21/95		0.31	1595	674	
03/07/95		0.27	1540	599	
03/23/95		0.18	1232	514	
04/04/95		0.16	1215	484	
04/18/95		0.19	1180	432	
05/03/95		0.21	1265	339	
05/16/95		0.19	990	371	
06/22/95		0.21	1025	354	
07/20/95		0.22	910	288	
08/18/95			1045	373	
09/19/95		0.20	945	316	
10/17/95		0.20	975	331	
11/14/95		0.21	1055	383	

12/12/95		0.19	1180	432	
01/16/96		0.18	1210	572	
04/18/96		0.19	1215	493	
07/31/96		0.27	1030	393	
10/16/96		0.31	1575	734	
05/01/97		.27			19.30
07/31/97		1.15		539	17.50

MW-17 is located approximately 21 feet west of the Refuse no. 3 west berm, was drilled on 01/25/85, has a depth of 50 feet, and is screened from 20 to 50 feet. MW-17 was last sampled on 11/09/99. Peabody continues to sample this monitoring well quarterly.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
05/16/95		0.35			
07/20/95		0.43			
09/19/95		0.68			
10/17/95		0.34			
11/14/95		0.29			
07/31/96		0.63			
10/16/96		0.72			
07/31/97		0.36			

MW-18 is located approximately 17 feet west of the central part of Slurry no. 5 berm, was drilled on 01/30/85, has a depth of 50 feet, and is screened from 20 to 50 feet deep. MW-18 was last sampled on 11/09/99. Peabody continues to sample this monitoring well quarterly.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
02/09/95		1.90	2060	981	

05/16/95		2.30	2470	1239	
08/04/95		2.30	2205	1110	
11/28/95		1.18	1730	970	
02/07/96		1.04	1656	906	
05/14/96		0.92	1250	591	
08/20/96		1.06	1405	847	
11/19/96		1.04	1400	646	
05/01/97		0.74	1240	611	
07/31/97		1.07		608	

MW-19 is on the west side of the Slurry no. 5 west berm, was drilled on 09/06/86, has a depth of 135 feet, and is screened from 80 to 135 feet. MW-19 was last sampled on 08/24/99. The well is to be redrilled as MW-19R, and sampled after completion.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards	200	0.15	1200	400	5.0
<small>35 Ill. Adm. Code 620.410(a)</small>					
01/10/95		0.59	1925	884	
01/24/95		0.56	1880	863	
02/08/95		0.56	1985	839	
02/21/95		0.55	2000	904	
03/07/95		0.58	1995	863	
03/23/95		0.51	1876	934	
04/04/95		0.29	1800	922	
04/18/95		0.58	1924	883	
05/03/95		0.54	2345	847	
05/16/95		0.50	1875	882	
06/22/95		0.55	1880	719	
07/20/95		0.59	1920	849	
08/18/95			1960	942	

09/19/95		0.61	1945	928	
10/17/95		0.62	1985	882	
11/14/95		0.63	1925	1014	
12/12/95		0.62	2040	969	
01/16/96		0.59	1950	990	
04/18/96		0.59	1970	991	
07/31/96		0.64	2080	961	
10/16/96		0.68	2100	1029	
05/01/97		0.62	2010	959	9.90
07/31/97		0.66	1940	952	10.50

MW-21 is located greater than 50 feet west of the South 40 refuse area (within the south borrow area), was drilled on 9/14/92, has a depth of 136 feet and is screened from 111 to 136 feet deep. MW-21 was last sampled on 11/09/99. Peabody continues to sample this monitoring well quarterly.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards	200	0.15	1200	400	5.0
<small>35 Ill. Adm. Code 620.410(a)</small>					
01/10/95		0.29			
01/24/95		0.28		405	
02/09/95		0.28			
02/21/95		0.27		404	
03/07/95		0.29			
03/23/95		0.25		410	
04/04/95		0.19			
04/18/95		0.30			
05/03/95		0.27	1310		
05/16/95		0.25			
06/22/95		0.27			
07/20/95		0.27			

09/19/95		0.29			
10/17/95		0.27			
11/14/95		0.28		410	
12/12/95		0.27			
01/16/96		0.26		424	
04/18/96		0.27		417	
07/31/96		0.26			
10/16/96		0.28			
05/01/97		0.26			
07/31/97		0.21			

MW-23 is located 15 feet from the southwest corner of the Slurry no. 5 west berm, was drilled on 09/13/92, has a depth of 50 feet, and is screened from 40 to 50 feet. MW-23 was last sampled on 11/19/96. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards	250	0.15	500	250	0.3*
<small>35 Ill. Adm. Code 302.304</small>					
02/09/95		0.75	1710	850	
05/16/95		0.79	1895	931	
08/04/95		0.85	2095	907	
11/28/95		0.89	2020	1027	
02/07/96		0.89	1932	965	
08/20/96		0.79	1915	956	
11/19/96		1.06	2260	1043	

MW-24 is located less than 6 feet from the Slurry no. 5 west berm, was drilled on 09/17/92, has a depth of 50 feet, and is screened from 40 to 50 feet. MW-24 was last sampled on 10/16/96. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
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Applicable Standards 35 Ill. Adm. Code 302.304	250	0.15	500	250	0.3*
01/10/95		0.20	890	265	
01/24/95		0.22	885	259	
02/08/95		0.21	845	271	
02/21/95		0.24	920	276	
03/07/95			950	271	
03/23/95			960	336	
04/04/95			975	358	
04/18/95			1064	398	
05/03/95		0.24	1285	360	
05/16/95		0.25	930	336	
06/22/95		0.33	935		
07/20/95		0.33	880	293	
08/18/95			915	291	
09/19/95		0.27	940	280	
10/17/95		0.33	1055	313	
11/14/95		0.16	1140	458	
12/12/95		0.36	1195	468	
01/16/96		0.58	1740	882	
04/18/96			1105	455	
07/31/96		0.46	965	330	
10/16/96		0.49	970	328	
<p>MW-25 is located less than 6 feet from the west toe of the Slurry no. 5 west berm, was drilled on 09/14/92, has a depth of 50 feet, and is screened from 40 to 50 feet deep. MW-25 was last sampled on 10/16/96. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.</p>					
Parameter	Chloride	Manganese	TDS	Sulfate	Iron

Applicable Standards 35 Ill. Adm. Code 302.304	250	0.15	500	250	0.3*
01/10/95		0.34	1540	675	
01/24/95		0.25	1450	586	
02/08/95		0.30	1045	428	
02/21/95		0.29	1555	644	
03/07/95		0.27	1490	620	
03/23/95		0.37	1704	805	
04/04/95		0.35	1665	756	
04/18/95		0.37	1568	676	
05/03/95		0.36	1825	629	
05/16/95		0.29	1355	588	
06/22/95		0.23	1355	486	
07/20/95		0.37	1440	596	
08/18/95			1620	745	
09/19/95		0.53	1785	734	
10/17/95		0.61	1725	771	
11/14/95		0.92	2055	1111	
12/12/95		0.93	2105	1035	
01/16/96		1.14	2355	1273	
04/18/96		1.38	2585	1434	
08/20/96		1.23	2355	1220	
10/16/96		1.18	2315	1340	

* The standard for iron is based on the dissolved concentration, for all other constituents the standard is based on total concentration.

21. Section 3.06 of the Act, 415 ILCS 5/3.06 (1998), provides:

"CONTAMINANT" is any solid, liquid, or gaseous matter, any odor, or any form of energy, from whatever source.

22. Section 3.33 of the Act, 415 ILCS 5/3.33 (1998), provides:

"RELEASE" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, but excludes (a) any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons; (b) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine; (c) release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under Section 170 of such Act; and (d) the normal application of fertilizer.

23. Section 3.55 of the Act, 415 ILCS 5/3.55 (1998), provides:

"WATER POLLUTION" is such alteration of the physical, thermal, chemical, biological or radioactive properties of any waters of the State, or such discharge of any contaminant into any waters of the State, as will or is likely to create a nuisance or render such waters harmful or detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate uses, or to livestock, wild animals, birds, fish, or other aquatic life.

24. Section 3.56 of the Act, 415 ILCS 5/3.56 (1998), provides:

"WATERS" means all accumulations of water, surface and underground, natural, and artificial, public and private, or parts thereof, which are wholly or partially within, flow through, or border upon this State.

25. Section 12(a) and (d) of the Act, 415 ILCS 5/12(a), (d) (1998), provide:

No person shall:

- a. Cause or threaten or allow the discharge of any contaminants into the environment in any State so as to cause or tend to cause water pollution in Illinois, either alone or in combination with matter from other sources, or so as to violate regulations or standards adopted by the Pollution Control Board under this Act.

- d. Deposit any contaminants upon the land in such place and manner so as to create a water pollution hazard.

26. The discharge or release of inorganic chemicals including chlorides, manganese, TDS, sulfates, and iron into the groundwater at Eagle No. 2 are "contaminants" as that term is

defined in Section 3.06 of the Act 415 ILCS 5/3.06 (1998).

27. The groundwater at Eagle No. 2 is a "water" of this State as that term is defined in Section 3.56 of the Act 415 ILCS 5/3.56 (1998).

28. By causing or allowing the discharge of chloride, manganese, TDS, sulfate and iron into the environment, the Respondent has caused or tended to cause water pollution, and has thereby violated Section 12(a) of the Act, 415 ILCS 5/12(a) (1998).

29. By causing or allowing the deposit of coal mine refuse and other related wastes upon the land so as to create water pollution hazard, the Respondent has violated Section 12(d) of the Act, 415 ILCS 5/12(d) (1998).

PRAYER FOR RELIEF

WHEREFORE, the Complainant, the People of the State of Illinois, respectfully request that the Board enter an order against the Respondent, Peabody Coal Company:

- A. Authorizing a hearing in this matter at which time the Respondent will be required to answer the allegations herein;
- B. Finding that Respondent has violated the Act and regulations as alleged herein;
- C. Ordering Respondent to cease and desist from any further violations of the Act and associated regulations;
- D. Assessing against Respondent a civil penalty of fifty thousand dollars (\$50,000) for each violation of the Act, and an additional penalty of ten thousand dollars (\$10,000) for each day during which each violation has continued thereafter.
- E. Ordering Respondent to post a sufficient performance bond or other security to assure the correction of the violations is completed within the time prescribed in the Board's order, pursuant to Section 33(b) of the Act, 415 ILCS 5/33(b) (1998).
- F. Awarding to Complainant its costs and reasonable attorney's fees; and

- G. Grant such other and further relief as the Board deems appropriate.

COUNT II

WATER POLLUTION VIOLATIONS

1. This Count is brought by the Attorney General on his own motion, pursuant to the terms and provisions of Section 42(d) and (e) of the Illinois Environmental Protection Act ("the Act"), 415 ILCS 5/42(d), (e)(1998).

2-14. Complainant re-alleges and incorporates by reference paragraphs 4 through 9 and 13 through 19 of Count I as paragraphs 2 through 14 of this Count II.

15. Prior to November 25, 1991, groundwater that was a present or potential source of water for public and food processing supply in the state of Illinois was regulated under Title 35: Subtitle C, the Board's Water Pollution Regulations as "underground waters". Section 303.203 of the Board's Water Pollution Regulations, 35 Ill. Adm. Code 303.203 (1982) and formerly Rule 207 of Chapter 3: Water Pollution Control Rules and Regulations (1977), provided:

The underground waters of Illinois which are a present or a potential source of water for public and food processing supply shall meet the general use and public and food processing water supply standards of Subparts B and C, Part 302, except due to natural causes.

16. Section 301.420 of the Board's Water Pollution Regulations, 35 Ill. Adm. Code 301.420 (1996) and formerly Rule 104 Definitions of Chapter 3: Water Pollution Control Rules and Regulations (1977), provides:

Underground Waters: Any waters of the State located beneath the surface of the earth.

17. Prior to November 25, 1991, groundwater at Respondent's Eagle No. 2 mine was subject to the water quality standards of the Board's Water Pollution Regulations, 35 Ill.

Adm. Code 302.304 (1990), and 35 Ill. Adm. Code 302.208 and 302.304 (1982) and formerly Rules 204(b) and 203(f) of Chapter 3: Water Pollution Control Rules and Regulations (1979).

18. On March 7, 1972, the Board adopted in Regulatory Proceeding, *In the Matter of Water Quality Standard Revisions R71-14, April 4, 1972*, new water quality standards for waters in Illinois as defined by the Illinois Environmental Protection Act. Rule 203 of Chapter 3: Water Pollution Control Rules and Regulations was adopted for General Standards and Rule 204 of Chapter 3 applied to Public and Food Processing Water Supply at the point of withdrawal for treatment and distribution. 1972 WL 8163, 6 (Ill. Pol. Control Bd.).

19. Rule 204(b) of Chapter 3: Water Pollution Control Rules and Regulations (1972), provided, in pertinent part::

Rule 204 Public and Food Processing Water Supply

The following levels of chemical constituents shall not be exceeded:

CONSTITUENT	STORET NUMBER	CONCENTRATION (mg/l)
Chlorides	01025	250
Iron (total)	01046	0.3
Manganese (total)	01055	0.05
Sulfates	00945	250
Total Dissolved Solids	00515	500

20. On April 26, 1979, the Board adopted revisions to the Rule 204(b) of Chapter 3 in Regulatory Proceeding, *In the Matter of: Amendments to the Water Pollution Regulations R76-1, May 10, 1979*. The amendments to Rule 204(b) deleted total iron, and the General Standard for total iron of Rule 203(f) became the water quality standard for all waters including waters for Public and Food Processing Water Supply at the point of withdrawal for treatment and distribution. Also, manganese was amended to 0.15 mg/l from 0.05 mg/l.

21. As amended, Rule 204(b) of Chapter 3: Water Pollution Control Rules and Regulations (1979) provided, in pertinent part:

Rule 204 Public and Food Processing Water Supply

The following levels of chemical constituents shall not be exceeded:

CONSTITUENT	STORET NUMBER	CONCENTRATION (mg/l)
Chloride	00940	250
Manganese (total)	01055	0.15
Sulphates	00945	250
Total Dissolved Solids	00515	500

22. Rule 203(f) of Chapter 3: Water Pollution Control Rules and Regulations (1979), provided, in pertinent part:

203 General Standards

The following levels of chemical constituents shall not be exceeded:

CONSTITUENT	STORET NUMBER	CONCENTRATION (mg/l)
Iron (total)	01045	1.0

Thus, from May 17, 1979 until July 9, 1990, the total iron standard for waters at the point of withdrawal was derived from Rule 203(f) of Chapter 3 and was 1.0 mg/l.

23. The Board codified the Water Quality Standards of Chapter 3 as Part 302, Subtitle C (35 Ill. Adm. Code 302) effective June 22, 1982 (6 Ill. Reg. 7818, effective June 22, 1982). Rule 204(b) was codified at 35 Ill. Adm. Code 302.304, and Rule 203(f) was codified at 35 Ill. Adm. Code 302.208.

24. On July 9, 1990, the Board adopted the dissolved iron standard of 0.3 mg/l for Public and Food Processing Water in Regulatory Proceeding, *In the Matter of: Proposed Amendments Title 35, Subtitle C (Toxic Control) R88-21, Docket B June 21, 1990.*

25. Effective July 9, 1990, Section 302.304 the Board's Water Pollution Regulations, 35 Ill. Adm. Code 302.304 (1996), provides, in pertinent part:

CONSTITUENT	STORET NUMBER	CONCENTRATION (mg/l)
Chloride	00940	250
Iron (dissolved)	01046	0.3
Manganese (total)	01055	0.15
Sulphates	00945	250

Total Dissolved Solids 00515 500

The above-referenced standards were in effect for groundwater for "underground waters" until the Board in Regulatory Proceeding, *In the Matter of: Groundwater Quality Standards: Amendments to 35 Ill. Adm. Code 303,616 and 620*, R89-14, Docket C, September 11, 1992 eliminated the point of withdrawal standards and established that the applicable groundwater quality standards of Section 620.410 were in effect for Class I groundwater.

26. Section 303.203 of the Board's Water Pollution Regulations, 35 Ill. Adm. Code 303.203 (1992), effective September 10, 1992, provides:

35 Ill. Adm. Code 302, Subparts B and C does not apply to underground waters, except as provided at 35 Ill. Adm. Code 620.450(b).

27. The following sampling results from the monitoring wells at Eagle No. 2 referenced in paragraph 10 indicate exceedences of groundwater quality and water quality standards:

GROUNDWATER and WATER QUALITY SAMPLE RESULTS AT EAGLE NO. 2

All Results and Applicable Standards are Milligrams Per Liter ("mg/l")

GW-4, which is located in the northwest quadrant of Refuse no. 3, was drilled on 11/08/94, penetrates coarse refuse to a 24.5 foot depth. GW-4 has a depth of 37 feet and is screened from 32 to 37 feet. GW-4 was last sampled on 06/22/95. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
12/13/94			1130	392	1.74
12/28/94			1295	558	3.22
01/10/95					2.43
01/24/95					2.61

02/08/95					3.27
02/21/95					2.31
03/07/95					1.26
03/23/95					1.45
04/04/95					2.62
05/03/95					1.65
05/16/95					1.86

GW-6 is located within the southwest quadrant of Refuse no. 3, was drilled on 11/08/94, penetrates coarse refuse to 34 feet. GW-6 has a depth of 42 feet and is screened from 37 to 42 feet. GW-6 was last sampled on 06/22/95. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
12/13/94	446.3		7645	4021	
12/28/94	509.5		7760	4031	
04/04/95					0.62

GW-9 is located within the inside toe of the Slurry no. 1A east berm, was drilled on 11/07/94, penetrates coarse refuse to 39 feet, has a depth of 55 feet, and is screened from 47.5 to 52.5 feet deep. GW-9 was last sampled on 06/22/95. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0
12/13/94			3380		
12/28/94			3230	1872	

GW-11 is located approximately within the Slurry no. 5 east berm, was drilled on 11/07/94, penetrates coarse refuse from surface to 14 feet, coal slurry from 14 to 28 feet, and coarse refuse from 28 to feet deep to 53, has a depth of 60 feet, and is screened from 53 to 58 feet deep. GW-11 was last sampled on 06/22/95. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
12/13/94			1260	639	1.60
12/28/94			1590	808	4.83
01/10/95					4.98
01/24/95					21.10
02/08/95					13.50
02/21/95					23.00
03/07/95					15.00
03/23/95					8.60
04/04/95					7.20
04/18/95					1.80
05/03/95					15.80
05/16/95					22.70
06/22/95					18.00

GW-15 is located approximately 200 feet west of the Refuse no. 3 west berm, was drilled on 11/17/94, has a depth of 51.5 feet, and is screened from 44.3 to 49.3 feet. GW-15 was last sampled on 03/23/95. Peabody has plugged and abandoned this monitoring well before the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0
12/13/94			1380		
12/28/94			1480	705	

GW-18 is located approximately 700 feet north of the Slurry no. 5 berm, was drilled on 11/18/94, has a depth of 50 feet, and is screened from 45 to 50 feet. GW-18 was last sampled on 03/23/95. Peabody has plugged and abandoned this monitoring well before the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
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Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0
12/14/94			1295	528	
12/28/94			1295	536	

MW-1 is located approximately 22 feet west of the Refuse no. 3 west berm, was drilled on 06/26/80, has a depth of 40 feet, and is screened from 10 to 40 feet. However, MW-1 was sampled previous to the operation of Refuse no. 3, and therefore would be located south of Slurry No. 2 when it operated from 1978 to 1985. MW-1 is located over 25 feet horizontally from the Slurry No. 2 impoundment toe. MW-1 was last sampled on 06/27/84. Peabody has plugged and abandoned this monitoring well before the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 203(f) & 204(b)</small>	250	0.15	500	250	1.0
07/24/80			976	333	
08/22/80		0.43	1057	416	
09/19/80		0.24	1042	372	
10/15/80		0.33	1108	302	
11/18/80			1041	325	
12/09/80		0.28	1128	385	
03/17/81		0.37	1190	330	
05/20/81		0.27	1100	420	
07/21/81		0.25	1096	430	
10/20/81		0.21	1106	398	
03/30/82		0.25	1028	404	
05/04/82		0.37	1040	423	
07/27/82		0.19	910	401	
12/16/82		0.19	1084	290	
03/18/83		0.17	915	340	
06/14/83		0.23	875	347	

09/30/83		0.18	805		
12/21/83		0.22	1165	299	
03/21/84		0.60	1116	283	
06/27/84		0.23	970	338	

MW-2 is approximately 47 feet outside of the northwest corner of the Slurry no. 2 berm, was drilled on 03/10/87, has a depth of 50 feet, and is screened from 40 to 50 feet deep. MW-2 was last sampled on 11/22/96. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 203(f) & 204(b)</small>	250	0.15	500	250	1.0
03/09/84		0.16			

MW-3 is approximately 1,000 feet outside of the northeast corner of the Slurry no. 2 berm, was drilled on 07/03/80, has a depth of 53 feet, and is screened from 20 to 50 feet deep. MW-3 was last sampled on 10/16/96. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 203(f) & 204(b)</small>	250	0.15	500	250	1.0
03/09/84					1.45
Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0
04/18/95					36.40
05/03/95					12.40
05/16/95					9.30
08/18/95					5.45
09/19/95					5.87
10/17/95					8.60

11/14/95					7.10
01/16/96					22.60
07/31/96					7.40
10/16/96					9.00

MW-4 is located approximately 200 feet west of the Slurry no. 5 west berm, was drilled on 07/07/80, has a depth of 50 feet, and is screened from 20 to 50 feet. MW-4 was last sampled on 8/29/94. Peabody has plugged and abandoned this monitoring well before the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 203(f) & 204(b)</small>	250	0.15	500	250	1.0
03/21/84		0.7	616		
04/27/84		0.63			
05/31/84		0.64			
06/27/84		0.7			
07/31/84		0.86	85	331	
08/29/84		0.59	45	274	

MW-9 is located 50 feet from the northwest corner of the Slurry no. 1A berm, was drilled on 06/13/80, has a depth of 132 feet, and is screened from 119 to 131 feet deep. Figure 3-5A of Cross Section B of the Plans and Specifications of the PCC Site Characterization Report and the Corrective Action Plan locates MW-9 beyond the 302.304 compliance point from Slurry no. 1A. MW-9 was last sampled on 03/15/2000. Peabody continues to sample this monitoring well quarterly.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 203(f) & 204(b)</small>	250	0.15	500	250	1.0
12/21/83			1325	478	
01/31/84			1230	503	
02/24/84				476	
03/21/84			1208	475	

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04/27/84			1235	495	
05/31/84			1240	466	
06/27/84			1260	480	
07/31/84			1210	480	
08/29/84			1235	475	
Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0
05/19/94		0.46	1800	855	
08/16/94		0.51	1870	876	
11/15/94		0.46	1685	797	
12/13/94		0.44	1660	797	
12/28/94		0.49	1690	778	
12/12/97		0.58	1815	764	
02/25/98		0.53	1615	742	
05/14/98		0.54	1720	776	
08/26/98		0.55	1750	797	
10/18/98		0.55	1635	752	
02/10/99		0.50	1530	658	
08/24/99		0.60	1635	736	
11/09/99		0.58	1615	711	
03/15/2000		0.44		630.9	
<p>MW-10 is located greater than 50 feet west of the South 40 refuse area (Southwest corner of the south borrow area), was drilled on 10/03/83, has a depth of 50 feet and is screened from 30 to 50 feet deep. MW-10 was last sampled on 11/09/99. Peabody continues to sample this monitoring well quarterly.</p>					
Parameter	Chloride	Manganese	TDS	Sulfate	Iron

Applicable Standards <small>35 Ill. Adm. Code 203(f) & 204(b)</small>	250	0.15	500	250	1.0
12/22/83		2.12			
01/31/84		1.09			
02/24/84		0.59			
03/21/84		0.36			
04/27/84		0.32			
07/31/84		0.16			
Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0
07/20/95		0.16			
09/19/95		0.43			
10/16/96		0.54			
02/25/98		0.16			
08/26/98		0.30			
08/24/99		0.18			
<p>MW-14 is located 14 feet from the Slurry no. 5 west berm, was drilled on 09/13/84, has a depth of 100 feet, and is screened from 60 to 100 feet deep. MW-14 was last sampled on 03/15/2000. Peabody continues to sample this monitoring well quarterly.</p>					
Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 203(f) & 204(b)</small>	250	0.15	500	250	1.0
04/26/89			670		
05/25/89			670		
06/26/89			740		
Parameter	Chloride	Manganese	TDS	Sulfate	Iron

Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
01/24/92			2220	1065	
02/25/92			2265	1108	
03/26/92			2310	1176	
04/23/92			2715	1232	
05/23/92			2835	1087	
06/23/92			2240	1090	
10/28/92			1952	991	
12/15/92			1910	912	
01/26/93			2100	970	
02/03/93			2160	1033	
03/23/93			2180	1116	
04/23/93			1945	972	
05/25/93			2108	921	
06/22/93			2515	931	
07/30/93			2108	977	
08/27/93			2004	917	
09/21/93		0.27	1924	922	
10/25/93			1836	835	
11/22/93			1990	878	
12/29/93		0.27	1605	685	
01/24/94			1880	850	
02/23/94			1865	829	
03/24/94		0.40	1795	874	
05/19/94		0.39	1715	775	
08/16/94		0.42	1730	739	
11/15/94		0.41	1690	784	

12/13/94		0.42	1760	832	
12/28/94		0.31	1585	734	
07/31/97			1180		
12/12/97		0.80	2305	997	
02/25/98		0.88	2245	1053	
05/14/98		0.85	2320	1037	
08/26/98		0.73	2345	994	
10/18/98		0.73	2260	1085	
02/10/99		0.85		1141	
04/14/99		0.91	2376	1124	
08/24/99		0.89	2295	1099	
11/09/99		0.82	2335	1115	
03/15/2000		0.50	1620.0	1011.51	

MW-17 is located approximately 21 feet west of the Refuse no. 3 west berm, was drilled on 01/25/85, has a depth of 50 feet, and is screened from 20 to 50 feet. MW-17 was last sampled on 03/15/2000. Peabody continues to sample this monitoring well quarterly.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	1.0
06/26/89			970		
Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
03/26/92			1295	511	
06/23/92			1350	273	
12/15/92			1305	556	
03/23/93			1630	692	
06/22/93			2105	642	

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09/14/93		0.68	1620	706	
12/29/93		0.20	1205	415	
03/24/94		0.33	1340	556	
05/19/94		0.97	1450	577	
08/16/94		0.45	785		
11/15/94		0.30	680		
02/09/95			790		
04/04/95			830		
04/18/95			888		
05/03/95			900		
06/22/95		0.62	680		
08/18/95			635		
12/12/95			620		
01/16/96			620		
03/18/96			615		
05/01/97			685		
05/14/98		0.30	540		
08/26/98		0.27			
10/18/98		0.27	540		
04/14/99		0.21	600		
08/24/99		0.75			
11/09/99		0.58			
03/15/2000		0.22	550		

MW-18 is located approximately 17 feet west of the central part of Slurry no. 5 berm, was drilled on 01/30/85, has a depth of 50 feet, and is screened from 20 to 50 feet deep. MW-18 was last sampled on 03/14/2000. Peabody continues to sample this monitoring well quarterly.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
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Applicable Standards <small>35 Ill. Adm. Code 203(f) & 204(b)</small>	250	0.15	500	250	1.0
04/26/89			1220	468	
05/25/89			1225	531	
06/26/89			1275	532	
Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
01/24/92			1485	710	
02/25/92			1635	776	
03/26/92			1680	859	
04/23/92			2160	859	
05/29/92			2165	839	
06/23/92			1835	794	1.15
10/28/92			1908	920	
12/15/92			2335	933	
01/26/93			1820	818	
02/03/93			1560	693	
03/23/93			1390	592	0.52
04/27/93			1400	645	
05/25/93			1476	631	
06/22/93			2310	833	
07/30/93			2068	971	
08/27/93			2020	929	
09/21/93		0.34	2004	956	
10/25/93			1492	630	
11/22/93			1740	712	

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12/29/93		0.37	1725	769	
01/24/94			2010	915	
02/23/94			2190	1004	
03/24/94		0.53	2210	1129	
05/19/94		0.49	1940	935	
08/16/94		0.56	2170	1029	
11/15/94		0.32	1350	582	
07/31/97			1135		
12/12/97		0.99	1875	845	
02/25/98		0.86	1580	796	
05/14/98		0.80	1435	744	
08/26/98		0.83	1544	771	
10/18/98		0.45	1795	930	
02/10/99		1.79	770	380	
04/14/99		4.79	1025	529	
08/24/99		0.68	1115	545	
11/09/99		0.59	1255	610	
03/14/2000		1.60	1620	1084.75	

MW-19 is on the west side of the Slurry no. 5 west berm, was drilled on 09/06/86, has a depth of 135 feet, and is screened from 80 to 135 feet. MW-19 is located over 15 feet vertically from the Slurry No. 5 impoundment. MW-19 was last sampled on 08/24/99. The well is to be redrilled as MW-19R, and sampled after completion.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0
03/23/94		0.50	1705	776	6.88
04/19/94			1715	787	
05/19/94		0.53	1795	868	6.10
08/16/94		0.56	1815	853	6.50

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11/15/94		0.57	1790	863	7.50
12/13/94		0.58	1895	900	7.40
12/28/94		0.57	1855	852	7.30
01/10/95					6.90
01/24/95					6.90
02/08/95					6.90
02/21/95					7.00
03/07/95					7.20
03/23/95					7.00
04/18/95					6.27
05/03/95					5.87
05/16/95					6.50
06/22/95					6.70
07/20/95					6.30
08/18/95					8.00
09/19/95					6.90
10/17/95					6.50
11/14/95					10.00
12/12/95					7.10
01/16/96					7.20
04/18/96					7.10
07/31/96					7.40
10/16/96					12.20
12/12/97		0.58	1915	782	7.57
02/25/98		0.61	1975	958	7.90
05/14/98		0.60	2045	985	9.20
08/26/98		0.68	2160	1027	18.40
10/18/98		0.62	2065	1074	12.80

02/10/99		0.69		1070	15.90
04/14/99		0.72	2212	1098	17.60
08/24/99		0.82	2290	1172	14.60
<p>MW-21 is located greater than 50 feet west of the South 40 refuse area (within the south borrow area), was drilled on 9/14/92, has a depth of 136 feet and is screened from 111 to 136 feet deep. MW-21R was last sampled on 03/15/2000. Peabody continues to sample this monitoring well quarterly.</p>					
Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 620.410(a)</small>	200	0.15	1200	400	5.0
01/26/93				404	
02/03/93				429	
03/23/93				445	
04/27/93				443	
05/25/93				419	
06/22/93			1455	438	
07/30/93				422	
09/14/93		0.25		407	
03/25/94		0.22			7.08
05/19/94		0.24			
08/16/94		0.25			
11/15/94		0.27			
12/13/94		0.28		425	
12/28/94		0.27		410	
02/25/98		0.28			
08/26/98		0.26			
10/18/98		0.28			
02/10/99		0.30			5.15
04/14/99		0.27			

08/24/99		0.32			
11/09/99		0.49			
03/15/2000		0.29		614.73	

MW-23 is located 15 feet from the southwest corner of the Slurry no. 5 west berm, was drilled on 09/13/92, has a depth of 50 feet, and is screened from 40 to 50 feet. MW-23 was last sampled on 11/19/96. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
01/22/93			940	433	
02/03/93			1060	507	
03/23/93			780	285	
04/27/93			1340	667	
05/25/93			1352	617	
06/24/93			1252	641	
07/30/93			1528	709	
10/05/93		0.22	1396	558	
11/22/93		0.43	1595	719	
01/24/94		0.67	2545	1234	
02/16/94		0.46		828	
03/04/94		0.43	1495	748	
04/19/94		0.63	2035	1010	
06/02/94		0.73	2020	1020	
08/16/94		0.71	1800	889	

MW-24 is located less than 6 feet from the Slurry no. 5 west berm, was drilled on 09/17/92, has a depth of 50 feet, and is screened from 40 to 50 feet. MW-24 was last sampled on 10/16/96. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.

Parameter	Chloride	Manganese	TDS	Sulfate	Iron
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Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
01/22/93			1875	901	
02/03/93			1870	841	
03/23/93			1655	764	
04/27/93			1580	723	
05/25/93			1624	678	
06/24/93			1192	552	
07/30/93			1440	598	
08/19/93			1248	472	
09/07/93			1264	512	
10/12/93		0.38	1048	384	
11/22/93		0.36	1085	348	
12/29/93		0.35	990	407	
01/24/94		0.35	990	355	
02/16/94		0.33	1235	314	
03/24/94		0.33	935	365	
04/19/94		0.30	850	341	
06/02/94		0.23	1025	287	
08/16/94		0.27	935	290	
12/13/94		0.26	895	313	
12/28/94		0.21	850	273	
<p>MW-25 is located less than 6 feet from the west toe of the Slurry no. 5 west berm, was drilled on 09/14/92, has a depth of 50 feet, and is screened from 40 to 50 feet deep. MW-25 was last sampled on 10/16/96. The monitoring well has not been abandoned as of the date of the filing of the amended complaint.</p>					
Parameter	Chloride	Manganese	TDS	Sulfate	Iron

Applicable Standards <small>35 Ill. Adm. Code 302.304</small>	250	0.15	500	250	0.3*
01/22/93			1190	500	
02/03/93			1180	470	
03/23/93			1165	472	
04/27/93			1195	546	
05/25/93			1304	543	
06/24/93			1840	895	
07/30/93			2028	931	
08/19/93			2140	1010	
09/07/93			2084	995	
10/12/93		0.57	1908	866	
11/22/93		0.39	1570	626	
12/29/93		0.44	1845	950	
01/24/94		0.46	2115	1006	
02/16/94		0.53	2200	1038	
03/24/94		0.67	2610	1370	
04/19/94		0.55	2240	972	
06/02/94		0.50	2260	1073	
08/16/94		0.74	2980	1510	
12/13/94		0.44	1690	797	
12/28/94		0.36	1555	668	

* The standard for iron is based on the dissolved concentration, for all other constituents the standard is based on total concentration.

28. Section 3.06 of the Act, 415 ILCS 5/3.06 (1998) and formerly Ill Rev. Stat. Ch 111 1/2 § 1003(d) (1980), provides:

"CONTAMINANT" is any solid, liquid, or gaseous matter, any odor, or any

form of energy, from whatever source.

29. Section 3.33 of the Act, 415 ILCS 5/3.33 (1998) and formerly Ill Rev. Stat. Ch 111 1/2 § 1003.33 (1987), provides:

"RELEASE" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, but excludes (a) any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons; (b) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine; (c) release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under Section 170 of such Act; and (d) the normal application of fertilizer.

30. Section 3.55 of the Act, 415 ILCS 5/3.55 (1998) and formerly Ill Rev. Stat. Ch 111 1/2 § 1003(hh) (1980), provides:

"WATER POLLUTION" is such alteration of the physical, thermal, chemical, biological or radioactive properties of any waters of the State, or such discharge of any contaminant into any waters of the State, as will or is likely to create a nuisance or render such waters harmful or detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate uses, or to livestock, wild animals, birds, fish, or other aquatic life.

31. Section 3.56 of the Act, 415 ILCS 5/3.56 (1998) and formerly Ill Rev. Stat. Ch 111 1/2 § 1003(ii) (1980), provided:

"WATERS" means all accumulations of water, surface and underground, natural, and artificial, public and private, or parts thereof, which are wholly or partially within, flow through, or border upon this State.

32. Section 12(a) and (d) of the Act, 415 ILCS 5/12(a), (d) (1998) and formerly Ill Rev. Stat. Ch 111 1/2 § 1012(a), (d) (1980), provides:

No person shall:

- a. Cause or threaten or allow the discharge of any contaminants into the environment in any State so as to cause or tend to cause water pollution in

Illinois, either alone or in combination with matter from other sources, or so as to violate regulations or standards adopted by the Pollution Control Board under this Act.

- d. Deposit any contaminants upon the land in such place and manner so as to create a water pollution hazard.

33. The discharge or release of inorganic chemicals including chlorides, manganese, TDS, sulfates, and iron into the groundwater at Eagle No. 2 are "contaminants" as that term is defined in Section 3.06 of the Act, 415 ILCS 5/3.06 (1998).

34. The groundwater at Eagle No. 2 is a "water" of this State as that term is defined in Section 3.56 of the Act, 415 ILCS 5/3.56 (1998).

35. By causing or allowing the discharge of chloride, manganese, TDS, sulfate and iron into the environment, as indicated by sampling results set forth in paragraph 27 of this count, the Respondent has caused or tended to cause water pollution, and has thereby violated Section 12(a) of the Act, 415 ILCS 5/12(a) (1998).

36. By causing or allowing the deposit of coal mine refuse and other related wastes upon the land and thereby creating a water pollution hazard, the Respondent has violated Section 12(d) of the Act, 415 ILCS 5/12(d) (1998).

PRAYER FOR RELIEF

WHEREFORE, the Complainant, the People of the State of Illinois, respectfully request that the Board enter an order against the Respondent, Peabody Coal Company:

- A. Authorizing a hearing in this matter at which time the Respondent will be required to answer the allegations herein;
- B. Finding that Respondent has violated the Act and regulations as alleged herein;
- C. Ordering Respondent to cease and desist from any further violations of the Act and associated regulations;

D. Assessing against Respondent a civil penalty of fifty thousand dollars (\$50,000) for each violation of the Act, and an additional penalty of ten thousand dollars (\$10,000) for each day during which each violation has continued thereafter.

E. Ordering Respondent to post a sufficient performance bond or other security to assure the correction of the violations is completed within the time prescribed in the Board's order, pursuant to Section 33(b) of the Act, 415 ILCS 5/33(b) (1998).

F. Awarding to Complainant its costs and reasonable attorney's fees; and

G. Grant such other and further relief as the Board deems appropriate.

COUNT III

VIOLATION OF GROUNDWATER QUALITY STANDARDS AND REGULATIONS

1. This Count is brought by the Attorney General on his own motion, pursuant to the terms and provisions of Section 42(d) and (e) of the Illinois Environmental Protection Act ("the Act"), 415 ILCS 5/42(d), (e)(1998).

2-14. Complainant re-alleges and incorporates by reference paragraphs 2 through 14 of Count II as paragraphs 2 through 14 of this Count III.

15. Complainant re-alleges and incorporates by reference paragraph 20 of Count I as paragraph 15 of this Count III.

16-28. Complainant re-alleges and incorporates by reference paragraphs 15 through 27 of Count II as paragraphs 16 through 28 of Count III.

29. Section 620.110 of the Board's Groundwater Quality Standards and Regulations, 35 Ill. Adm. Code 620.110 (1996), and Section 3.64 of the Act, 415 ILCS 5/3.64 (1998), provide the following definition:

"Groundwater" means underground water which occurs within the saturated zone and geologic materials where the fluid pressure in the pore space is equal to or greater than atmospheric pressure.

30. Section 620.301(a) of the Board's GQS, 35 Ill. Adm. Code 620.301(a) (1996), provides:

Section 620.301 General Prohibition Against Use Impairment of Resource Groundwater

- a) No person shall cause, threaten or allow the release of any contaminant to a resource groundwater such that:
 - 1) Treatment or additional treatment is necessary to continue an existing use or to assure a potential use of such groundwater; or
 - 2) An existing or potential use of such groundwater is precluded.

31. Section 620.405 of the Board's Groundwater Quality Standards, 35 Ill. Adm. Code 620.405 (1996), provides:

No person shall cause, threaten or allow the release of any contaminant to groundwater so as to cause a groundwater quality standard set forth in this Subpart [Subpart D] to be exceeded.

32-38. Complainant re-alleges and incorporates by reference paragraphs 28 through 34 of Count II as paragraphs 32 through 38 of Count III.

39. The water beneath Eagle No. 2 and extending off-site to areas including the SVCD well field is "underground waters" as that term is defined in Section 301.420 of the Board's Water Pollution Regulations, 35 Ill. Adm. Code 301.420 (1996) and formerly Rule 104 Definitions of Chapter 3: Water Pollution Control Rules and Regulations (1977).

40. Prior to November 25, 1991, by causing or allowing the discharge or release of inorganic chemicals to enter underground waters at the Eagle No. 2 mine, and causing the underground waters at the mine to exceed the water quality standards set forth in Section 302.304 of the Board's Water Pollution Regulations, 35 Ill. Adm. Code 302.304 (1990); 35 Ill. Adm. Code 302.208 and 302.304 (1982) and formerly Rules 204(b) and 203(f) of Chapter 3: Water Pollution Control Rules and Regulations (1979), the Respondent has violated Section 12(a) of the Act, 415 ILCS 5/12(a)(1998) and formerly Ill Rev. Stat. Ch 111 1/2 § 1012(a)

(1980), 35 Ill. Adm. Code 302.304 (1990), and 35 Ill. Adm. Code 302.208 and 302.304 (1982) and formerly Rules 204(b) and 203(f) of Chapter 3: Water Pollution Control Rules and Regulations (1979).

41. The water beneath Eagle No. 2 and extending off-site to areas including the SVCD well field is "groundwater" as that term is defined in Section 620.110 of the Board's groundwater quality standards, 35 Ill. Adm. Code 620.110 (1996), and in Section 3.64 of the Act, 415 ILCS 5/3.64 (1998).

42. By causing or allowing the release of inorganic chemicals to enter the groundwater, and by causing the groundwater within the outermost edge of the Eagle No. 2 coal refuse areas at the monitoring well locations as noted in paragraph 10 to exceed the groundwater quality standards for coal refuse disposal areas pursuant to Section 620.450(b)(4) and (b)(5) of Board's Groundwater Quality Standards, 35 Ill. Adm. Code 620.450(b)(4) and (b)(5) (1996), the Respondent has violated and continues to violate Section 12(a) of the Act, 415 ILCS 5/12(a)(1998), and 35 Ill. Adm. Code 302.304 (1996) or 35 Ill. Adm. Code 620.410(a)(1996).

43. By causing or allowing the release of inorganic chemicals to enter the groundwater, and by causing the groundwater not located within the outermost edge of the coal refuse disposal areas at Eagle No. 2 at the monitoring well locations noted in paragraph 10 to exceed the Class I: Potable Resource Groundwater standards, the Respondent has violated and continues to violate Section 12(a) of the Act, 415 ILCS 5/12(a) (1998), and 35 Ill. Adm. Code 620.410(a) (1996).

44. By causing or allowing the release of inorganic chemicals to enter the groundwater that may result in the necessity of treatment to continue an existing use or assure a potential use of the groundwater, the Respondent has violated and continues to violate

Section 12(a), 415 ILCS 5/12(a)(1998), and 35 Ill. Adm. Code 620.301 (1996).

45. By causing or allowing the release of inorganic chemicals to enter the groundwater so as to cause or allow the exceedence of the Board's groundwater quality standards, the Respondent has violated and continues to violate Section 12(a), 415 ILCS 5/12(a) (1998), and 35 Ill. Adm. Code 620.405 (1996).

PRAYER FOR RELIEF

WHEREFORE, the Complainant, the People of the State of Illinois, respectfully request that the Board enter an order against the Respondent, Peabody Coal Company:

- A. Authorizing a hearing in this matter at which time the Respondent will be required to answer the allegations herein;
- B. Finding that Respondent has violated the Act and regulations as alleged herein;
- C. Ordering Respondent to cease and desist from any further violations of the Act and associated regulations;
- D. Assessing against Respondent a civil penalty of fifty thousand dollars (\$50,000) for each violation of the Act, and an additional penalty of ten thousand dollars (\$10,000) for each day during which each violation has continued thereafter.
- E. Ordering Respondent to post a sufficient performance bond or other security to assure the correction of the violations is completed, within the time prescribed in the Board's order, pursuant to Section 33(b) of the Act, 415 ILCS 5/33(b) (1998).
- F. Awarding to Complainant its costs and reasonable attorney's fees; and

G. Grant such other and further relief as the Board deems appropriate.

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS,
ex rel. JAMES E. RYAN,
Attorney General of the
State of Illinois .

MATTHEW J. DUNN, Chief
Environmental Enforcement/Asbestos
Litigation Division

BY: _____
THOMAS DAVIS, Chief
Environmental Bureau
Assistant Attorney General

Of Counsel
JANE E. MCBRIDE
Assistant Attorney General
500 South Second Street
Springfield, Illinois 62706
217/782-9031

Dated: 9/11/02

Exhibit 5

FROM PAGE 36

TABLE 2-2
SUMMARY OF GROUND-WATER QUALITY
IN SALINE VALLEY AREA

Parameter	Maximum	Minimum	Average	Number of Samples
Township 8S 8E				
Cl	1250	10	421	8
SO ₄	6.4	0	2.67	3
Fe-total	7.7	0.5	1.86	8
TDS ⁽²⁾	3134	526	1341	8
Township 8S 9E				
Cl	870	3	32	46
SO ₄	52	0	12.67	26
Fe-total	11.0	0	3.5	46
Mn-total	0.324	0	0.088	32
TDS	1900	134	476	44
Township 9S 8E				
Cl	99	2	19	12
SO ₄	12	2.8	6.7	4
Fe-total	24.4	0.1	4.7	12
Mn-total	0.14	0.11	0.125	4
TDS	1103	103	476	12
Township 9S 9E				
Cl	415	1	13	58
SO ₄	58	0	21.39	51
Fe-total	10.4	0	23.3	54
Mn-total	0.61	0	0.13	49
TDS	1293	275	400	55

NORTH
WEST OF
MINE

NORTH
OF MINE

WEST
OF MINE

MINE
AREA

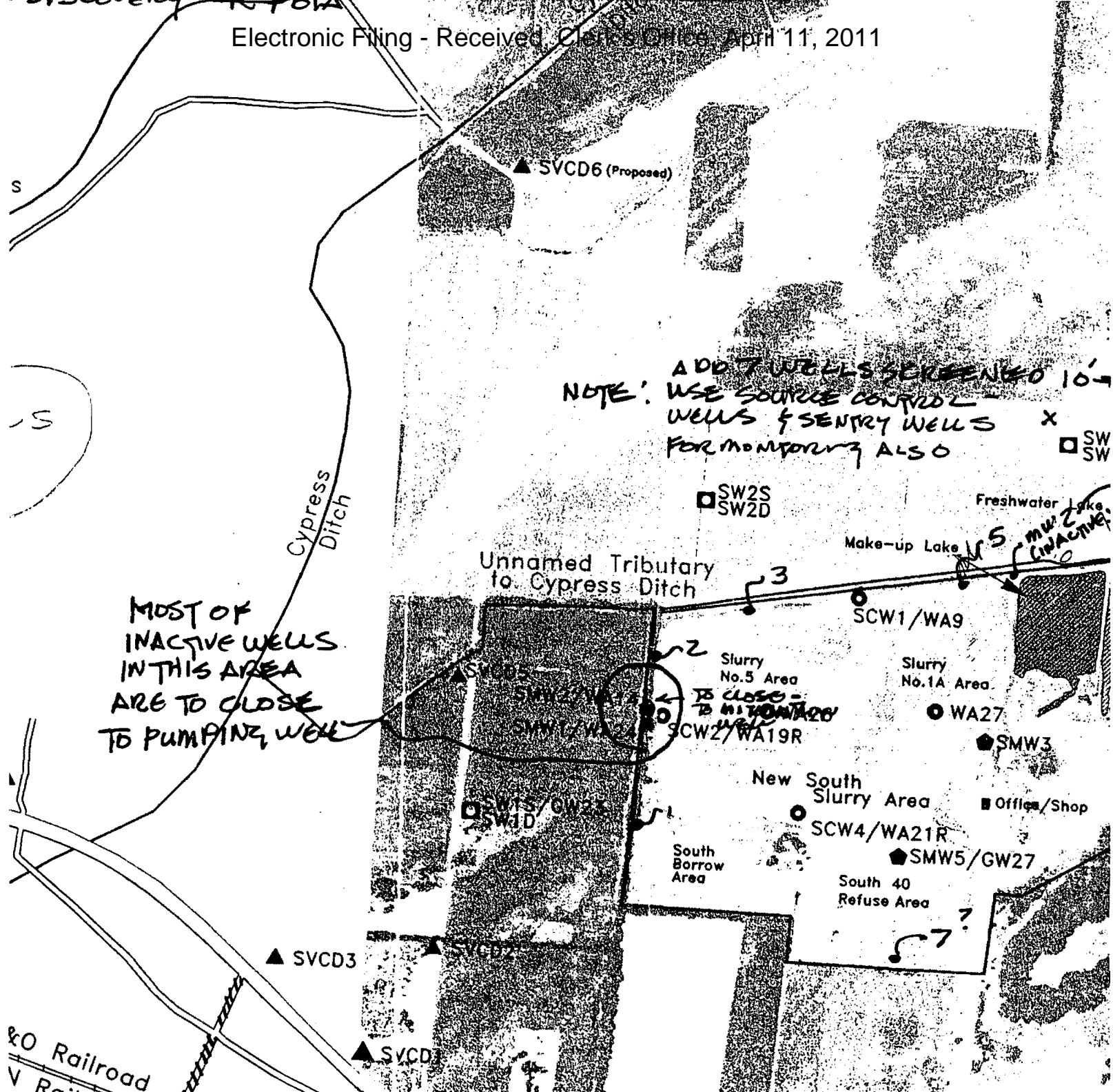
Parameter	Average
Regional Average	
Cl	47
SO ₄	17.32
Fe-total	12.42
Mn-total	0.114
TDS	487

Parameter	Average
Ox-Redox Potential ⁽³⁾	81
Alkalinity ⁽⁴⁾	358
pH	7.38
CO ₂ -dissolved	62
Hardness ⁽⁵⁾	294.3

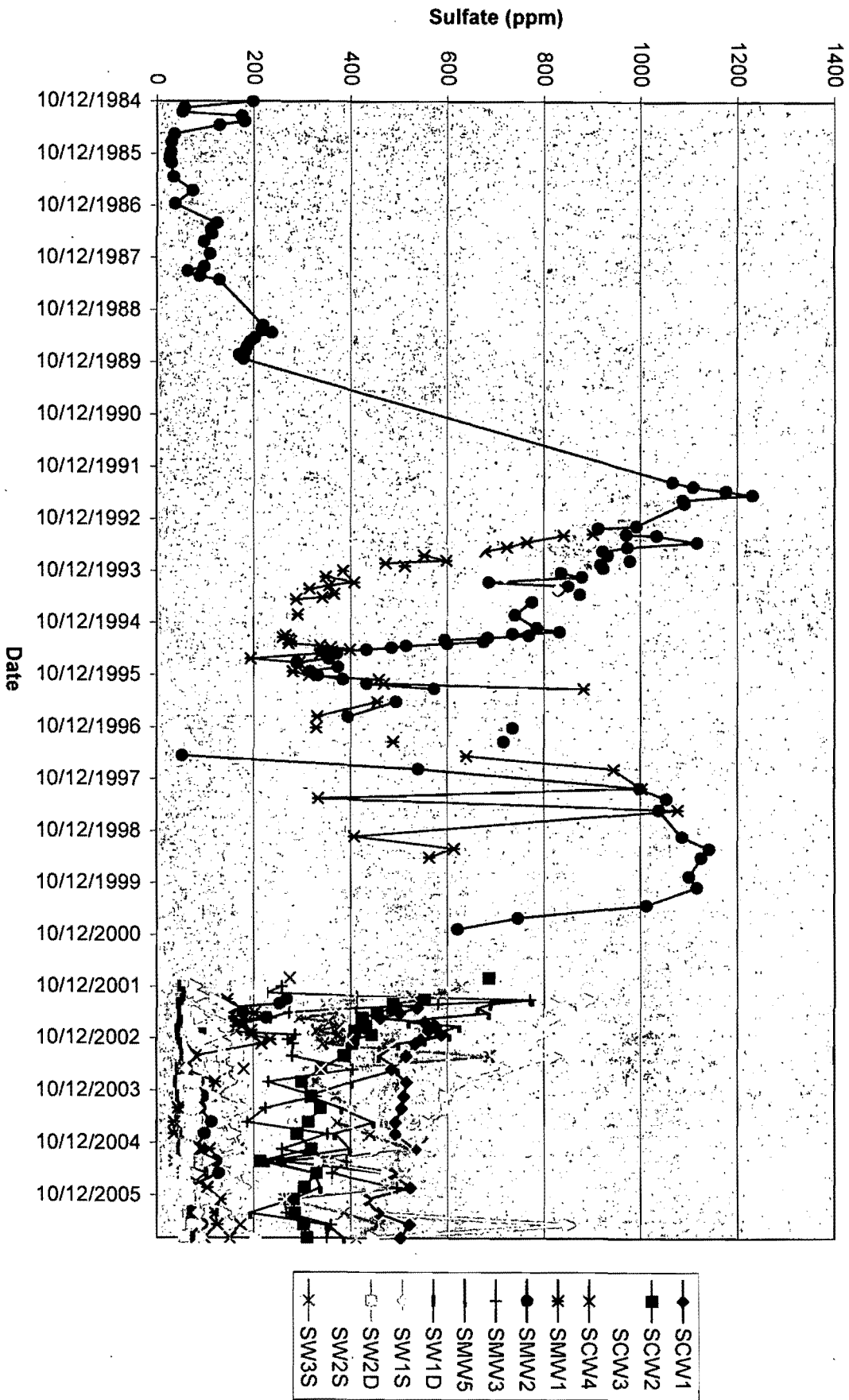
Notes: (1) All values in mg/l unless otherwise noted.
 (2) TDS - Total Dissolved Solids; Cl - Chloride; SO₄ - Sulfate; Fe - Iron; Mn - Manganese.
 (3) Ox-Redox Potential in millivolts.
 (4) Alkalinity in mg/l as CO₃.
 (5) Hardness in mg/l as CaCO₃.
 Values compiled from Illinois State Water Survey data base (1938-1992).

TOWNSHIPS LOCATED PLUS
ON TOPOGRAPHIC MAPS
2610, 27+1, 2610C,
& 275E

Exhibit 6



HCC/PCC Quarterly Monitoring Data
 see well 0090SW1S 11/19/1996



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Well	Date	Tds	SO4	Fe	Mn	Cl
0090SCW1	1/15/2002	1220	544.64	0.02	0.45	57.78
0090SCW1	2/13/2002	1200	486.64	0.02	0.43	58.85
0090SCW1	3/14/2002	1220	538.26	0.06	0.48	63.81
0090SCW1	4/16/2002	1250	501.93	0.05	0.48	58.32
0090SCW1	5/22/2002	1180	462.07	0.05	0.47	58.96
0090SCW1	6/19/2002	1350	553.3	0.02	0.5	67.71
0090SCW1	7/18/2002	1450	576.93	0.06	0.57	70.26
0090SCW1	8/19/2002	1370	560.63	0.05	0.53	72.67
0090SCW1	9/18/2002	1320	587.79	0.03	0.55	66.36
0090SCW1	10/22/2002	1303	544.52	0.05	0.54	63.92
0090SCW1	11/19/2002	1227	533.46	0.04	0.56	62.32
0090SCW1	2/12/2003	1240	514.6	0.05	0.53	59.67
0090SCW1	5/13/2003	1270	484.7	0.02	0.36	55.79
0090SCW1	8/12/2003	1340	515.69	0.09	0.63	61.97
0090SCW1	11/20/2003	1280	509.79	0.05	0.54	59.67
0090SCW1	2/10/2004	1210	505.04	0.05	0.53	68.85
0090SCW1	5/18/2004	1210	492.36	0.1	0.64	57.78
0090SCW1	8/10/2004	1270	492.28	0.04	0.62	59.56
0090SCW1	11/22/2004	1220	533.02	0.05	0.61	60.09
0090SCW1	2/15/2005	1138	257.7	0.11	0.56	4.83
0090SCW1	5/11/2005	1360	484.8	0.02	0.6	54.59
0090SCW1	8/18/2005	1110	522.97	0.02	0.66	63.81
0090SCW1	11/10/2005	1160	432.1	0.07	0.61	52.25
0090SCW1	2/14/2006	1200	457	0.02	0.56	58.1
0090SCW1	5/9/2006	980	520.78	0.02	0.64	54.95
0090SCW1	8/9/2006	980	502.29	0.02	0.66	54.59
0090SCW2	8/10/2001	1420	685.01	4.9	0.52	66.2
0090SCW2	1/15/2002	1170	551.06	0.02	0.47	1.1
0090SCW2	2/13/2002	1170	486.12	0.17	0.42	51.76
0090SCW2	3/14/2002	1160	485.99	0.14	0.43	52.47
0090SCW2	4/16/2002	1140	454.71	0.51	0.45	45.2
0090SCW2	5/22/2002	1060	424.78	0.17	0.46	45.19
0090SCW2	6/19/2002	1110	423.2	0.33	0.43	43.6
0090SCW2	7/18/2002	1210	431.83	0.29	0.45	43.78
0090SCW2	8/19/2002	1070	408.3	0.04	0.44	44.67
0090SCW2	9/18/2002	1040	443.45	0.11	0.47	41.34
0090SCW2	10/22/2002	1034	405.23	0.15	0.45	39.4
0090SCW2	11/19/2002	980	402.36	0.42	0.48	39.02
0090SCW2	2/12/2003	962	384.95	0.86	0.43	35.31
0090SCW2	5/13/2003	940	338.53	0.14	0.29	31.78
0090SCW2	8/12/2003	960	298.07	0.31	0.43	32.13
0090SCW2	11/20/2003	920	317.26	1.1	0.4	33.54

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0090SCW2	2/10/2004	700	336.78	1.9	0.39	29.84
0090SCW2	5/18/2004	830	312.31	0.16	0.45	30.66
0090SCW2	8/10/2004	880	288.47	0.16	0.45	29.42
0090SCW2	11/22/2004	840	318.09	1.8	0.44	30.31
0090SCW2	2/15/2005	843	212.2	0.53	0.43	2.58
0090SCW2	5/11/2005	870	328.58	1.52	0.43	26.41
0090SCW2	8/18/2005	680	303.82	0.25	0.44	32.61
0090SCW2	11/10/2005	760	281	0.07	0.39	23.84
0090SCW2	2/14/2006	880	283.46	0.02	0.39	30.61
0090SCW2	5/9/2006	820	301.63	0.02	0.43	23.93
0090SCW2	8/9/2006	890	309.16	0.02	0.4	22.87
0090SCW3	1/15/2002	1670	895.08	0.1	0.15	95.49
0090SCW3	2/13/2002	1760	821	0.11	0.15	98.55
0090SCW3	3/14/2002	1740	851.31	0.14	0.16	98.55
0090SCW3	4/16/2002	1780	856.45	0.17	0.16	96.6
0090SCW3	5/22/2002	1690	820.26	0.19	0.19	93.57
0090SCW3	6/19/2002	1750	801.82	0.07	0.18	94.65
0090SCW3	7/18/2002	1800	800.35	0.2	0.17	90.04
0090SCW3	8/19/2002	1380	783.52	0.19	0.18	43.25
0090SCW3	9/18/2002	1610	790.45	0.07	0.17	86.85
0090SCW3	10/22/2002	1607	773.6	0.09	0.17	85.11
0090SCW3	11/19/2002	1602	775.79	0.13	0.18	83.33
0090SCW3	2/12/2003	1597	821.97	0.21	0.18	84.03
0090SCW3	5/13/2003	1570	721.4	0.09	0.12	81.92
0090SCW3	8/12/2003	1520	628.07	0.12	0.21	77.32
0090SCW3	11/20/2003	1410	596.85	0.18	0.17	70.97
0090SCW3	2/10/2004	1280	602.4	0.16	0.17	74.5
0090SCW3	5/18/2004	1290	557.02	0.08	0.2	70.9
0090SCW3	8/10/2004	1320	523.06	0.02	0.19	65.23
0090SCW3	11/22/2004	1210	453.67	0.13	0.19	64.52
0090SCW3	2/15/2005	1276	336.6	0.11	0.23	6.02
0090SCW3	5/11/2005	1220	476.54	0.06	0.2	56.19
0090SCW3	8/18/2005	960	443.83	0.13	0.19	56.9
0090SCW3	11/10/2005	1080	425.4	0.07	0.19	49.14
0090SCW3	2/14/2006	1120	444.79	0.2	0.19	57.94
0090SCW3	5/9/2006	1170	852.09	0.02	0.21	53.53
0090SCW3	8/8/2006	1130	446.49	0.02	0.2	49.98
0090SCW4	8/10/2001	780	273.34	1.4	0.2	22.7
0090SCW4	8/19/2002	920	163.18	0.07	0.17	17.28
0090SCW4	5/13/2003	620	178.44	0.05	0.1	13.95
0090SCW4	11/22/2004	590	167.31	0.2	0.2	15.6
0090SCW4	5/9/2006	510	171.76	0.02	0.19	12.23

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0090SCW4	8/9/2006	550	149.41	0.02	0.2	12.05
0090SMW1	1/22/1993	1875	901	2.92		75
0090SMW1	2/3/1993	1870	841	2.66		58
0090SMW1	3/23/1993	1655	764	3.25		61
0090SMW1	4/27/1993	1580	723	4.38		61
0090SMW1	5/25/1993	1624	678	3.68		67
0090SMW1	6/24/1993	1192	552	3.24		66
0090SMW1	7/30/1993	1440	598	4.05		82
0090SMW1	8/19/1993	1248	472	3.75		53
0090SMW1	9/7/1993	1264	512	3.43		57
0090SMW1	10/12/1993	1048	384	2.61	0.38	55
0090SMW1	11/22/1993	1085	348	2.63	0.36	45
0090SMW1	12/29/1993	990	407	2.51	0.35	51
0090SMW1	1/24/1994	990	355	2.41	0.35	48
0090SMW1	2/16/1994	1235	314	2.35	0.33	47
0090SMW1	3/24/1994	935	365	2.36	0.33	47
0090SMW1	4/19/1994	850	341	2.12	0.3	48
0090SMW1	5/2/1994	1025	287	1.78	0.23	43
0090SMW1	8/16/1994	935	290	1.61	0.27	42
0090SMW1	1/10/1995	890	265	0.27	0.2	43
0090SMW1	1/24/1995	885	259	0.98	0.22	45
0090SMW1	2/8/1995	845	271	1.9	0.21	44
0090SMW1	2/21/1995	920	276	0.84	0.24	44
0090SMW1	3/7/1995	950	271	2.08	0.13	43
0090SMW1	3/23/1995	960	336	1.3	0.11	48
0090SMW1	4/4/1995	975	358	1.51	0.07	48
0090SMW1	4/18/1995	1064	398	0.41	0.1	49
0090SMW1	5/3/1995	1285	360	0.85	0.24	46
0090SMW1	5/16/1995	930	336	1.8	0.25	46
0090SMW1	6/22/1995	935	193	4.26	0.33	45
0090SMW1	7/20/1995	880	293	4.05	0.33	44
0090SMW1	8/18/1995	915	291	5.87	2.82	44
0090SMW1	9/19/1995	940	280	2.3	0.27	38
0090SMW1	10/17/1995	1055	313	1.2	0.33	47
0090SMW1	11/14/1995	1140	458	1.84	0.16	54
0090SMW1	12/12/1995	1195	468	3.85	0.36	53
0090SMW1	1/16/1996	1740	882	4.91	0.58	6.2
0090SMW1	4/18/1996	1105	455	0.37	0.05	50
0090SMW1	7/31/1996	965	330	1.86	0.46	44
0090SMW1	10/16/1996	970	328	3.26	0.49	44
0090SMW1	1/22/1997	1170	487	3.18	0.52	48
0090SMW1	5/1/1997	1435	639	0.35	0.43	63
0090SMW1	7/31/1997	1925	944	10.6	0.69	107

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0090SMW1	12/12/1997	2165	1002	10.6	0.71	125
0090SMW1	2/25/1998	860	332	0.8	0.28	27
0090SMW1	5/14/1998	2240	1076	11.1	0.88	122
0090SMW1	11/18/1998	1145	407	1	0.5	42
0090SMW1	2/10/1999	1440	613	0.71	0.47	45
0090SMW1	4/14/1999	1370	562	0.54	0.35	75.2
0090SMW1	1/15/2002	440	144.23	0.1	0.11	14
0090SMW1	2/13/2002	450	123.99	0.07	0.12	14.71
0090SMW1	3/14/2002	400	110.98	0.03	0.1	13.12
0090SMW1	4/16/2002	600	202.07	0.13	0.14	22.16
0090SMW1	5/22/2002	510	149.87	0.07	0.13	20.66
0090SMW1	6/19/2002	550	170.21	0.02	0.12	21.45
0090SMW1	7/18/2002	560	174.53	0.21	0.12	19.24
0090SMW1	8/19/2002	620	194.17	0.36	0.15	24.99
0090SMW1	9/18/2002	560	194.13	0.02	0.14	22.06
0090SMW1	10/22/2002	671	234.08	0.38	0.15	26.97
0090SMW1	11/19/2002	619	215.35	0.17	0.16	24.01
0090SMW1	2/12/2003	359	79.9	0.02	0.11	9.89
0090SMW1	5/13/2003	380	58.42	0.02	0.06	7.59
0090SMW1	8/12/2003	370	119.73	0.1	0.18	10.95
0090SMW1	11/20/2003	390	110.83	0.35	0.11	10.95
0090SMW1	2/11/2004	330	43	0.09	0.1	7.24
0090SMW1	5/18/2004	320	35.28	0.02	0.09	8.33
0090SMW1	8/10/2004	360	35.12	0.02	0.12	9.04
0090SMW1	11/22/2004	470	107.87	0.02	0.15	10.64
0090SMW1	2/15/2005	375	36.4	0.14	0.15	1
0090SMW1	5/11/2005	440	53.43	0.02	0.16	9.22
0090SMW1	8/19/2005	470	103.92	0.02	0.16	14.36
0090SMW1	11/10/2005	540	130.7	0.07	0.14	9.63
0090SMW1	2/14/2006	650	120.36	0.02	0.16	13.91
0090SMW1	5/9/2006	580	124.05	0.02	0.14	9.75
0090SMW1	8/8/2006	580	96.88	0.02	0.13	10.81
0090SMW2	10/12/1984	630	197	2.33		12.3
0090SMW2	11/28/1984	410	56	0.23		6.1
0090SMW2	12/26/1984	332	52	0.21		5.3
0090SMW2	1/23/1985	545	174	1.2		11.1
0090SMW2	2/28/1985	525	180	0.8		10.4
0090SMW2	3/28/1985	505	128	0.89		8.9
0090SMW2	5/29/1985	345	35	1.42		4.7
0090SMW2	7/24/1985	245	29	2.57		4
0090SMW2	9/30/1985	295	28	1.7		3.6
0090SMW2	10/29/1985	240	25	1.36		3.3
0090SMW2	11/21/1985	220	25	0.53		3.2

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0090SMW2	12/17/1985	210	29	0.77	3.8	
0090SMW2	3/26/1986	225	33	0.34	3.1	
0090SMW2	6/30/1986	375	73	1.81	8.3	
0090SMW2	9/30/1986	295	36	0.27	3	
0090SMW2	12/23/1986					
0090SMW2	2/11/1987	485	123	1.38	10.8	
0090SMW2	3/25/1987	480	111	1.4	21.8	
0090SMW2	4/28/1987	435	113	1.67	12.5	
0090SMW2	6/23/1987	420	97	1.89	11.7	
0090SMW2	9/15/1987	440	109	2.32	11.7	
0090SMW2	12/16/1987	405	97	2.23	10.7	
0090SMW2	1/14/1988	450	63	1.44	7.3	
0090SMW2	2/18/1988	396	88	2.69	9.6	
0090SMW2	3/17/1988	500	128	2.29	15	
0090SMW2	1/27/1989	780	218		38	
0090SMW2	2/23/1989	755	215		36	
0090SMW2	3/21/1989	750	236	3.26	39	
0090SMW2	4/26/1989	670	201		35	
0090SMW2	5/25/1989	670	191		36	
0090SMW2	6/26/1989	740	185	2.97	35	
0090SMW2	7/27/1989	670	182		26	
0090SMW2	8/24/1989	695	169		29	
0090SMW2	9/20/1989	670	178	3.07	27	
0090SMW2	1/24/1992	2220	1065		87	
0090SMW2	2/25/1992	2265	1108		86	
0090SMW2	3/26/1992	2310	1176	0.22	93	
0090SMW2	4/23/1992	2715	1231		4.9	
0090SMW2	5/29/1992	2835	1087		93	
0090SMW2	6/23/1992	2240	1090	0.31	99	
0090SMW2	11/28/1992	1952	991		100	
0090SMW2	12/15/1992	1910	912	0.04	97	
0090SMW2	1/26/1993	2100	970		103	
0090SMW2	2/3/1993	2160	1033		16	
0090SMW2	3/23/1993	2180	1116	0.15	12	
0090SMW2	4/27/1993	1945	972		78	
0090SMW2	5/25/1993	2108	921		95	
0090SMW2	6/22/1993	2515	931	0.51	90	
0090SMW2	7/30/1993	2108	977	0.22	118	
0090SMW2	8/27/1993	2004	917		95	
0090SMW2	9/21/1993	1924	922	8.9	0.27	96
0090SMW2	10/25/1993	1836	835		91	
0090SMW2	11/22/1993	1990	878		90	
0090SMW2	12/29/1993	1605	685	11.6	0.27	75
0090SMW2	1/24/1994	1880	850		91	

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0090SMW2	2/23/1994	1865	829			92
0090SMW2	3/24/1994	1795	874	6.28	0.4	97
0090SMW2	5/19/1994	1715	775	8.4	0.39	82
0090SMW2	8/16/1994	1730	739	7.8	0.42	82
0090SMW2	11/15/1994	1690	784	9.1	0.41	170
0090SMW2	12/13/1994	1760	832	9.1	0.42	83
0090SMW2	12/28/1994	1585	734	12.6	0.31	75
0090SMW2	1/10/1995	1685	768	8.3	0.33	80
0090SMW2	1/24/1995	1570	683	14.2	0.36	74
0090SMW2	2/8/1995	1460	594	32.8	0.3	59
0090SMW2	2/21/1995	1595	674	23.9	0.31	59
0090SMW2	3/7/1995	1540	599	24.1	0.27	60
0090SMW2	3/23/1995	1232	514	13.1	0.18	58
0090SMW2	4/4/1995	1215	484	20.2	0.16	54
0090SMW2	4/18/1995	1180	432	11.5	0.19	46
0090SMW2	5/3/1995	1265	339	13.5	0.21	43
0090SMW2	5/16/1995	990	371	15.7	0.19	40
0090SMW2	6/22/1995	1025	354	12.7	0.21	45
0090SMW2	7/20/1995	910	288	12.1	0.22	43
0090SMW2	8/18/1995	1045	373	10.3	2.63	45
0090SMW2	9/19/1995	945	316	10.5	0.2	45
0090SMW2	10/17/1995	975	331	14.8	0.2	43
0090SMW2	11/14/1995	1055	383	9.5	0.21	43
0090SMW2	12/12/1995	1180	432	8.5	0.19	43
0090SMW2	1/16/1996	1210	572	9.5	0.18	38
0090SMW2	4/18/1996	1215	493	14.1	0.19	58
0090SMW2	7/31/1996	1030	393	9.9	0.27	49
0090SMW2	10/16/1996	1575	734	10.3	0.31	60
0090SMW2	1/22/1997	1590	715	10.6	0.35	65
0090SMW2	5/1/1997	240	52	19.3	0.27	15
0090SMW2	7/31/1997	1180	539	17.5	1.15	48
0090SMW2	12/12/1997	2305	997	8.06	0.8	141
0090SMW2	2/25/1998	2245	1053	17.4	0.88	158
0090SMW2	5/14/1998	2320	1037	18.6	0.85	156
0090SMW2	11/18/1998	2260	1085	19.9	0.73	169
0090SMW2	2/10/1999	265	1141	12.6	0.85	161
0090SMW2	4/14/1999	2376	1124	17.3	0.91	147.6
0090SMW2	8/24/1999	2295	1099	13.2	0.89	130.5
0090SMW2	11/9/1999	2335	1115	18.6	0.82	156.7
0090SMW2	3/15/2000	1620	1011.51	10	0.5	156.87
0090SMW2	6/14/2000	1700	744.65	6.3	0.48	97.98
0090SMW2	8/30/2000	1170	620	13	0.34	48.55
0090SMW2	1/15/2002	690	266.39	0.27	0.24	22.69
0090SMW2	2/13/2002	730	252.46	0.73	0.29	22.51

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0090SMW2	3/14/2002	560	152.47	0.25	0.2	18.26
0090SMW2	4/16/2002	620	178.03	0.21	0.23	17.02
0090SMW2	5/22/2002	700	225	0.41	0.25	16.59
0090SMW2	6/19/2002	510	136.88	0.05	0.15	16.66
0090SMW2	7/18/2002	480	117.82	0.16	0.15	15.01
0090SMW2	8/19/2002	420	91.04	0.11	0.14	15.6
0090SMW2	9/18/2002	380	102.32	0.02	0.13	11.64
0090SMW2	10/22/2002	367	76.88	0.1	0.13	11.21
0090SMW2	11/19/2002	376	75.08	0.08	0.14	10.77
0090SMW2	2/12/2003	392	70.93	0.07	0.16	11.3
0090SMW2	5/13/2003	380	60.71	0.27	0.11	8.65
0090SMW2	8/12/2003	360	84.81	0.36	0.22	9.71
0090SMW2	11/21/2003	330	95.47	1.8	0.15	10.06
0090SMW2	2/11/2004	450	88.47	1.9	0.18	8.83
0090SMW2	5/18/2004	510	112.28	0.7	0.24	10.81
0090SMW2	8/10/2004	480	97.69	0.39	0.21	10.64
0090SMW2	11/22/2004	420	81.84	0.76	0.19	11.52
0090SMW2	2/15/2005	711	121.7	0.59	0.29	1.06
0090SMW2	5/11/2005	520	126.69	0.47	0.23	10.28
0090SMW2	8/19/2005	360	67.6	0.03	0.18	14.53
0090SMW2	11/10/2005	400	67.8	0.07	0.16	9.82
0090SMW2	2/14/2006	500	76.04	0.02	0.21	12.98
0090SMW2	5/9/2006	470	92.12	0.02	0.21	11.7
0090SMW2	8/8/2006	410	65.95	0.02	0.17	9.57
0090SMW3	10/9/2001	800	256.79	0.02	1	24.46
0090SMW3	11/26/2001	730	226.35	0.02	0.83	19.67
0090SMW3	12/19/2001	1000	412.24	0.02	1	32.44
0090SMW3	1/15/2002	1330	769.89	0.02	1.4	46.79
0090SMW3	2/13/2002	1270	580.23	0.02	1.3	40.94
0090SMW3	3/14/2002	1060	411.63	0.02	1.1	32.08
0090SMW3	4/16/2002	860	272.61	0.02	0.86	21.27
0090SMW3	5/22/2002	840	234.33	0.02	0.81	22.24
0090SMW3	6/19/2002	790	184.18	0.02	0.75	18.26
0090SMW3	7/18/2002	720	157.16	0.02	0.76	14.65
0090SMW3	8/19/2002	610	95.51	0.02	0.63	13.83
0090SMW3	9/18/2002	900	285.31	0.02	0.81	30.4
0090SMW3	10/22/2002	894	270.28	0.02	0.9	26.27
0090SMW3	11/19/2002	905	280.46	0.02	1.1	28.6
0090SMW3	2/13/2003	814	278.33	0.02	0.91	24.36
0090SMW3	5/13/2003	1110	404.08	0.02	0.9	28.25
0090SMW3	8/12/2003	880	229.17	0.07	1.8	24.72
0090SMW3	11/20/2003	1000	328.03	0.05	1.7	29.48
0090SMW3	2/10/2004	750	223.62	0.04	1.1	23.3

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0090SMW3	5/18/2004	810	185.93	0.03	1	24.64
0090SMW3	8/10/2004	1050	351.19	0.04	1	28.54
0090SMW3	11/22/2004	840	257.78	0.03	0.77	24.28
0090SMW3	2/15/2005	1301	391.3	0.07	0.63	2.75
0090SMW3	5/11/2005	1160	360.94	0.02	0.82	24.28
0090SMW3	8/18/2005	940	495.36	0.02	0.94	25.35
0090SMW3	11/10/2005	790	262.3	0.07	0.65	14.73
0090SMW3	2/14/2006	720	266.83	0.02	0.44	18.56
0090SMW3	5/9/2006	870	358.06	0.02	0.61	18.79
0090SMW3	8/9/2006	860	349.5	0.02	0.54	23.04
0090SMW4	10/6/2001	7540	4329.7	5.2	0.2	393.5
0090SMW4	11/26/2001	7460	4493.23	0.02	0.16	375.77
0090SMW4	12/19/2001	7490	4481.1	3.9	0.17	365.14
0090SMW4	1/15/2002	7410	4850.14	3	0.16	370.45
0090SMW4	2/13/2002	7500	1913.57	1.9	0.16	370.45
0090SMW4	3/14/2002	7590	4062.42	4.4	0.14	377.54
0090SMW4	4/16/2002	7550	4027.18	3.4	0.15	347.41
0090SMW4	5/22/2002	7420	3863.92	4.1	0.15	340.72
0090SMW4	6/19/2002	7320	4008.29	4.3	0.15	349.18
0090SMW4	7/18/2002	7490	3960.66	4	0.15	337.19
0090SMW4	8/19/2002	7440	3832.49	0.39	0.15	356.27
0090SMW4	9/18/2002	7270	4200.98	1.8	0.15	343.94
0090SMW4	10/22/2002	7299	4065.5	0.09	0.16	320.48
0090SMW4	11/19/2002	7094	4074.07	3.3	0.17	316.01
0090SMW4	2/13/2003	7201	3948.21	0.02	0.14	305.42
0090SMW4	5/13/2003	6740	3888.42	1.9	0.07	298.35
0090SMW4	8/12/2003	7100	3850.36	5.8	0.23	305.42
0090SMW4	11/20/2003	6850	3848.23	2.2	0.12	291.29
0090SMW4	2/10/2004	6270	3758.31	0.54	0.14	289.53
0090SMW4	5/18/2004	7110	3843.11	0.38	0.16	327.91
0090SMW4	8/10/2004	7220	3974.96	0.73	0.15	296.01
0090SMW4	11/22/2004	7000	4092.25	0.06	0.15	310.19
0090SMW4	2/15/2005	6858	2642	5.28	0.17	27.65
0090SMW4	5/11/2005	6530	3724.52	5.1	0.15	272.61
0090SMW4	8/18/2005	5160	3196.03	5.66	0.16	269.42
0090SMW4	11/10/2005	6380	2705.5	0.07	0.14	267.67
0090SMW4	2/14/2006	6240	1787.8	0.02	0.06	268.14
0090SMW4	5/9/2006	6320	3250.37	2.11	0.2	258.79
0090SMW4	8/9/2006	6300	3426.32	3.75	0.21	258.79
0090SMW5	1/15/2002	1740	774.31	0.02	0.05	39
0090SMW5	2/13/2002	1690	688.6	0.02	0.05	45.38
0090SMW5	3/14/2002	1690	662.72	0.02	0.04	37.22

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0090SMW5	4/16/2002	1640	685.16	0.02	0.07	37.05
0090SMW5	5/22/2002	1560	570.74	0.02	0.08	32.13
0090SMW5	6/19/2002	1540	519.6	0.02	0.11	25.52
0090SMW5	7/18/2002	1520	624.09	0.02	0.14	24.36
0090SMW5	8/19/2002	1540	592.15	0.02	0.19	22.51
0090SMW5	9/18/2002	1520	603.4	0.02	0.23	18.76
0090SMW5	10/22/2002	1464	552.41	0.02	0.17	17.51
0090SMW5	11/19/2002	1443	497.63	0.02	0.17	21.01
0090SMW5	2/13/2003	1323	458.47	0.03	0.18	15.18
0090SMW5	5/13/2003	1480	496.91	0.02	0.09	23.66
0090SMW5	8/12/2003	1390	401.99	0.03	0.34	18.89
0090SMW5	11/20/2003	1090	310.74	0.02	0.21	18.36
0090SMW5	2/10/2004	1200	380.45	0.02	0.19	21.01
0090SMW5	5/18/2004	1390	446.8	0.02	0.24	24.99
0090SMW5	8/10/2004	1150	366.58	0.02	0.15	20.21
0090SMW5	11/22/2004	1190	398.11	0.02	0.14	22.33
0090SMW5	2/15/2005	1014	228.3	0.07	0.13	1.63
0090SMW5	5/11/2005	880	324.46	0.02	0.14	15.24
0090SMW5	8/18/2005	870	336.94	0.02	0.19	26.76
0090SMW5	11/10/2005	1050	277.8	0.07	0.13	21.05
0090SMW5	2/14/2006	1080	191.86	0.02	0.15	30.6
0090SMW5	5/9/2006	1070	349.14	0.02	0.2	21.8
0090SMW5	8/9/2006	1220	384.69	0.02	0.23	23.04

0090SW1D	10/9/2001	330	45.94	1.2	0.37	7.44
0090SW1D	11/26/2001	360	54.6	0.03	0.43	5.49
0090SW1D	12/19/2001	350	55.12	0.88	0.42	7.98
0090SW1D	1/15/2002	340	50.16	0.18	0.43	6.03
0090SW1D	2/13/2002	340	42.24	0.18	0.39	6.38
0090SW1D	3/14/2002	350	45.69	0.56	0.32	7.09
0090SW1D	4/16/2002	340	44.91	0.83	0.38	5.49
0090SW1D	5/22/2002	330	45.66	0.17	0.35	6.36
0090SW1D	6/19/2002	360	48.66	0.05	0.31	6.91
0090SW1D	7/18/2002	390	43.8	0.59	0.29	6.89
0090SW1D	8/19/2002	340	40.09	0.23	0.27	8.69
0090SW1D	9/18/2002	330	40.31	0.14	0.3	7.3
0090SW1D	10/22/2002	351	43.39	0.21	0.3	7
0090SW1D	11/19/2002	344	47.32	0.12	0.34	7.06
0090SW1D	2/13/2003	352	50.01	0.1	0.33	7.41
0090SW1D	5/13/2003	320	40.28	0.1	0.15	5.83
0090SW1D	8/12/2003	350	36.57	0.44	0.43	6.36
0090SW1D	11/21/2003	320	41.02	0.44	0.27	7.41
0090SW1D	2/10/2004	270	43.95	0.67	0.25	6.36
0090SW1D	5/18/2004	340	38.51	0.09	0.31	6.74

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0090SW1D	8/10/2004	360	47.43	0.02	0.28	7.62
0090SW1D	11/22/2004	320	42.35	0.14	0.29	8.86
0090SW1D	2/15/2005	374	43	0.23	0.27	1
0090SW1D	5/11/2005	370	100.88	0.15	0.3	8.86
0090SW1D	8/19/2005	320	64.47	0.32	0.26	12.94
0090SW1D	11/10/2005	350	64.7	0.07	0.26	6.65
0090SW1D	2/14/2006	380	64.35	0.64	0.28	11.34
0090SW1D	5/9/2006	370	55.2	0.02	0.27	6.91
0090SW1D	8/9/2006	340	48.96	0.02	0.25	6.2
0090SW1S	1/22/1993	940	433	1.07		51
0090SW1S	2/3/1993	1060	507	1.45		18
0090SW1S	3/23/1993	780	285	1.67		43
0090SW1S	4/27/1993	1340	667	2.43		69
0090SW1S	5/25/1993	1352	617	1.35		67
0090SW1S	6/22/1993	1252	641	2.86		68
0090SW1S	7/30/1993	1528		2.71		78
0090SW1S	10/5/1993	1396	558	2.17	0.22	64
0090SW1S	11/22/1993	1595	719	4.74	0.43	74
0090SW1S	1/24/1994	2545	1234	7	0.67	115
0090SW1S	2/16/1994	350	828	4.62	0.46	83
0090SW1S	3/4/1994	1495	748	3.54	0.43	75
0090SW1S	4/19/1994	2035	1010	5.36	0.63	81
0090SW1S	5/2/1994	2020	1020	5.66	0.73	72
0090SW1S	8/16/1994	1800	889	5.18	0.71	69
0090SW1S	2/9/1995	1710	850	5.56	0.75	43
0090SW1S	5/16/1995	1895	931	5.67	0.79	71
0090SW1S	8/4/1995	2095	907	6.3	0.85	78
0090SW1S	11/28/1995	2020	1027	5.98	0.89	86
0090SW1S	2/7/1996	1932	965	31.8	0.89	92
0090SW1S	8/20/1996	1915	956	6.7	0.79	104
0090SW1S	11/19/1996	2260	1043	11.8	1.06	97
0090SW1S	1/23/1997	2410	1268	10.7	1.29	94
0090SW1S	4/16/2002	460	66.66	0.41	0.14	13.47
0090SW1S	5/22/2002	420	68.36	0.02	0.12	12.89
0090SW1S	6/19/2002	430	66.36	0.02	0.12	13.47
0090SW1S	7/18/2002	490	75.94	0.79	0.15	13.59
0090SW1S	8/19/2002	490	74.66	0.53	0.14	18.08
0090SW1S	9/18/2002	490	78.71	0.12	0.16	16.15
0090SW1S	10/22/2002	507	72.75	0.58	0.17	15.41
0090SW1S	11/19/2002	515	76.22	0.41	0.16	16.07
0090SW1S	2/13/2003	502	65.84	0.05	0.19	13.95
0090SW1S	5/13/2003	520	60.89	0.25	0.11	13.24
0090SW1S	8/12/2003	520	65.79	0.54	0.29	16.24



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0090SW1S	11/21/2003	430	66.41	1.7	0.18	15.18
0090SW1S	2/10/2004	400	84.05	1.6	0.16	15.36
0090SW1S	5/18/2004	470	72.16	0.36	0.21	15.42
0090SW1S	8/10/2004	450	71.67	0.03	0.16	14
0090SW1S	11/22/2004	450	73.3	0.69	0.18	15.95
0090SW1S	2/15/2005	455	40.9	0.13	0.18	1.25
0090SW1S	5/11/2005	390	63.34	0.06	0.2	11.7
0090SW1S	8/19/2005	370	70.52	0.21	0.21	17.55
0090SW1S	11/10/2005	600	114.9	0.07	0.23	14.29
0090SW1S	2/14/2006	560	85.5	1.07	0.17	18.2
0090SW1S	5/9/2006	400	88.33	0.02	0.16	12.41
0090SW1S	8/9/2006	500	91.02	0.05	0.18	16.13
0090SW2D	10/9/2001	580	137.12	0.11	0.66	24.46
0090SW2D	11/26/2001	690	213.29	0.04	0.74	28.01
0090SW2D	12/19/2001	660	175.85	0.5	0.68	24.99
0090SW2D	1/15/2002	640	178.12	0.14	0.7	26.06
0090SW2D	2/13/2002	600	116.05	0.08	0.59	21.27
0090SW2D	3/14/2002	570	100.21	0.31	0.62	19.85
0090SW2D	4/16/2002	530	75.43	0.04	0.57	15.6
0090SW2D	5/22/2002	610	134.44	0.13	0.63	23.3
0090SW2D	6/19/2002	560	88.6	0.02	0.56	16.48
0090SW2D	7/18/2002	610	137.75	0.03	0.65	23.13
0090SW2D	8/19/2002	610	130.2	0.04	0.57	25.17
0090SW2D	9/18/2002	570	116.62	0.02	0.63	21.89
0090SW2D	10/22/2002	591	123.62	0.31	0.59	20.31
0090SW2D	11/19/2002	550	97.05	0.15	0.57	17.12
0090SW2D	2/13/2003	608	165.22	0.03	0.63	6.53
0090SW2D	5/13/2003	640	118.06	0.02	0.37	20.3
0090SW2D	8/12/2003	530	79.66	0.21	0.89	18.89
0090SW2D	11/21/2003	520	78.64	0.36	0.56	19.6
0090SW2D	2/11/2004	470	69.32	0.07	0.57	15.54
0090SW2D	5/18/2004	520	80.25	0.12	0.61	20.56
0090SW2D	8/10/2004	520	68.95	0.09	0.55	17.19
0090SW2D	11/22/2004	700	61.24	0.09	0.56	16.13
0090SW2D	2/15/2005	482	64.1	0.07	0.53	1.06
0090SW2D	5/11/2005	400	57.36	0.02	0.5	12.58
0090SW2D	8/19/2005	410	61.68	0.02	0.52	18.08
0090SW2D	11/10/2005	510	65.7	0.07	0.58	13.82
0090SW2D	2/14/2006	490	40.11	0.02	0.57	19.15
0090SW2D	5/8/2006	470	46.28	0.02	0.59	12.23
0090SW2D	8/8/2006	520	55.38	0.02	0.59	13.83
0090SW2S	10/9/2001	460	79.13	0.02	0.76	13.47

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0090SW2S	11/26/2001	460	77.81	0.02	0.8	12.94
0090SW2S	12/19/2001	490	90.52	0.48	0.83	14
0090SW2S	1/15/2002	530	121.07	0.09	0.84	18.26
0090SW2S	2/13/2002	550	136.92	0.1	0.78	23.04
0090SW2S	3/14/2002	640	151.94	0.09	0.85	24.64
0090SW2S	4/16/2002	510	84.45	0.03	0.71	16.66
0090SW2S	5/22/2002	500	91.98	0.1	0.68	18.01
0090SW2S	6/19/2002	590	128.65	0.02	0.8	21.27
0090SW2S	7/18/2002	560	117.43	0.4	0.8	21.18
0090SW2S	8/19/2002	570	114.86	0.15	0.76	21.62
0090SW2S	9/18/2002	560	126.26	0.02	0.89	19.98
0090SW2S	10/22/2002	529	102.85	0.06	0.74	17.34
0090SW2S	11/19/2002	584	140.85	0.12	0.85	20.48
0090SW2S	2/13/2003	570	138.3	0.06	0.78	20.83
0090SW2S	5/13/2003	630	142.43	0.04	0.54	22.6
0090SW2S	8/12/2003	620	151.37	0.26	1.3	21.71
0090SW2S	11/21/2003	590	119.46	0.54	0.77	25.6
0090SW2S	2/11/2004	590	180.02	0.37	0.92	27.54
0090SW2S	5/18/2004	540	138.15	0.09	0.84	23.4
0090SW2S	8/10/2004	640	159.31	0.03	0.89	24.64
0090SW2S	11/22/2004	650	170.49	0.66	0.96	30.13
0090SW2S	2/15/2005	656	109.3	0.16	0.88	2.53
0090SW2S	5/11/2005	630	165.43	0.1	0.85	24.64
0090SW2S	8/19/2005	580	180.48	0.11	0.93	33.68
0090SW2S	11/10/2005	610	104.1	0.07	0.87	25.13
0090SW2S	2/14/2006	590	140.23	0.02	0.81	28.57
0090SW2S	5/8/2006	610	154.37	0.02	0.91	24.99
0090SW2S	8/8/2006	760	203.32	0.02	1.16	28.71
0090SW3S	10/9/2001	1330	629.07	0.95	1.6	61.33
0090SW3S	11/26/2001	1120	588.67	0.02	0.73	110.6
0090SW3S	12/19/2001	1050	525.46	0.04	0.67	50.52
0090SW3S	1/15/2002	890	401.1	0.02	0.55	37.93
0090SW3S	2/13/2002	940	346.16	0.02	0.33	43.96
0090SW3S	3/14/2002	900	364.21	0.02	0.42	41.48
0090SW3S	4/16/2002	990	375.74	0.02	0.52	41.3
0090SW3S	5/22/2002	900	293.16	0.07	0.78	36.72
0090SW3S	6/19/2002	1030	353.32	0.06	1.2	35.1
0090SW3S	7/18/2002	1090	375.63	0.25	1.2	32.48
0090SW3S	8/19/2002	1020	329.51	0.31	1.3	38.29
0090SW3S	9/18/2002	990	373.4	0.3	1.5	35.44
0090SW3S	10/22/2002	1047	394.42	1.1	1.5	32.57
0090SW3S	11/19/2002	998	341.41	1	1.5	28.6
0090SW3S	2/13/2003	1520	686.65	1.4	2.6	24.01

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0090SW3S	5/13/2003	1050	338.53	0.16	0.52	21.54
0090SW3S	8/12/2003	1110	328.95	2.2	2	24.01
0090SW3S	11/21/2003	1130	368.42	3.2	1.3	24.72
0090SW3S	2/11/2004	1130	403.06	2.2	2.1	17.3
0090SW3S	5/18/2004	1140	370.39	1.7	1.4	21.27
0090SW3S	8/10/2004	1260	438.41	2.6	1.6	19.32
0090SW3S	11/22/2004	1320	521.91	3.1	2.2	19.67
0090SW3S	2/15/2005	1248	347	2.24	1.36	1.63
0090SW3S	5/11/2005	1270	510.6	4.8	1.57	16.31
0090SW3S	8/19/2005	980	475.12	2.74	1.42	20.74
0090SW3S	11/10/2005	980	263.6	0.07	1.52	13.58
0090SW3S	2/14/2006	1120	383.73	1.02	1.31	18.98
0090SW3S	5/8/2006	1160	457.25	0.79	1.26	18.26
0090SW3S	8/8/2006	1090	410.44	0.02	1.53	18.08

Exhibit 7

COMPANY MEMORANDUM

TO: J. B. Coyne
D. G. McDonald

DATE: August 12, 1983

FROM: K. D. Gastreich

RE: Potential Ground Water Effects of Long Term Coal Refuse
Disposal at Eagle #2

I have reviewed Lee Wohlwend's July 28, 1983 memo regarding coal refuse disposal at Eagle #2. Based on normal refuse disposal procedures and the information outlined below, I believe there is a very high potential for pollution of a major aquifer used for public water supply.

- The proposed refuse disposal lies immediately above the sand and gravel outwash of the Henry Formation which is a major shallow aquifer in that part of Illinois. Yields of 500 gpm or more are possible.
- The area in question lies in an area designated as having a high ground water contamination potential because of the high hydraulic conductivity of the overlying unconsolidated material, shallow bedrock, and a high water table. (U.S. Geological Survey, 1981).
- Proposed gob areas No.3, No.4 and No.5 lie approximately 2,000, 1,500 and 1,400 feet respectively, updip of the Saline Valley Conservancy District water supply wells.
- The refuse will be disposed of above or at the area ground water table.

All of the above information indicates the potential for serious problems unless some type of impermeable barrier is placed beneath the refuse to be disposed of. In addition, Allen Oertel, Illinois Department of Mines and Minerals Hydrologist, has experience and a special concern for the effects of this type of refuse disposal. Any type of refuse disposal plan submitted to IDM&M would likely have to meet very strict anti pollution criteria particularly in an environmentally critical area such as this.

J. B. Coyne
D. G. McDonald

August 12, 1983

I recommend that the Environmental Services Department work closely with Engineering to develop an acceptable plan for future refuse disposal at Eagle #2.

Kent D. Gastreich
K. D. Gastreich

KDG:ls

cc: R. A. Hill
S. L. Wohlwend

PC00897

Exhibit 8

Peabody

Electronic Filing - Received, Clerk's Office, April 11, 2011

(2106-712) 11-18

PEABODY COAL COMPANY

MINE POLLUTION
CONTROL

102987
50 Jerome Lane
Fairview Heights, Illinois 62208
Mailing Address:
P.O. Box 14495
St. Louis, Missouri 63178
(618) 398-7950

February 6, 1987

CERTIFIED LETTER # 118 020 422

Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, IL 62706

RECEIVED

ATTN: Mr. Edwin C. Bakowski, P.E.
Manager, Permit Section
Mine Pollution Control Program

FEB 24 1987

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
MARION REGIONAL OFFICE

Dear Mr. Bakowski:

RE: Peabody Coal Company, Eagle No. 2, Slurry Area No. 5
(Log No. 2106-86)

In response to the Agency's denial letter dated January 6, 1987 and our meeting in your office on February 3, 1987, the following information is provided per your request.

1. The proposed plans for construction and operation of slurry area #5 has been provided to the agency. Pumping the fine grained coal slurry material onto the existing coarse refuse area will have a sealing effect, thus limiting potential leakage from the site. The coarse refuse tends to be more permeable and more variable than the coal slurry. Plans call for an excess of 20' of slurry to be deposited in slurry #5 over the existing coarse refuse. The permeability of this material has been determined to be 6.33×10^{-7} cm/sec. The combined effect of the slurry's low permeability and the thickness of the material will tend to limit downward water seepage.
2. Operation of the production well (MW-19) is effectively serving as a hydraulic sink. The drawdown is most pronounced in the monitoring wells closest to the production well. Monitoring well #18 which is located 365 feet from the production well exhibited a drawdown of 3 feet due to the cone of depression created by the production well operation. Due to the small natural gradient found in the Henry aquifer the artificial gradient created by the production well is adequate to draw potential seepage from the distant refuse sites at Eagle #2.

Edwin C. Bakowski


February 6, 1987

Page 2

3. Attached are copies of recent groundwater quality data requested in our meeting on February 3, 1987. Some of the past samples obtained from our monitoring wells were not representative due to the inability to adequately pump the proper volume of water from the wells. With installation of permanent sampling pumps in wells MW-10, 11, 14, and 18, representative groundwater quality characterization and assessment is now possible. The attached data verifies our position in this matter.
4. In response to Peabody's Permit Application No. 34 to IDMM and the Department's subsequent request for additional information and "Findings", we have installed a number of additional ground-water well systems at our Eagle No. 2 facility to gather basic information and provide calibration for our (Random Walk) modeling study. Based on the above and in accordance with permit requirements, we intend to closely monitor groundwater quality and quantity, and continually assess the possible impacts (if any) of our operations on the Henry Formation aquifer and the Saline Valley Conservancy District Public Water Supply Wells. Future operation of the Production Well (MW-19) will be determined and based on future monitoring results and modelling efforts.

We appreciate meeting the Agency, and look forward to receiving the Construction Authorization for Eagle No. 2, Slurry Area No. 5 as soon as possible. Meanwhile, should you have any questions, comments or require additional information, please feel free to contact me at 618/398-7950 at your convenience.

Sincerely,



David G. McDonald (LSR)
Manager - Environmental

DGM:cdh

att.

Exhibit 9

Auth. No.: 7110-81, 7075-81, 4080-84,
4075-84, 4060-84, 4010-84,
2003-86, 2006-86, 2083-86,
4027-84, 4090-84, 2106-86

(LC044001)

Appl. No.: 2106-86, 1029-87

December 16, 1981

February 27, 1987

April 30, 1989

S. L. Wohlwend, P.E.

Peabody Coal Co. Eagle No. 2 Underground, Slurry Area No. 6
Callatin Co.

AUTHORIZATION TO CONSTRUCT TO:

Peabody Coal Company
Post Office Box 14498
St. Louis, Missouri 63178

Supplemental Authorization is hereby granted to the above designee to construct mine and mine refuse area, which were previously approved under Authorization Nos. listed above dated December 16, 1981. These facilities have been revised as follows:

The refuse disposal plan for area no. 6 is being changed to allow slurry disposal in addition to coarse refuse disposal which is presently permitted. Surface drainage and sedimentation ponds for this area will not be changed.

Monitoring well changes including additional wells and permanent submersible pumps are being made along with installation of a high capacity ground water well no. MW-19. Well MW-19 serves to supply makeup water to the slurry circuit and to form a cone of depression which intercepts leachate before the leachate leaves the permit area. Well MW-19 is the active groundwater contamination control system for this mine.

Abandonment and reclamation of refuse area no. 6 shall be in accordance with plans and specifications submitted in applications with log numbers 2106-86 and 1029-87.

All Conditions in the original Authorization to Construct are incorporated in this Supplemental Authorization unless specifically deleted or revised herein.

This Supplemental Authorization is issued subject to the following Condition(s). If such Condition(s) require(s) additional or revised facilities, appropriate engineering plan documents must be submitted to this Agency for review and approval to secure issuance of a Supplemental Authorization to Construct.

1. MW-19 shall not be abandoned or inactivated without approval from this Agency. Such approval shall be granted only when it has been demonstrated that pumping the well is no longer necessary for ground water contamination control.

RB:rd1629g/6-7

Exhibit 10

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
MINE RELATED WATER POLLUTION CONTROL PERMIT

R-23

NO.: 1992-ID-6077

DATE ISSUED:

FINAL PLANS, SPECIFICATIONS, APPLICATION
AND SUPPORTING DOCUMENTS

LOG NUMBERS: 6101-92

6077-92

PREPARED BY: Keith E. Brown, P.E.

SUBJECT: Peabody Coal Company, Eagle No. 2 UG.
IDM No. 34, Recovery Well MW-21, Slurry Cell 1-A

Peabody Coal Company
Post Office Box 527
Shawneetown, Illinois 62984

Permit is hereby granted to construct a production and recovery well, MW-21, on IDM Permit No. 34 area as shown in the plans, IEPA Log No. 6101-92.

Wells MW-19 and MW-21 shall not be abandoned or inactivated without approval from this Agency. Such approval shall be granted only when it has been demonstrated that pumping the well is no longer necessary for groundwater contamination control.

Slurry Cell 1-A, a modification of Slurry Cell 1, is approved as shown in the plans of IEPA Log No. 6077-92, Mine Safety and Health Administration I.D. No. 1211-10598-02, and Illinois Department of Transportation Permit No. 20767.

This permit shall expire at such time as an NPDES permit is issued containing a Construction Authorization for the herein permitted facilities.

RECEIVED

AUG 25 1992

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
MARION REGIONAL OFFICE

This permit is issued in accordance with the Illinois Environmental Protection Act of 1970, the Title 35, Subtitle C: Water Pollution and subtitle D: Mine Related Pollution Regulations adopted pursuant thereto by the Illinois Environmental Protection Act. THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE ATTACHMENT TO THIS PERMIT (PAGE 1a) MUST BE COMPLIED WITH IN FULL. ALL OTHER CONDITIONS CAPTIONED

SK:nic/2123r,59
cc: Regional Office ✓
Department of Minerals
Division of Water Resources

Bob Kerr 24 Aug 92
Bob Kerr, P.E.
Environmental Protection Engineer
Mine Pollution Control Program

Exhibit 11

165 5300

217/785-0748

Peabody Coal Company -- Eagle No. 2 Underground (Gallatin County) - IEPA
Log #4027-84-84-02-1 #34 (Revised)

June 12, 1984

Peabody Coal Company
P.O. Box 255
Carrier Hills, IL 62917

XO to Reg 5 6/13/84

Gentlemen:

We received your application for Permit and supporting information concerning the above referenced project on April 23, 1984. This application has been reviewed by the Permit Section Staff, and based upon that review, the following items are offered for your consideration and appropriate action:

1. The facility is located above the Henry Formation. This is a thick (60-80ft) aquifer overlain by a thin layer of loess. Rule 35 III. Admin. Code 405.106(d) requires special provisions to protect aquifer recharge areas, if refused disposal is being planned in such. The following information and/or clarification is needed to determine if adequate protection will be provided.
 - A. Information regarding actual and potential drawdowns caused by the Saline Valley Conservancy District wells since they became operational. This information should be used in determining the impact of the existing and proposed disposal sites.
 - B. Drawdown information on the water wells at the mine should be provided. Effects on the water table when, after closure, these wells are no longer in use should also be provided. Data on the quality of these wells should also be provided. Samples of leachate should be taken immediately below the existing disposal areas to accurately determine its quality.
 - C. A potentiometric map of the aquifer should be developed to indicate the site specific flow patterns and should be included to evaluate the proposed disposal sites.
 - D. The monitoring water quality data submitted for MW-1 and MW-9 shows potential contamination above the general water quality standards for total dissolved solids and potential contamination above public water supplies water quality standards for manganese, sulfates and total dissolved solids. The fact that no substantiated problems have been experienced in the past is not justification that no future problems can be

Page 2

expected. The uses must be evaluated to predict potential effects on the overall groundwater quality and the quality at the intakes of the private and public supplies. Public water supply standards must be met at the point of withdrawal.

- E. Measures to prevent further contamination and a remedial action plan should be provided if monitoring shows prevention measures may not be working.
2. The cross-sections of the proposed disposal areas should show depths of excavation, the proposed "clay blanket" and the depth of the aquifer.
 3. The hydraulic designs of the "make-up" lake should be provided to determine if the outfall will qualify for the exemption of 30 Ill. Admin. Code 406.105(b).
 4. As you should be well aware, the pending rule regarding an exemption from water quality standards contains presumptive levels for chlorides and sulfates. Assuming the rule will be adopted by July 1, 1984, estimates for concentrations of chlorides in the discharges should be provided along with any additional information which will be required by that Rule, when adopted.

Please be advised that any opening, reopening, abandonment, or operation of a mine or mine refuse area without first obtaining the required permits from this Agency would be a violation of State law. Although this Agency accepts the application form submitted through the Illinois Department of Mines and Minerals as an application for a mining permit under Subtitle D, Chapter I, entitled "Mine Related Water Pollution", separate permits are issued. Approval of the application by the Department of Mines and Minerals is in no way to be considered approval by this Agency.

The Agency will be pleased to re-evaluate your permit application on receipt of your written request and the necessary information and documentation to correct or clarify the deficiencies noted above. If this application is being used jointly as an application for a Department of Mines and Minerals Mining Permit and an Illinois EPA Mining Permit, we suggest that the above information be submitted through the Department of Mines and Minerals as a modification of the application. If you choose to submit the information directly to the Agency, please submit two (2) copies of the response and refer to the log numbers noted in the above subject heading.

Page 3

Should you have any questions or comments regarding the above, or need any additional information concerning Agency requirements, please contact me at the above telephone number and address.

Sincerely,



Edwin C. Bakowski
Acting Manager, Permit Section
Mine Pollution Control Program

ECB:st:1178d/6-8

cc: Regional Office
Department of Mines and Minerals
Div. P.W.S.

Exhibit 12

PEABODY COAL COMPANY

ILLINOIS DIVISION

#50 JEROME LANE • FAIRVIEW HEIGHTS, IL 62208

TELEPHONE (618) 398-7950

MAILING ADDRESS:

P.O. BOX 14495

ST. LOUIS, MO 63178

October 16, 1984

RECEIVED

OCT 16 1984

MINE POLLUTION
CONTROL PROGRAM

Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62706

Dear Sirs:

RE: Eagle No.2 U/G Mine, IEPA Letter of June 12, 1984

The following is submitted in response to the Agency's concerns identified by letter dated June 12, 1984:

1. Though the Henry Formation aquifer is thick; the strata overlaying same is variable. Specific to Slurry Area No.3, we have found an average of 4.5 feet or 8 more or 9 a blanket with permeabilities in the range of 10^8 to 10^9 cm/sec.

In general, drilling information for the Eagle 2 Underground area indicates that the Henry Formation is immediately overlain by a clay layer with a thickness of several feet. Various other soil types overlie the subject clay layer.

1.A

Actual drawdown information has been recently obtained from the Saline Valley Conservancy District (SVCD) wells for the period of November 1983 to September 1984. These data are shown in Exhibit I. Potential drawdown predictions are an integral part of ongoing and future modeling efforts.

1.B

MW-9 is the only production well closely located to both the SVCD wells and the refuse disposal sites. This particular well is sealed and is not equipped with any means for water level measurement. Water quality data for MW-9 and all currently monitored water quality wells at Eagle #2 are included in Exhibit #2.

Modeling of Slurry #3 included the effects of post mining shutdown of MW-9. All future modeling efforts will also address this condition. New monitoring wells which will allow the investigation of water quality immediately below the existing coarse refuse disposal site have just recently been established. Samples from these wells will be analyzed

October 16, 1984

Illinois Environ. Protection Agency
Springfield, IL

and reported in accordance with the Illinois Mines and Minerals approved ground water monitoring program for this facility. Additionally, existing gob and slurry leachate testing has been completed and is attached as Exhibit No.3. This data indicates leachate water quality compares favorably with IEPA General Use Water Quality Standards.

1.C

Previous potentiometric mapping efforts are currently being reviewed and expanded. Due to a recent discovery of an elevation error, verification of all well elevations is currently underway. On completion of these activities, a more accurate assessment of site specific flow patterns will be possible. Nonetheless, existing information preliminarily indicates a rather "flat" ground water level condition in the Eagle No.2 area.

1.D

The Department of Mines & Minerals has required extensive modification (i.e., new well installation and modeling) in the proposed ground water monitoring program for Eagle No.2 facility. Specifically, three additional wells MW-12, 13 and 14 have been installed and monitoring initiated. Further, initial modeling has been performed to determine potential effects of Slurry No.3. Results indicate no potential adverse impact will result from operation of Slurry #3.

Peabody is in the process of assessing the overall impact on the ground water impact of the Eagle No.2 refuse disposal operation on the SVCD well system.

1.E

Peabody is currently operating an extensive hydrologic monitoring program at our Eagle No.2 facility. Data will be reviewed to assess potential ground water impacts should they occur. To date only wells MW-1 and MW-9 exhibit localized mineralization. Should the monitoring wells or the modeling efforts indicate a potential adverse impact on the public water supply adjacent to the permit boundary, the first line of action would be off-permit monitoring. This action would be implemented only if the monitoring program does not completely satisfy the informational needs for assessment of potential adverse ground water impacts. The placement of off-permit monitoring wells will be determined by existing monitoring well information and accessibility of new monitoring well locations off the permit area.

October 16, 1984

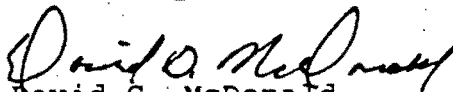
Illinois Environ. Protection Agency
Springfield, IL

If potential adverse ground water impacts are verified by off-permit monitoring, then further remedial measures may be undertaken. Such measures may include pump-back supply wells, grout curtains, alternate disposal techniques or other feasible alternatives.

2. Soil sampling of Slurry No.3 area indicates that a clay layer of an average thickness of 4.5 feet immediately overlies the Henry Formation. Lab tests indicate that the permeabilities of this layer is very low; values ranged from 10^{-8} to 10^{-9} cm/sec. During construction of Slurry No.3, this clay blanket was left in tact for protection of the aquifer and water retention purposes. Slurry will not be in direct contact with the Henry Formation in the Slurry #3 area. Future refuse disposal methods will also include maintaining the integrity of the clay layer overlying the Henry Formation.
3. There is no discharge from the "make-up" lake. Discharge T001 emanates from the "freshwater" lake of which there has been no discharge under the current NPDES permit.
4. Estimates with respect to chloride concentrations in our discharges shall be forthcoming in accordance with revised regulations, Part 406.

It is anticipated that appropriate Agency authorizations will be forthcoming in response to the above information and presentation made to Agency representatives this date.

Sincerely,


David G. McDonald
Manager - Environmental

DGM:ls

Exhibit 13

4060A-84

Anticipated Infiltration Losses into Henry Formation
Beneath Slurry #3 Settling Pond, Eagle #2

RECEIVED

OCT 16 1984 R-27

BACKGROUND/SITUATION

MINE POLLUTION
CONTROL PROGRAM

In June 1984 the design of the third slurry disposal pond for Eagle #2 prep plant had been completed and a contract let, to begin its construction. At that point IDMM questioned the potential for contamination of the Henry Formation by the newly proposed slurry pond, especially in view of recent completion of public water supply district wells nearby.

Pre-design exploration and testing had been undertaken the year before-beneath the proposed dam embankments and in the interior area between. The latter, being only to characterize potential borrow materials. That work, coupled with previous experience in the area, had indicated the probable presence of protective clay layers of significant impermeability, extent and thickness overlying the gray sands of the aquifer below. That work, while adequate for showing an impoundment of this size, low hazard potential and relatively short useful life would "hold water", was not able to answer the newly raised question of specific quantities anticipated.

All available (additional) information from that pre-design work was then presented to Department personnel-specifically, the indications and nature of the clay layers and area observation well data. Department personnel recognized the primordial and imminent need to begin construction. Since the complete type, extent and elevation of eventual pond bottom materials would not be known until the embankments were built, approval for construction only was given. The Company agreed to undertake additional work to establish representative infiltration rates at four locations up the length of the proposed impoundment.

METHODOLOGY USED AND
REASONS FOR CHANGE

The Company originally proposed using some type of field infiltration test procedure upon determination of and final exposure of the pond bottom material. As construction progressed quite a few factors became apparent which militated against the originally proposed field testing approach.

Rain and equipment problems delayed construction progress to the point that a contract extension of time for completion became necessary. In an effort to get something going, drilling and sampling was begun to at least identify material thickness and type. Four locations were chosen (P-1, P-2, P-3 and P-4). They were located:

- a) To gain an area-wide perspective, rather than just along a single cross section, since only 3 major SCS soil types would be involved and not 4; and
- b) To concentrate more of the effort in the middle soil type (principal borrow area) where expected depth of water would be greatest and clay liner thinnest over the gray sands of the Henry Formation aquifer.

Second, a review of various procedures for field permeability testing (1, 2) revealed that at least several months additional time would be necessary for very impermeable soils, like the clays covering the majority of the pond bottom, to yield significantly accurate steady flow conditions. Further, the air-entry permeameter and double ring infiltrometer with tensiometers wouldn't work in already saturated conditions. Considering the relatively non-toxic nature of the infiltrant water, short time available and nature of the clays, the more traditional, broadly used and currently standard approach of laboratory permeability testing of undisturbed field samples would have to be relied upon.

Third and perhaps most important, the drilling specifically hole P-1B, indicated that the Gray/Black clays might not extend, be as thick and/or be exposed over the full pond bottom after borrowing or be beneath the more sandy materials of the hillside forming the shallower, south end of the pond. It was then realized that hillside area was probably going to be relatively more of a heavy hitter than the rest of the larger pond area known to be clay covered. Rapid additional drilling, sampling and lab testing of hillside materials was thus indicated as the most judicious deployment of the limited resources and time left.

The additional drilling included new holes (ie. locations, P-) as well as extension of shallower pre-design holes (ES-). The additional work on the hillside revealed surprising, complicated and variable conditions. Not the least of which was the presence of previously unknown, protruding, shallow bedrock outcroppings.

The methodology finally settled on then included rotary drilling and sampling using auger, mud with drag and roller bits, pushed split spoon and 3" diameter thin-wall tubes. The last were used to obtain the undisturbed samples for laboratory permeability testing. The permeability testing was performed by an outside laboratory, Holcomb Foundation Engineering Company Inc. of Carbondale, Illinois, which has previously done such work for other companies waste disposal sites. Constant head, standard ASTM testing procedures were used. Calculation of anticipated pond bottom infiltration rates were then performed in the manner described by Bouwer (3).

SAMPLE CALCULATION AND
DISCUSSION OF RESULTS

The infiltration quantities were computed in the manner described by Bonwer, as previously stated. Based on the additional site investigation work, lab test results and visual (post-construction) indications, the pond bottom was divided into 11 characteristic sub-areas (see Figure of same title).

The gray sands of the Henry Formation aquifer beneath the bulk of the site tend to run at about elevation 350 to 351. Previous experience indicated that the natural groundwater table tended to usually run at least at that level or higher, beneath the site of Slurry #3. It was reasonable to so assume for calculation purposes, especially since some localized mounding may occur after the pond is put on line. The remaining earth lining above the aquifer was assumed saturated and flow vertically downward (ignoring divergence near pond edges and any horizontal differences as non-assessible, too variable or insignificant) and similarly for the immediate strata below. Under those conditions the Darcy velocity and hydraulic conductivity are then equal; at steady flow conditions the flow rate through the liner can be calculated quite simply as

$$V_1 = K_c \frac{H_w + L_c - h_1}{L_c}$$

where: v_1 = seepage or infiltration rate
 H_w = water depth above liner
 K_c = saturated hydraulic conductivity of earth lining
 L_c = thickness of earth lining
 h_1 = pressure head of water at bottom of liner

Sub-area #1 was a good example of where the above equation was applied. Drilling (P-4) and post-construction elevations indicated that the area was covered with a Gray clay of permeability, 5.13×10^{-9} cm/sec, and thickness of 4.4 ft. As in all computations the normal operating pool elevation of 369.4 was used in figuring the depth of water above the earth lining. Thus

$$\begin{aligned} V_1 &= 5.13 \times 10^{-5} \frac{(60 \times 60 \times 24)}{(12 \times 2.54)} \frac{(14.2' + 4.4' + 0)}{4.4'} \\ &= 6.15 \times 10^{-5} \text{ FT/DAY} \quad (1' \times 1' \times 7.48 \text{ gal/cu ft}) \\ &= 4.60 \times 10^{-4} \text{ GAL/DAY per sq ft of pond bottom} \end{aligned}$$

Where two different, identifiable strata comprised the remaining earth cover over the aquifer, the following equation was used. It was obtained by applying Darcy's equation to the vertical flow from the top surface of the upper layer (L_t) to the bottom of the lower layer (L_c), taking the average vertical hydraulic conductivity of the two layers as $(L_t K_t + L_c K_c) / (L_t + L_c)$. If the upper layer itself consists of a number of horizontal layers of thicknesses L_1, L_2, \dots, L_n with hydraulic conductivities of K_1, K_2, \dots, K_n , then K_t of the entire packet of upper layers could be calculated as the harmonic mean $(L_1 + L_2 + \dots + L_n) / (L_1 K_1 + L_2 K_2 + \dots + L_n K_n)$.

$$v_i = K_c K_t \frac{H_w + L_t + L_c - h_i}{L_c K_t + L_t K_c}$$

where: K_t = saturated hydraulic conductivity of the upper layer
 L_t = thickness of upper layer
 K_c = saturated hydraulic conductivity of the lower layer
 L_c = thickness of the lower layer

Sub-area #4 was an example of where the two layer system was applicable. Drilling (ES-9A) indicated a Yellow Brown clayey sand at 354.4 (2.0' thick) over a sandy clay at 352.4 (1.2' thick). That two layer system was lying over 3.4' of aquifer sands and gravelly clay over a shallow (347.8) hillside sandstone bedrock outcrop. It should be explained further, that 12' of silty sands and clayey sands still remain over the previously described materials, as the actual final surface after construction. Those near surface deposits were ignored however in the calculations. They were variously either too permeable to be of significance or too ill-defined to be conservatively relied upon. The computation for infiltration thus became

$$v_i = 4.74 \times 10^{-8} \times 8.50 \times 10^{-7} \frac{(60 \times 60 \times 24) (15.0' + 1.2' + 2.0') \times 12 \times 2.54}{(12 \times 2.54) 36.6 (8.5 \times 10^{-7}) + 61.0 (4.74 \times 10^{-8})}$$

$$= 186 \times 10^{-5} \text{ FT/DAY}$$

where: $H_w = 369.4 - 354.4 = 15.0'$
 $L_t = 2.0'$ (61.0 cm)
 $K_t = 8.50 \times 10^{-7}$ cm/sec
 $L_c = 1.2'$ (36.6 cm)
 $K_c = 4.74 \times 10^{-8}$ cm/sec
 $h_i = 0$ (water table at base of clay liner)

The results of the permeability tests and anticipated infiltration rates are shown in the attached Tables. An as-built drawing of the Slurry #3 impoundment is also included.

As the table shows, the most likely estimate of anticipated initial infiltration for the pond at full (ie. normal) pool comes to approximately 42,000 gal/day.

Drilling in several sub-areas along the intruding part of the hillside did not hit the the Henry Formation sands. In those areas black or gray clay overlies a shallow bedrock of black and/or gray shales or claystone. It can also be seen on the table, that the large majority of the pond bottom, covered by clay, contributes little to the total anticipated infiltration, less than 12%. As previously suspected, the sandy sub-areas along the hillside, where neither clay nor shallow bedrock were encountered, contribute most to the anticipated pond leakage - over 85%.

Considering the variability of site conditions and complexity of stratigraphy normally expected along buried outcrops, it would not be surprising to see somewhat larger infiltration amounts than were indicated by the calculations. For whatever it is worth to temper interpretation of the results of this effort, the following might apply (strictly on a personal judgement basis):

90% chance	42,000 gal/day
50% chance	84,000 gal/day
20% chance	168,000 gal/day

or a probable, weighted-average, upper-bound value of 113,400 gal/day.

It might be appropriate to note here that the two layer and multiple, upper layer equations previously described were actually, originally derived for a case of tailings overlying a clay liner. That case, slurry having been placed in the pond, was not specifically cranked for the numbers presented in this investigation. It should be evident however that the very sub-areas, which will permit the most seepage initially, will also be the areas also likely to receive the most fine-grained, least permeable slurry deposits once discharge into the pond has begun. The permeability of those deposits could be expected to approach 8 or 10 $\times 10^{-6}$ cm/sec or less (see ref. 4). Where such deposits are of some thickness and are underlain by the more sandy hillside materials, a consequent and significant reduction in seepage flows will probably be realized.

Lastly, the final configuration and depth of the borrow area were such that the fine coal refuse, to be disposed of therein, will not be in direct contact with the gray sands of the Henry Formation aquifer anywhere on the site.

REFERENCES

- (1) Bureau of Reclamation, USDI; Earth Manual, "Field Permeability Test (Shallow Well Method) - Designation E-36", p.717; 1968.
- (2) U.S. Environmental Protection Agency; Soil Properties, Classification, and Hydraulic Conductivity Testing - Draft, Tech. Resource Doc. SW-925, 1984.
- (3) Bower, H.; "Design Considerations for Earth Linings for Seepage Control", Ground Water, V.20, no.5. Sept.-Oct. 1982.
- (4) U.S. Department of Energy; A Study of the Properties of Mine Waste in the Midwestern Coal Fields - Final Report, Dames & Moore, Inc.; DE-AC01-79ET-14211, Nov. 1981.

ST RESULTS

SAMPLE TESTED	UNIT WEIGHT (PCF)	MOISTURE AFTER SATURATION(%)	PERMEABILITY (CM./SEC)	LIQUID LIMIT(%)	PLASTIC LIMIT(%)	PLASTICITY INDEX	% PASSING #200 SIEVE
4"-10"	112.9	17.4	2.94×10^{-5}	14.1	14.1	0	50.4
4"-10"	116.7	15.2	2.87×10^{-5}	(See Enclosed Sieve Analysis)			28.0
2"-8"	75.8	48.6	9.69×10^{-9}	49	24	25	83.1
7"-12"	112.6	19.1	4.74×10^{-8}	18	11	7	45.1
0"-6"	80.5	37.6	1.07×10^{-9}	48	22	26	82.7
-----No Testing Required-----							
le) 6"-11"				36	18	18	91.5
-----No Testing Required-----							
-----No Testing Required-----							
-----No Testing Required-----							
2"-8"	100.4	27.5	5.27×10^{-9}	49	20	29	89.2
ets 3"-10"	100.4	27.0	4.98×10^{-9}	41	17	24	74.0
4"-8"	103.3	21.7	1.36×10^{-8}	29	13	16	62.3
	122.4	13.4	8.46×10^{-6}	19	13	6	31.4
2"-18"	107.5	23.9	8.50×10^{-7}	20	10	10	36.2

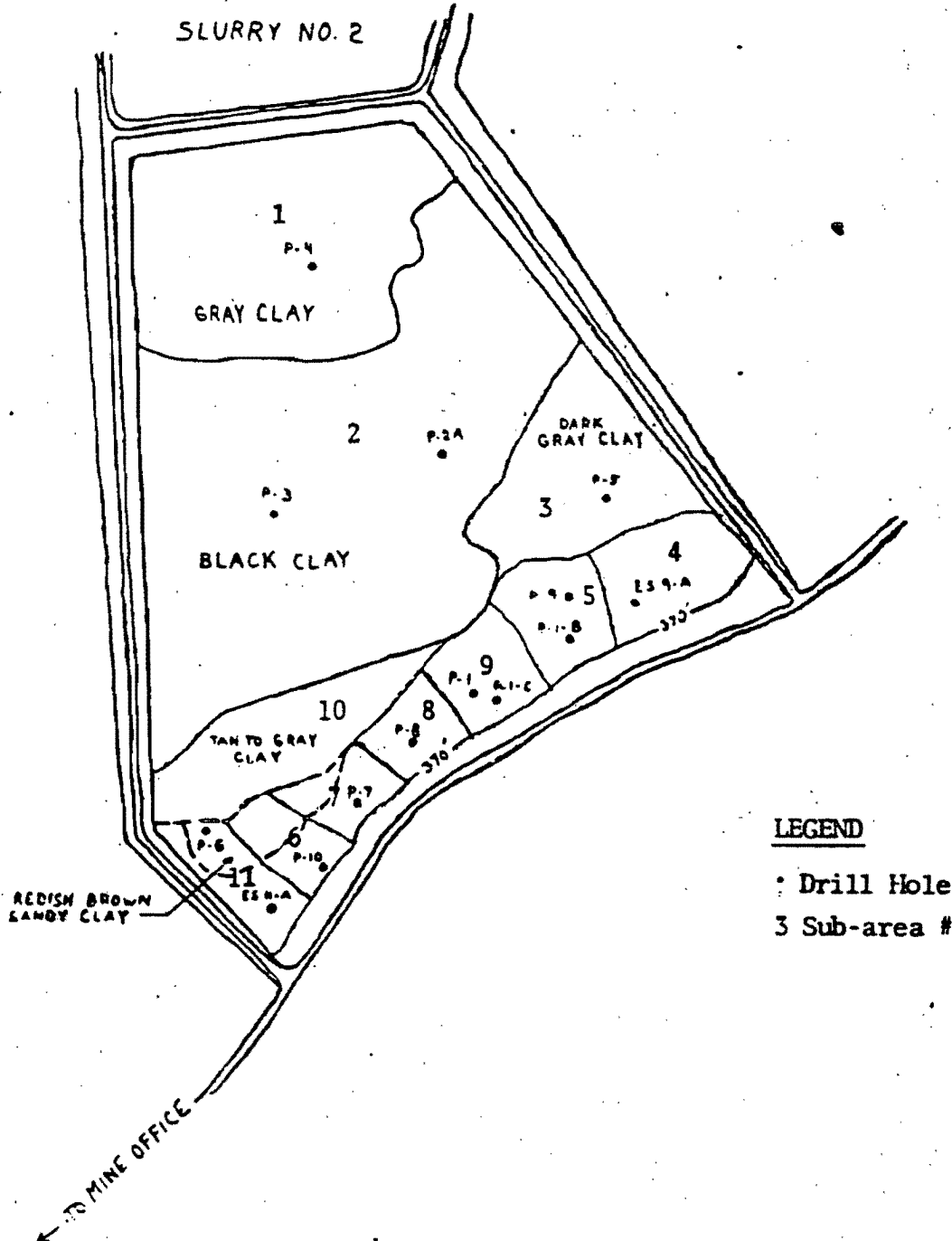
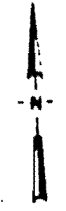
Electronic Filing - Received, Clerk's Office, April 11, 2011

TABLE OF
INITIAL INFILTRATION BY SUB-AREAS

SUB AREA #	DARCY VELOCITY		BOTTOM SURFACE (ACRES)	INFILTRATION (GAL/DAY)
	VERTICAL INFILTRATION RATE (FT/DAY)	(GAL/ft/DAY)		
1	6.15x10 ⁻⁵	0.000460	7.2	144
2	68.2x10 ⁻⁵	0.00510	16.2	3600
3	40.3x10 ⁻⁵	0.00301	3.4	446
4	186x10 ⁻⁵	0.0139	1.7	1030
5	6360x10 ⁻⁵	0.476	1.2	24,900
6*	-	-	0.8	-
7*	-	-	0.7	-
8*	-	-	0.7	-
9*	-	-	1.0	-
10	80.3x10 ⁻⁵	0.00601	2.4	628
11	3006x10 ⁻⁵	0.225	1.1	10,800
TOTAL AREA**			36.4	41,548
			SAY	<u>42,000</u>

*Drilling Hit Clay Over Shallow Bedrock Outcrop

**Within Toe-Of-Inside-Slope Of Levees



LEGEND
 • Drill Hole
 3 Sub-area #

FIGURE OF CHARACTERISTIC SUB-AREAS

SLURRY #3 HYDROLOGIC INFORMATION

In order to assess the possible impacts of Slurry #3 upon the groundwater of the area the following approach was taken. First, the infiltration rate through the bottom of Slurry #3 was taken as 42,000 gpd. This rate is based upon the slurry impoundment being at design pool elevation with no allowances made for the self-sealing effect of the slurry or the effects of the slurry solids upon the calculated permeability of the impoundment. Since analyses of the current Eagle #2 slurry indicate that 62%-74% of the slurry fines are in the - 325 mesh size range, these effects should be significant. Therefore, the 42,000 gpd infiltration rate or leakage volume is probably conservative on the high side of what would be actually experienced.

Next, the water quality of the leakage volume was assumed to be identical to that of the slurry process water. Specifically, total dissolved solids were taken as 1555 mg/l, sulfates and chlorides levels of 708 mg/l and 281 mg/l respectively were also used.

Finally, with the leakage volume and water quality determined as described, the Random Walk Solute Transport Model was utilized to assess the impact of Slurry #3 upon the water quality of the Saline Valley Wells. Four scenarios were simulated. First, Slurry #3 was given a four year life with well MW-9 operating and a six year life with MW-9 operating. Then, two additional scenarios consisting of both a four year and six year life for Slurry #3 with a new production well operating were modeled. In all cases, the pumpage date of the Saline Valley Wells was taken as 1.8 MGD. The pumpage rate for MW-9 and the new production well was set at the rate of 0.8 MGD. Also, the leakage volume for Slurry #3 was evaluated at ten particles per year. Sample calculations are attached which further illustrate the particle evaluation and subsequent water quality impact upon the Saline Valley Wells. In the cases which involved the operations of a new production well, the model was run until all particles were removed from the system. For the cases involving operation of MW-9, the model was run for a 100 year duration with MW-9 operating for the first 22 years of this time period.

As shown in the table entitled Slurry #3 Modeling Results For Water Quality Impacts, very minimal effects upon the water quality of the Saline Valley Wells are expected. Modeling of the two scenarios involving the operation of a new production well showed that no particles entered the Saline Valley Wells. In the 4 year Slurry #3 life case all particles are removed by the fifteenth year of operation of the new production well. For the 6 year counterpart of this scenario, all particles were removed in the seventeenth year. If the new production well were installed it would be anticipated to run at least 22 years which is the present life of mine estimate.

Concerning the scenarios which involve MW-9 operating, the maximum number of particles entered the Saline Valley Wells during the interval year 70-year 80. In the case of the 4 year Slurry #3 life, a total of 5 particles entered the wells during this period. For the 6 year Slurry #3 life case, 11 particles entered the wells during the same period. The expected water quality for these time periods appears in the water quality impact table previously mentioned. As shown in the table, very little change in water quality is anticipated. The TDS, Sulfate, and Chloride levels remain well within the public water supply limits given in 35 Ill. Adm. Code 302.304.

SAMPLE CALCULATION

Leakage Valued at 10 Particles/yr.
 Leakage Volume = 42,000 gpd
 Leakage TDS = 1555 mg/l
 Existing Saline Valley Well TDS = 338 mg/l
 Saline Valley Well Pumpage Rate = 1.8 MGD
 1.1 Particles / yr. enters Saline Valley Wells

$$\text{Leakage } \frac{\text{lbs TDS}}{\text{yr.}} = 1555 \frac{\text{mg}}{\text{l}} \times \frac{8.34 \text{ lbs}}{\text{MG}} / \frac{\text{mg}}{\text{l}} \times 42,000 \text{ gpd} \times \frac{360 \text{ day}}{\text{yr.}}$$

$$= 196,086.74 \frac{\text{lbs TDS}}{\text{yr.}}$$

$$\text{Leakage } \frac{\text{lbs TDS}}{\text{yr.}} \text{ Entering Saline Valley Wells} = 196,086.74 \frac{\text{lbs TDS}}{\text{yr.}} \times \frac{1 \text{ yr.}}{10 \text{ particles}}$$

$$\times \frac{1.1 \text{ particles}}{\text{yr.}} = 21,569.54 \frac{\text{lbs TDS}}{\text{yr.}}$$

$$\frac{\text{lbs TDS}}{\text{yr.}} \text{ in Saline Valley Wells Now}$$

$$= 338 \frac{\text{mg}}{\text{l}} \times \frac{8.34}{\text{MG}} / \frac{\text{mg}}{\text{l}} \times \frac{1.8 \text{ MG}}{\text{Day}} \times \frac{360 \text{ Day}}{\text{Yr.}} = 1,826,660.16 \frac{\text{lbs TDS}}{\text{yr.}}$$

$$\text{New } \frac{\text{lbs TDS}}{\text{yr.}} \text{ in Saline Valley Wells} = 21,569.54 + 1,826,660.16$$

$$= 1,848,229.70 \frac{\text{lbs TDS}}{\text{yr.}}$$

$$\text{New Level of TDS in Saline Valley Wells in } \frac{\text{mg}}{\text{l}}$$

$$= 1,848,229.70 \frac{\text{lbs TDS}}{\text{yr.}} \times \frac{1 \text{ yr.}}{360 \text{ day}} \times \frac{1 \text{ day}}{1.8 \text{ MG}} \times \text{mg/l} / \frac{8.34 \text{ lbs}}{\text{MG}}$$

$$= 342 \frac{\text{mg}}{\text{l}} \text{ TDS}$$

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 de see schedule A
 in 4027-84 for
 slurry circuit.

SLURRY #3 MODELING RESULTS
FOR WATER QUALITY IMPACTS

SCENARIO	MAXIMUM PARTICLES/YEAR ENTERING SALINE VALLEY WELLS	NEW WATER QUALITY			EXISTING WATER QUALITY		
		TDS mg/ℓ	SO ₄ mg/ℓ	Cl mg/ℓ	TDS mg/ℓ	SO ₄ mg/ℓ	Cl mg/ℓ
4 yr. Particle Addition with MW-9 Pumping	0.5 (yr. 70-yr. 80)	340	27	5.0	338	26	4.7
6 yr. Particle Addition with MW-9 Pumping	1.1 (yr. 70-yr. 80)	342	28	5.4	338	26	4.7
4 yr. Particle Addition with New Production Well	0	*	*	*			
6 yr. Particle Addition with New Production Well	0	*	*	*			

*No Impact Indicated

Exhibit 14

CURRICULUM VITA

**WILLIAM E. BUSCHER P.G.
853 South Mac Arthur Blvd.
Springfield, Illinois 62704**

Professional Experience

Illinois Environmental Protection Agency **April 1988 to Present**
Bureau of Water
Division of Public Water Supplies
Groundwater Section
Springfield, Illinois

Public Service Administrator **September 1994 to Present**
Duties Performed: Hydrogeology and Compliance Unit Supervisor generally responsible for the direct supervision of technical & professional staff implementing groundwater protection, assessment and remediation programs. Functions include construction & review of analytical and numerical groundwater flow models, evaluation of the hydrogeologic aspects of groundwater protection & remediation programs.

Environmental Protection Specialist IV **April 1993 to August 1994**
Duties Performed: Hydrogeology and Compliance Unit Supervisor generally responsible for the direct supervision of technical & professional staff implementing groundwater protection, assessment and remediation programs. Functions include construction & review of analytical and numerical groundwater flow models, evaluation of the hydrogeologic aspects of groundwater protection & remediation programs.

Environmental Protection Engineer III **March 1991 to April 1993**
Duties Performed: Reviewing hydrogeologic aspects of implementing Illinois' groundwater protection program. Including construction and reviewing analytical and numeric groundwater flow models, completing groundwater protection needs assessments, and reviewing groundwater remediation corrective action plans. Providing technical assistance to community water supplies interested in implementing well recharge area protection program.

Environmental Protection Engineer II **June 1990 to April 1991**
Duties Performed: Reviewing hydrogeologic aspects of implementing Illinois' groundwater protection program. Including construction and reviewing analytical and numeric groundwater flow models, completing groundwater protection needs assessments, and reviewing groundwater remediation corrective action plans. Providing technical assistance to community water supplies interested in implementing well recharge area protection programs.

Environmental Protection Engineer I

April 1988 to May 1989

Duties Performed: Review hydrogeologic aspects of implementing Illinois' groundwater protection program. Including reviewing the lateral area of influence determinations for pumping wells, and groundwater remediation corrective action plans. Provided technical assistance to community water supplies interested in implementing well recharge area protection programs.

Metropolitan St. Louis Sewer District
2000 Hampton Avenue
St. Louis, Mo 63139-2979

Construction Inspector

July 1987 to November 1987

Duties Performed: Inspected sewer line installation, logged soil and rock test borings and completed seismic studies for proposed sewer lines.

Lincoln Devore Inc. Geotechnical Consultants
1000 West Fillmore St.
Colorado Springs Co. 80907

Engineering Geologist

July 1984 to November 1986

Duties Performed: Geotechnical report writing, soil and rock boring logging, monitor well installation, percolation tests, geological mapping aerial photo interpretation, seismic and resistivity studies, excavation observations and drilled pier observations.

Education

Bachelor of Science Geological Engineering
University of Missouri-Rolla
Rolla, Missouri

May 1984

Licenses

Illinois Licensed Professional Geologist

September 1998

License Number 196.000656
Expiration Date March 31, 2013

Additional Training

United States Geological Survey (MODFLOW and MODPATH groundwater modeling) **1992**

Geology 435 - Computer Modeling of Groundwater Systems **1995**

Publications

Buscher, W.E., and Cobb, R.P., 1990. Maximum Setback Zone Workbook. Illinois Environmental Protection Agency. 62 pp.