BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
PROPOSED AMENDMENTS TO	)	
CLEAN CONSTRUCTION OR DEMOLITION	)	R12-9(B)
DEBRIS FILL OPERATIONS (CCDD):	)	(Rulemaking – Land)
PROPOSED AMENDMENTS TO 35 Ill.	)	
Adm. Code 1100)	)	

NOTICE OF FILING

John T. Therriault, Clerk
Illinois Pollution Control Board
James R. Thompson Center
Suite 11-500
100 W. Randolph
Chicago, Illinois 60601

Mitchell Cohen
Chief Legal Counsel
Illinois Dept. of Natural Resources
One Natural Resources Way
Springfield, Illinois 62702-1271

Matthew J. Dunn, Chief
Environmental Enforcement/Asbestos
Litigation Division
Illinois Attorney General's Office
500 South Second Street
Springfield, Illinois 62706

Marie E. Tipsord
Hearing Officer
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph, Suite 11-500
Chicago, Illinois 60601

Attached Service List

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Illinois Pollution Control Board the Illinois Environmental Protection Agency's Responses to Pre-Filed Questions, copies of which are herewith served upon you.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

By: Mark Wight
Mark Wight
Assistant Counsel

DATE: May 13, 2013

1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276
(217) 782-5544
Mark.Wight@illinois.gov

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
PROPOSED AMENDMENTS TO CLEAN	)	
CONSTRUCTION OR DEMOLITION	)	R 2012-009(B)
DEBRIS (CCDD) FILL OPERATIONS:	)	(Rulemaking Land)
PROPOSED AMENDMENTS TO 35 Ill.	)	
Adm. Code 1100	)	

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY'S RESPONSES TO PRE-FILED QUESTIONS

The Illinois Environmental Protection Agency hereby files its responses to pre-filed questions in accordance with the Hearing Officer Order issued April 8, 2013. The responses are presented in the order in which the questions were filed.

I. PRE-FILED QUESTIONS FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY SUBMITTED BY THE ILLINOIS ASSOCIATION OF AGGREGATE PRODUCERS

1. *Are the proposed groundwater monitoring rules contained within 35 Ill. Adm. Code 1100 Subpart G applicable to all excavations that accept "clean construction or demolition debris" (CCDD), as defined in 415 ILCS 5/3.160(b)?*

IEPA Response: No, some excavations are exempt. The Part 1100 regulations and the proposed Subpart G groundwater monitoring regulations generally apply to all excavations that are CCDD fill operations that are required to be permitted pursuant to Section 22.51 of the Act. 35 Ill. Adm. Code 1100.101(a), 1100.700(a). However, Section 1100.101(b)(2) and (b)(3) contain exclusions from the Part 1100 regulations for some excavations accepting CCDD as fill material.

2. *Are excavations that accept CCDD from Illinois Department of Transportation (IDOT), county or municipal projects, such as the Maclair Asphalt pit referenced in Attachment #1, exempt from the proposed Illinois Environmental Protection Agency (IEPA) groundwater monitoring rules in 35 Ill. Adm. Code 1100 Subpart G?*

IEPA Response: Attachment # 1 was not included with the filing at the Illinois Pollution Control Board's Clerk's Office On-Line or with the hard copy of the filing served upon the Illinois EPA. However, the Illinois EPA is generally familiar with the CCDD and uncontaminated soil fill activities taking place at Maclair Asphalt Sales, L.L.C. ("Maclair") in Madison County, Illinois. The circumstances concern a former IDOT borrow pit located on Maclair property. As a result of a consent order issued in a declaratory judgment action filed by

Maclair, the Maclair fill site has been determined to fall within the exemption for excavations "other than a current or former quarry or mine if [the] use complies with Illinois Department of Transportation specifications . . . ." Memorandum and Order, No. 11-MR-280, Circuit Court # 10, Third Judicial Circuit, Madison County, Illinois (Feb. 13, 2013); 415 ILCS 22.51(b)(4)(B); 35 Ill. Adm. Code 1100.101(b)(3). Therefore, the Maclair facility in Madison County would not be subject to Part 1100 or the proposed groundwater monitoring requirements of Subpart G. When other excavations claiming the IDOT exemption are identified by the Illinois EPA, they will be evaluated on a site-specific basis to determine compliance.

The Maclair exemption is not unconditional. Among other requirements, the Order states the "uncontaminated soil and/or CCDD must be generated solely from IDOT, county or municipal projects and its use as fill in the pit at the MACLAIR ASPHALT facility must be authorized by the applicable governmental entity as required to meet the exemption provided by [the statute and rules]." Memorandum and Order at ¶ 2. In accordance with the IDOT specifications, the process is subject to oversight by an engineer representing the applicable governmental entity. The authorizations must be in writing and must be retained at the Maclair facility for inspection by the Illinois EPA. *Id.* at ¶ 3. A record of the weight and/or volume of the uncontaminated soil and/or CCDD accepted as fill from each project, the date of acceptance, and the site of origin also must be kept and maintained at the facility for inspection by the Illinois EPA. *Id.* at ¶ 4. Maclair must notify the Illinois EPA when fill activities are complete, and the fill activities must comply with all other applicable laws and regulations. *Id.* at ¶¶ 5 – 7.

3. *Referring to exempt excavations that accept CCDD from IDOT projects:*

3a. *Why are these excavations exempt from the proposed groundwater monitoring rules in 35 Ill. Adm. Code 1100 Subpart G?*

IEPA Response: The exemption is statutory in origin as cited in the response to IAAP Question No. 2 and has been adopted in the Part 1100 applicability section. 415 ILCS 22.51(b)(4)(B); 35 Ill. Adm. Code 100.101(b)(3). By the terms of the IDOT specifications, the exemption extends to counties, municipalities and townships. 35 Ill. Adm. Code 1100.101(b)(3) (Board Note).

3b. *What actions are undertaken to ensure that materials from IDOT projects that are dumped into exempt excavations meet the definition of CCDD?*

IEPA Response: The process is subject to oversight by an IDOT engineer in accordance with the IDOT specifications. In addition, the exempt excavations are subject to statutory and regulatory provisions such as those: (1) limiting acceptance of soils to "uncontaminated soils" as that term is defined at 415 ILCS 5/3.160(c) (*i.e.*, the maximum allowable concentrations (MACs) do not apply outside of Part 1100 fill operations (Section 1100.600(b)); (2) prohibiting any person from causing, threatening or allowing the discharge of any contaminants so as to cause or tend to cause water pollution in Illinois; and (3) depositing any contaminants upon the land in such place and manner so as to create a water pollution hazard. 415 ILCS 5/12(a), (d); 35 Ill. Adm. Code 620.301, 620.401, 620.405. The exempt excavations are not regulated under a specific set of rules, so there are no defined procedures to be followed for operations or Agency administration.

3c. *Is either an LPC-662 or LPC-663 form required for CCDD or other materials from IDOT projects that are dumped into exempt excavations?*

IEPA Response: No.

3d. *What prevents CCDD or other materials from IDOT projects that are dumped into exempt excavations from causing an exceedance of the Class I groundwater quality standards at 35 Ill. Adm. Code 620.410?*

IEPA Response: Geologic differences aside, the primary protection depends on the supervising engineer achieving compliance with the requirements of the IDOT specifications and the definition of "uncontaminated soil" in Section 3.160 of the Act.

4. *Referring to exempt excavations that accept CCDD from county projects:*

4a. *Why are these excavations exempt from the proposed groundwater monitoring rules in 35 Ill. Adm. Code 1100 Subpart G?*

IEPA Response: The exemption is statutory in origin as cited in the response to IAAP Question No. 2 and has been adopted in the Part 1100 applicability section. 415 ILCS 22.51(b)(4)(B); 35 Ill. Adm. Code 100.101(b)(3). By the terms of the IDOT specifications, the exemption extends to counties, municipalities and townships. 35 Ill. Adm. Code 1100.101(b)(3) (Board Note).

4b. *What actions are undertaken to ensure that materials from county projects that are dumped into exempt excavations meet the definition of CCDD?*

The process is subject to oversight by a county engineer in accordance with the IDOT specifications. In addition, the facilities are subject to statutory and regulatory provisions such as those: (1) limiting acceptance of soils to "uncontaminated soils" as that term is defined at 415 ILCS 5/3.160(c) (*i.e.*, the maximum allowable concentrations (MACs) do not apply outside of Part 1100 fill operations (Section 1100.600(b)); (2) prohibiting any person from causing, threatening or allowing the discharge of any contaminants so as to cause or tend to cause water pollution in Illinois; and (3) depositing any contaminants upon the land in such place and manner so as to create a water pollution hazard. 415 ILCS 5/12(a), (d); 35 Ill. Adm. Code 620.301, 620.401, 620.405. The exempt excavations are not regulated under a specific set of rules, so there are no defined procedures to be followed for operations or Agency administration.

4c. *Is either an LPC-662 or LPC-663 form required for CCDD or other materials from county projects that are dumped into exempt excavations?*

IEPA Response: No.

4d. What prevents CCDD or other materials from IDOT projects that are dumped into exempt excavations from causing an exceedance of the Class I groundwater quality standards at 35 Ill. Adm. Code 620.410?

IEPA Response: Geologic differences aside, the primary protection depends on the supervising engineer achieving compliance with the requirements of the IDOT specifications and the definition of "uncontaminated soil" in Section 3.160 of the Act.

5. Referring to exempt excavations that accept CCDD from municipal projects:

5a. Why are these excavations exempt from the proposed groundwater monitoring rules in 35 Ill. Adm. Code 1100 Subpart G?

IEPA Response: The exemption is statutory in origin as cited in the response to question No. 2 and has been adopted in the Part 1100 applicability section. 415 ILCS 22.51(b)(4)(B); 35 Ill. Adm. Code 100.101(b)(3). By the terms of the IDOT specifications, the exemption extends to counties, municipalities and townships. 35 Ill. Adm. Code 1100.101(b)(3) (Board Note).

5b. What actions are undertaken to ensure that materials from municipal projects that are dumped into exempt excavations meet the definition of CCDD?

IEPA Response: The process is subject to oversight by a municipal engineer in accordance with the IDOT specifications. In addition, the facilities are subject to statutory and regulatory provisions such as those: (1) limiting acceptance of soils to "uncontaminated soils" as that term is defined at 415 ILCS 5/3.160(c) (*i.e.*, the maximum allowable concentrations (MACs) do not apply outside of Part 1100 fill operations (Section 1100.600(b)); (2) prohibiting any person from causing, threatening or allowing the discharge of any contaminants so as to cause or tend to cause water pollution in Illinois; and (3) depositing any contaminants upon the land in such place and manner so as to create a water pollution hazard. 415 ILCS 5/12(a), (d); 35 Ill. Adm. Code 620.301, 620.401, 620.405. The exempt excavations are not regulated under a specific set of rules, so there are no defined procedures to be followed for operations or Agency administration.

5c. Is either an LPC-662 or LPC-663 form required for CCDD or other materials from municipal projects that are dumped into exempt excavations?

IEPA Response: No.

5d. What prevents CCDD or other materials from IDOT projects that are dumped into exempt excavations from causing an exceedance of the Class I groundwater quality standards at 35 Ill. Adm. Code 620.410?

IEPA Response: Geologic differences aside, the primary protection depends on the supervising engineer achieving compliance with the requirements of the IDOT specifications and the definition of "uncontaminated soil" in Section 3.160 of the Act.

6. *Are the proposed groundwater monitoring rules contained within 35 Ill. Adm. Code 1100 Subpart G applicable to all excavations that accept "uncontaminated soil", as defined in 415 ILCS 5/3.160(c)?*

No, some excavations are exempt. The Part 1100 regulations and the proposed Subpart G groundwater monitoring regulations generally apply to all excavations that are uncontaminated soil fill operations ("USFO") required to be registered by Section 22.51a of the Act. 35 Ill. Adm. Code 1100.101(a), 1100.700(a). However, Section 1100.101(b)(2) and (b)(3) contain exclusions from the Part 1100 regulations for some excavations accepting only uncontaminated soil as fill material.

7. *Are excavations that accept uncontaminated soil from IDOT, county or municipal projects, such as the Maclair Asphalt pit referenced in Attachment #1, exempt from the proposed Illinois Environmental Protection Agency (IEPA) groundwater monitoring rules contained within in 35 Ill. Adm. Code 1100 Subpart G?*

IEPA Response: As stated previously in response to IAAP Question No. 2, Attachment # 1 was not included with the filing at the Illinois Pollution Control Board's Clerk's Office On-Line or with the hard copy of the filing served upon the Illinois EPA. However, the Illinois EPA is generally familiar with the CCDD and uncontaminated soil fill activities taking place at Maclair Asphalt Sales, L.L.C. ("Maclair") in Madison County, Illinois. The circumstances concern a former IDOT borrow pit located on Maclair property. As a result of a consent order issued in a declaratory judgment action filed by Maclair, the Maclair fill site has been determined to fall within the exemption for excavations "other than a current or former quarry or mine if [the] use complies with Illinois Department of Transportation specifications . . . ." Memorandum and Order, No. 11-MR-280, Circuit Court # 10, Third Judicial Circuit, Madison County, Illinois (Feb. 13, 2013); 415 ILCS 22.51(b)(4)(B); 35 Ill. Adm. Code 1100.101(b)(3). Therefore, the Maclair facility in Madison County would not be subject to Part 1100 or the proposed groundwater monitoring requirements of Subpart G. When other excavations claiming the IDOT exemption are identified by the Illinois EPA, they will be evaluated on a site-specific basis to determine compliance.

8. *Referring to exempt excavations that accept uncontaminated soil from IDOT projects:*

8a. *Why are these excavations exempt from the proposed groundwater monitoring rules in 35 Ill. Adm. Code 1100 Subpart G?*

IEPA Response: Among the excavations that are exempt are excavations "other than a current or former quarry or mine if the use complies with Illinois Department of Transportation specifications." This exemption is statutory in origin and is found at Section 22.51(b)(4)(B) of the Act for CCDD fill operations. The exemption is not found in Section 22.51a of the Act for uncontaminated soil fill operations ("USFO"), but the Agency proposed the extension of the statutory exemption to USFOs in Section 1100.101(b)(3) to maintain consistency for IDOT operations. By the terms of the IDOT specifications, the exemption extends to counties, municipalities and townships. 35 Ill. Adm. Code 1100.101(b)(3) (Board Note).

8b. What actions are undertaken to ensure that materials from IDOT projects that are dumped into exempt excavations meet the definition of uncontaminated soil?

IEPA Response: The process is subject to oversight by an IDOT engineer in accordance with the IDOT specifications. In addition, the exempt excavations are subject to statutory and regulatory provisions such as those: (1) limiting acceptance of soils to "uncontaminated soils" as that term is defined at 415 ILCS 5/3.160(c) (*i.e.*, the maximum allowable concentrations (MACs) do not apply outside of Part 1100 fill operations (Section 1100.600(b)); (2) prohibiting any person from causing, threatening or allowing the discharge of any contaminants so as to cause or tend to cause water pollution in Illinois; and (3) depositing any contaminants upon the land in such place and manner so as to create a water pollution hazard. 415 ILCS 5/12(a), (d); 35 Ill. Adm. Code 620.301, 620.401, 620.405. The exempt excavations are not regulated under a specific set of rules, so there are no defined procedures to be followed for operations or Agency administration.

8c. Is either an LPC-662 or LPC-663 form required for uncontaminated soil or other materials from IDOT projects that are dumped into exempt excavations?

IEPA Response: No.

8d. What prevents uncontaminated soil or other materials from IDOT projects that are dumped into exempt excavations from causing an exceedance of the Class I groundwater quality standards at 35 Ill. Adm. Code 620.410?

IEPA Response: Geologic differences aside, the primary protection depends on the supervising engineer achieving compliance with the requirements of the IDOT specifications and the definition of "uncontaminated soil" in Section 3.160 of the Act.

9. Referring to exempt excavations that accept uncontaminated soil from county projects:

9a. Why are these excavations exempt from the proposed groundwater monitoring rules in 35 Ill. Adm. Code 1100 Subpart G?

IEPA Response: Among the excavations that are exempt are excavations "other than a current or former quarry or mine if the use complies with Illinois Department of Transportation specifications." This exemption is statutory in origin and is found at Section 22.51(b)(4)(B) of the Act for CCDD fill operations. The exemption is not found in Section 22.51a of the Act for uncontaminated soil fill operations ("USFO"), but the Agency proposed the extension of the statutory exemption to USFOs in Section 1100.101(b)(3) to maintain consistency for IDOT operations. By the terms of the IDOT specifications, the exemption extends to counties, municipalities and townships. 35 Ill. Adm. Code 1100.101(b)(3) (Board Note).

9b. What actions are undertaken to ensure that materials from county projects that are dumped into exempt excavations meet the definition of uncontaminated soil?

IEPA Response: The process is subject to oversight by a county engineer in accordance with the IDOT specifications. In addition, the exempt excavations are subject to statutory and regulatory provisions such as those: (1) limiting acceptance of soils to "uncontaminated soils" as that term is defined at 415 ILCS 5/3.160(c) (*i.e.*, the maximum allowable concentrations (MACs) do not apply outside of Part 1100 fill operations (Section 1100.600(b)); (2) prohibiting any person from causing, threatening or allowing the discharge of any contaminants so as to cause or tend to cause water pollution in Illinois; and (3) depositing any contaminants upon the land in such place and manner so as to create a water pollution hazard. 415 ILCS 5/12(a), (d); 35 Ill. Adm. Code 620.301, 620.401, 620.405. The exempt excavations are not regulated under a specific set of rules, so there are no defined procedures to be followed for operations or Agency administration.

9c. Is either an LPC-662 or LPC-663 form required for uncontaminated soil or other materials from county projects that are dumped into exempt excavations?

IEPA Response: No.

9d. What prevents uncontaminated soil or other materials from county projects that are dumped into exempt excavations from causing an exceedance of the Class I groundwater quality standards at 35 Ill. Adm. Code 620.410?

IEPA Response: Geologic differences aside, the primary protection depends on the supervising engineer achieving compliance with the requirements of the IDOT specifications and the definition of "uncontaminated soil" in Section 3.160 of the Act.

10. Referring to exempt excavations that accept uncontaminated soil from municipal projects:

10a. Why are these excavations exempt from the proposed groundwater monitoring rules in 35 Ill. Adm. Code 1100 Subpart G?

IEPA Response: Among the excavations that are exempt are excavations "other than a current or former quarry or mine if the use complies with Illinois Department of Transportation specifications." This exemption is statutory in origin and is found at Section 22.51(b)(4)(B) of the Act for CCDD fill operations. The exemption is not found in Section 22.51a of the Act for uncontaminated soil fill operations ("USFO"), but the Agency proposed the extension of the statutory exemption to USFOs in Section 1100.101(b)(3) to maintain consistency for IDOT operations. By the terms of the IDOT specifications, the exemption extends to counties, municipalities and townships. 35 Ill. Adm. Code 1100.101(b)(3) (Board Note).

10b. What actions are undertaken to ensure that materials from municipal projects that are dumped into exempt excavations meet the definition of uncontaminated soil?

IEPA Response: The process is subject to oversight by a municipal engineer in accordance with the IDOT specifications. In addition, the exempt excavations are subject to statutory and regulatory provisions such as those: (1) limiting acceptance of soils to "uncontaminated soils" as

that term is defined at 415 ILCS 5/3.160(c) (*i.e.*, the maximum allowable concentrations (MACs) do not apply outside of Part 1100 fill operations (Section 1100.600(b)); (2) prohibiting any person from causing, threatening or allowing the discharge of any contaminants so as to cause or tend to cause water pollution in Illinois; and (3) depositing any contaminants upon the land in such place and manner so as to create a water pollution hazard. 415 ILCS 5/12(a), (d); 35 Ill. Adm. Code 620.301, 620.401, 620.405. The exempt excavations are not regulated under a specific set of rules, so there are no defined procedures to be followed for operations or Agency administration.

10c. Is either an LPC-662 or LPC-663 form required for uncontaminated soil or other materials from municipal projects that are dumped into exempt excavations?

IEPA Response: No.

10d. What prevents uncontaminated soil or other materials from municipal projects that are dumped into exempt excavations from causing an exceedance of the Class I groundwater quality standards at 35 Ill. Adm. Code 620.410?

IEPA Response: Geologic differences aside, the primary protection depends on the supervising engineer achieving compliance with the requirements of the IDOT specifications and the definition of "uncontaminated soil" in Section 3.160 of the Act.

II. ILLINOIS POLLUTION CONTROL BOARD'S QUESTIONS FOR HEARING

Costs of Groundwater Monitoring:

1. Regarding the Bluff City groundwater monitoring cost figures provided by IAAP, the Agency notes that additional information including "the reasons for initiating monitoring at the Bluff Spring Fen, the nature of the geologic materials in which the wells are installed, the depths of the wells, the costs per foot for installation, the system design costs, any special circumstances at the site affecting costs, and other related costs necessary to reach the total of $350,000 are needed before the Bluff City figures can be factored into any determination of the economic reasonableness of groundwater monitoring at fill sites." PC 62 at 21. Would it be possible for IAAP to provide a breakdown of the groundwater monitoring costs at Bluff city, so that such costs may be compared with the monitoring costs submitted by IEPA and WMI?

No IEPA Response.

2. The Agency's estimated costs to design and install a monitoring system were less than $0.52 per cubic yard over the 10-year life of a permit for 99% of the CCDD disposed of at fill sites in 2011. PC 62 at 22. In the situation where capital funding for design and installation is obtained through a loan, please estimate the cost per cubic yard per year, accounting for the interest rate on the loan.

IEPA Response: For a loan with a 10-year term and a monthly payment schedule, each percent

interest on the loan increases the costs by approximately 5%. Thus, if the cost to design and install a groundwater monitoring system is $0.52 per cubic yard, without taking interest into account, the cost would be approximately $0.60 per cubic yard if the money were borrowed at 3% per annum. If the money were borrowed at 5%, the cost would rise to approximately $0.66 per cubic yard. At 7%, the cost would be approximately $0.72 per cubic yard.

Parameters to be Monitored

3. Mr. Huff stated that monitoring cost burden could be eliminated by limiting "the groundwater monitoring to volatile organic compounds and dissolved RCRA metals." PC 59 at 3.

3a. Please comment on the prevalence of the other 35 Ill. Adm. Code 620 parameters in CCDD and uncontaminated soil.

IEPA Response: In late 2012 (after the Board's adoption of the MACs) a sampling exercise was conducted by the Agency. One conclusion that can be taken from this limited sampling exercise is that with even the best intentions and following the screening and soil acceptance procedures soils with contamination above the MAC are being accepted at the operating sites. Inspectors went to twelve sites collecting random samples of recently deposited surface soil from the active fill face at the sites. Either a PID or an XRF (or both) were used to screen the soil prior to selecting a location to collect a sample. These samples were sent to the Agency's lab and analyzed for pH, metals and semi-volatiles. The samples were not were not analyzed for volatiles because only surface samples were taken, and any volatiles at the surface were expected to have evaporated. At ten of the twelve sites sampled, exceedances of the MACs were found:

CADMIUM exceedances were found at nine sites with the highest level being 9.78 mg/kg (MAC 5.2 mg/kg).

IRON exceedances were found at six sites with the highest level being 29,700mg/kg (MAC 15,000 mg/kg).

ALUMINUM exceedances were found at two sites with the highest level being 16,200 mg/kg (MAC 15,900 mg/kg).

CHROMIUM exceedances were found at two sites with the highest level being 27 mg/kg (MAC 21 mg/kg).

LEAD was found at one site at 322 mg/kg (MAC 107 mg/kg).

MAGNESIUM was found at one site at 466,000 mg/kg (MAC 325,000 mg/kg).

MANGANESE was found at one site at 697 mg/kg (MAC 630 mg/kg).

BENZO(a)PYRENE was found at one site at 0.27 mg/kg (MAC 0.09 mg/kg).

pH was found at one site at 10.2 units (6.25 – 9 is the acceptable range).

The owners and operators of the fill operation retain the analytical data submitted with every 663 form for soil certification and are best able to report on what contaminants are found in the soils that they accept. Additional information on contaminants found at fill operations can be found in the testimony of Mr. John Hock, P.E., on behalf of the Illinois Association of Aggregate Producers. Mr. Hock testified that his firm had collected samples for analysis at three CCDD fill operations and reviewed data from one additional site. Mr. Hock reported finding a number of contaminants in 44 samples taken from 44 borings. The contaminants identified were found to be both above and below the MACs, but those above the MACs were limited to PNAs and metals. Volatiles, PCBs, and pesticides also were detected at concentrations below the MACs. The details may be reviewed in Mr. Hock's testimony. Pre-Filed Testimony of John Hock, P.E., Exh. 12 at 3 – 5; Testimony of John Hock, P.E., Tr. 2 at 37 – 42.

Because construction or demolition activities may occur almost anywhere, the excess soil that is deposited at fill operations could exhibit a wide range of contaminants from a wide range of origins. The Agency cautions against excluding entire categories of contaminants from the monitoring requirements. The Part 620 parameters are themselves a form of indicator contaminant monitoring. For a more detailed discussion of this issue, please see PC # 62 at 32 – 37.

3b. Please comment on the cost of running an analysis of the VOCs and dissolved metals versus the entire suite of 35 Ill. Adm. Code 620 parameters, as proposed by the Agency.

Please refer to information on the cost of analysis from First Environmental Laboratories, Inc. provided in John Hock's testimony. Pre-Filed Testimony of John Hock, P.E., Exhibit 12, Attachment 2. This information is very much in line with information that the Agency found in the course of its research on the cost of analyzing groundwater samples. According to the information from First Environmental Laboratories, Inc., the cost of analysis for volatiles is $180 and the cost of analysis for metals is $306. Therefore, the cost of analyzing for both volatiles and metals would be $486. The cost of analysis for all the parameters listed on First Environmental Laboratories, Inc. document would be $2996, and the cost for analyzing for all the parameters except for the radiologicals (*i.e.*, Radium 226 and 228, Gross Beta, Tritium and Strontium 90) would be $2176.

The Board has asked about dissolved metals: whereas, the First Environmental Laboratories, Inc. information only provides a cost for total metals. However, no appreciable difference is anticipated between the cost of testing groundwater samples for total metals and the cost of testing for dissolved metals.

3c. Please comment on whether the applicable groundwater quality standards under 35 Ill. Adm. Code 620 for the RCRA metals are based on dissolved concentrations. If not, please explain how compliance determinations can be made using dissolved metal concentrations.

IEPA Response: The short answer is no. The groundwater contaminant standards in 35 Ill. Adm. Code 620 are based on totals, but what is required is dictated by the specific program on

how samples are analyzed. Therefore, totals are always required, but some programs such as Resource Conservation and Recovery Act (RCRA) also require that dissolved samples be taken in order to statistically assess groundwater. The compliance determination may be made by following the incorporated analytical methods (35 Ill. Adm. Code 620.125), which provide for both totals and dissolved analyses. The same approach should be applicable here.

4. What, if any, other changes should be made in consideration of adding groundwater monitoring?

The Agency is proposing a revision to Subpart G that would help to address the concern about self-reporting expressed in the Board's Question No. 6. Proposed Section 1100.745 requires that exceedances be reported to the Agency within 60 days after the date the groundwater sample was collected. No notification is required if the sampling and analysis are completed and no exceedance is found. As a confirmation that the sampling has taken place and in confirmation of the result, the Agency is proposing a new Section 1100.741: Compliance Certification as follows:

Section 1100.741 Compliance Certification

If monitoring results collected pursuant to Sections 1100.735 and 1100.740 show that the Class I groundwater quality standards have not been exceeded, the owner or operator must, within 60 days after the date the groundwater sample was collected, file with the Agency a Compliance Certification that provides the owner or operator's certification that the Class I groundwater quality standards have not been exceeded as evidenced by the monitoring results collected pursuant to Sections 1100.735 and 1100.740. The Compliance Certification must be on a form prescribed and provided by the Agency.

This basic requirement, along with site inspections, will close a gap in the Agency's ability to monitor and document compliance with the groundwater monitoring requirements. The Agency anticipates that a form would be prepared including: (1) owner/operator and facility identification sections; (2) check boxes for compliance with Sections 1100.735 and 1100.740 and confirmation that the results show no exceedance; (3) date of testing; and (4) certifying language and signature lines.

5. If groundwater monitoring is required at CCDD/USF sites, should the front end screening requirements contained in the rules adopted August 23, 2012 to ensure no contaminated material is deposited into a CCDD/USF site be retained? If not, identify which requirements could be deleted or modified and explain why.

The front end screening requirements include certifications and load checking. If the Subpart G groundwater monitoring is required, the Agency does not think the procedures adopted by the Board for the fill operation load-checking requirements should be revised. The Agency has acknowledged the Board's enhanced procedures for certifications will result in marginally higher rates of compliance with the maximum allowable concentrations of chemical constituents in uncontaminated soil than the Agency's original certification procedures.

The Agency also would accept a return to the source site certification procedures originally proposed by the Agency, but it is not advocating this revision. The Agency's original proposal (based on the statutory interim requirements for certifications) was motivated by keeping additional costs and time delays to a minimum for the source-site owner/operators, and keeping most of the regulatory focus on the fill operations that are the subjects of Sections 22.51 and 22.51a. The introduction of the "potentially impacted property" concept was thought to improve the results of the certifications, and groundwater monitoring at fill operations would provide a back-end check on both certifications and load checking procedures while enabling fill site owner/operators to allocate the associated costs proportionately among all fill site users through tipping fees. The Agency believes either approach to certifications in combination with the groundwater monitoring requirements would be acceptable. It also should be noted that reports indicate many fill operations require documentation exceeding the minimum certification requirements established in the rules.

Whether or not groundwater monitoring should be self-implementing

6. Given the Agency's concern with the potential for groundwater contamination from "clean construction and demolition debris" and "uncontaminated soils", how can groundwater protection be guaranteed with a self-reporting system?

IEPA Response: The Agency cannot "guarantee" groundwater protection will be achieved if the Board adopts the self-implementing and self-reporting system proposed in Subpart G, just as the Agency could not guarantee groundwater protection would be achieved if it proposed procedures as stringent as those for landfills. The Agency has proposed groundwater monitoring because the chances of protecting groundwater are much better than without it. It is the single most effective tool for identifying groundwater contamination at a stage early enough to limit the impact. Without groundwater monitoring, there will be no way to determine to any degree of certainty whether or not such facilities are creating groundwater contamination.

In proposed Subpart G, fill site owner/operators would perform detection monitoring at least annually and maintain reports of the results until post-closure maintenance is terminated under the rules. If an exceedance of the Class I groundwater quality standards is identified, the exceedance must be reported to the Agency. For other types of facilities at which soil sampling and analysis and groundwater monitoring may be required, self-reporting of sampling and analysis results (with professional engineer or professional geologist certification) is the norm whether or not there are exceedances of applicable standards or objectives. The Agency believes this is true nation-wide and not just at the state level. Examples where self-reporting of sampling and analysis is relied upon include hazardous and non-hazardous waste landfills, certain activities in setback zones or regulated recharge areas, remediation programs such as the Leaking Underground Storage Tank Program and the Site Remediation Program, and drinking water standards. *See* 35 Ill. Adm. Code 615.208, 615.209; 616.206; 813.502 – 813.504; 815.303, 815.Subpart D. Self-reporting is the only viable option.

Assuming the groundwater sampling and analyses are performed and documented, the primary concerns about self-reporting would be falsification of records, failure to report an exceedance,

or both. Although there have been a few exceptions over the years, the Agency believes falsification is unlikely to become a significant problem. The involvement of the licensed professionals and independent laboratories and the extensive documentation requirements make falsification of records a difficult prospect. Falsification of results reported to the Agency is not just a civil violation of the Act. It can range from a criminal misdemeanor to a felony depending on circumstances. The periodic site inspections at fill operations will include a review of the monitoring results. In response to the Board's Question No. 4, the Agency has proposed an additional reporting requirement for when annual sampling and analysis have been completed and no exceedence is identified. The Agency believes the inspections and revised reporting requirements will be effective checks ensuring that fill operations are complying with the groundwater monitoring, documentation and reporting requirements.

Evidence that groundwater was impacted by properly-run facilities

7. What are the specific concerns related to the potential for groundwater contamination associated with the deposition of CCDD and USF at quarries, both legally defined as "uncontaminated" and "clean" and not classified as wastes? Is it the potential contamination associated with the materials themselves? Is it the risk of non-CCDD/USF materials being deposited either accidently or in violation of the law? Is there another concern?

IEPA Response: Both general and clean construction and demolition debris, including soil, are municipal waste upon generation. 415 ILCS 5/3.160(a), (b); 5/3.290. Certain fractions of CCDD are excluded from classification as waste but only when meeting the conditions for exclusion set forth in Section 3.160. To be excluded from waste, soil must be "uncontaminated." In the fill operation context, numeric maximum allowable concentrations (MACs) of contaminants allowed in uncontaminated soils are established in accordance with the methodology in Section 1100.Subpart F. In other contexts, there are no numeric standards for uncontaminated soil, and users of soil as fill material must take care to accept soils such that contaminants in the soil "will not pose a threat to human health and safety and the environment." *Id.* § 3.160(c). The "environment" would include, but not be limited to, groundwater, surface water, and avian and aquatic receptors. Therefore, accumulations of soil outside regulated fill operations generated during construction or demolition activities that caused a fish kill, for example, would be considered contaminated regardless of whether their concentrations complied with the MACs or 35 Ill. Adm. Code 742 TACO Tier 1 remediation objectives, which are not applicable to such accumulations and are calculated only to protect human health and do not take environmental receptors into account.

The possible deposition of non-compliant CCDD/USFO materials, inadvertent or otherwise, poses a significant threat, and this was the impetus behind the proposed groundwater monitoring requirement. For purposes of Part 1100, soil that does not comply with the MACs for chemical constituents is a contaminated medium. It contains waste and must be managed as waste. To be clear, the Agency's concern about the potential for groundwater contamination does not depend on whether a facility is "properly run" (operated with reasonable care to comply with applicable regulations) or "poorly run" (operated with disregard for applicable regulations). The Agency believes most fill operations are run with due care for compliance. The Agency's position is that soil that does not comply with the MACs and is therefore waste is likely to be accepted at fill

operations because of imperfect certification procedures, imperfect implementation of certification procedures, and the limitations of screening tools available to fill site owner/operators. These factors, along with the volumes of soil accepted at such facilities, the nearly complete absence of technical controls to prevent contaminant migration such as liners, and the locations of many facilities in areas geologically susceptible to groundwater contamination will create the potential for groundwater contamination that must be addressed in accordance with the policy of the State to protect groundwater resources. Groundwater monitoring systems are the single most effective component for implementing this policy. PC # 62 at 7 – 17.

8. Mr. Lansu, on behalf of the Land Reclamation & Recycling Association, provided comments to Subdocket B. PC 58. He provided groundwater monitoring data results from a large CCDD facility located in Lyons. These CCDD materials were deposited for a period of time that predates existing CCDD regulations and comes from a highly urbanized environment, yet no groundwater contamination was detected. Similar results were provided for a CCDD site in Kane County. So, while groundwater monitoring has not been widespread at CCDD facilities, where data are available, no contamination has been detected. Do these data results influence the participants' views on requiring monitoring at all CCDD and USF operations?

IEPA Response: As an initial matter, in the Agency's response to Question A1 of the Illinois Attorney General's pre-filed questions (p. 24 below and Attachment 1), new information is presented on the first groundwater monitoring results from the J. T. Einoder site in Bloom Township, Cook County, Illinois. Similar to the Kane County site cited by Mr. Huff (testimony of James Huff, P.E., Tr. 2 at 13 – 17), the Einoder site purported to accept only CCDD but also accepted materials other than CCDD. Testimony of Paul Purseglove, Tr. 1 at 41. The data show exceedances of the Part 620 groundwater standards for three metals (iron, lead and manganese) and eight semi-volatile organic chemicals -- [Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Chrysene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene and Bis(2-ethylhexly)phthalate]. Several other chemical constituents were detected but at levels below the Class I standards.

Mr. Lansu presents as evidence that CCDD fill operations do not cause groundwater contamination the case of an active CCDD fill operation adjacent to an SRP remediation site. For approximately a two-year period shortly after the CCDD site was established, remediation activities were conducted on the adjacent SRP site, which was known to have contamination including "naphthalene, lead, arsenic, chromium and numerous PAH compounds." Based on the sampling results attached to Mr. Lansu's comment, the SRP site also was known to have VOC contamination. Mr. Lansu states that storm water and drainage from the contaminated SRP site flowed into the CCDD facility prior to and during the adjacent site's remediation activities. To maintain a dry working environment and to "reduce the likelihood of potential future liability," the CCDD facility in 2007 installed a 700 gpm submersible pump draining a 275-foot deep collection system in the limestone quarry serving as the fill area. Both groundwater and storm water are collected by the collection system. The CCDD facility tested water discharged from the dewatering well initially for RCRA metals, PAHs, SVOCs, pesticides and herbicides "out of concern that the [adjacent SRP site] could leach contaminants into the [CCDD fill operation]." After initial testing, the testing was reduced to RCRA metals and PNAs, and that testing has

continued from time to time to the present. At no time has an exceedance of Class I groundwater quality standards been found in the discharge water.

Although Mr. Lansu refers to these results as groundwater monitoring results, the Agency would not equate results from sampling and analysis of dewatering discharges (NPDES-permitted discharges) with the sampling and analysis results from a dedicated groundwater monitoring system designed, constructed and operated in accordance with generally accepted methods as required under proposed Subpart G. As the Agency understands the situation, operations that pump large volumes of water to create a cone of depression in the groundwater are discharging a great deal of water that has not come onto contact with the fill material. The Agency suggests that the tremendous dilution from the high volume draw down very likely would have masked detection of contaminants and their concentrations. The same effects would have been at work on any contaminants from the adjacent SRP site. It is for the very reason of the inward gradient the Agency's proposed Subpart G exempts facilities that are dewatering from the groundwater monitoring requirement until dewatering ceases. Results from high volume dewatering more accurately represent background conditions. Additionally, the CCDD fill operation's later groundwater sampling and analysis excluded volatiles. Volatile contaminants would have been more mobile and more likely to be detected. Although there was one period of "several weeks," when dewatering was discontinued and subsequent sampling did not indicate exceedances, as a general matter conditions present during dewatering are not indicative of post-closure conditions where groundwater is expected be in extended (indefinite) contact with fill material contaminants, if present, and contaminant transfers from fill material to groundwater will be far more probable.

Given the very limited number of the examples and the mixed results, the Agency is not inclined to change its views on the potential threat of groundwater contamination from fill operations and the necessity of groundwater monitoring at fill operations.

9. *On page 18 of PC 62, the Agency asked that the Board be consistent with its requirement for groundwater monitoring in its adoption of R89-5, dated December 6, 1991. R-89-5 applies to specific activities located within setback zones and regulation recharge areas, including on-site landfilling & waste piling, and the storing and handling of such materials as pesticides, fertilizers, road oils, and de-icing agents. Does this recommendation suggest that the statutorily defined "clean construction and demolition debris" and "uncontaminated soils" have similar characteristics or the potential for groundwater contamination to those regulated in R89-5? If so, please explain.*

IEPA Response:

No, the Agency is not equating the characteristics of uncontaminated fill materials with on-site landfilling, waste-piling and the storage and handling of pesticides, fertilizers, road oils and de-icing agents. However, the Agency's conviction that soil accepted at fill operations will inevitably include non-compliant soils with the potential to create groundwater contamination justifies the conclusion that the Board should respond to the potential for groundwater contamination from operations at both types of facilities in the same way for the same reasons. In R89-5, the Board concluded that waiting for proof of contamination would defeat the

preventive aspects of the state's groundwater protection policy. PC # 62 at 13 – 17.

Nonetheless, there are some similarities and differences that can be identified in support of groundwater monitoring. Parts 615 and 616 apply to relatively small commercial operations including existing businesses under Part 615; the underlying statutory provision did not require monitoring but only that the Board consider it along with other listed control measures; although the Board noted there was a history of agrichemical groundwater contamination, it did not conclude that all such facilities would have releases. Rather, the Board concluded "both the existence and potential for serious contamination of groundwater by pesticides and fertilizers" were grounds for the regulations.

Fill material, including soils, may contain volatile organic compounds, synthetic organic compounds, metals, and other inorganic contaminants. The Agency notes it would not be surprising to find pesticides, fertilizers, road oils or de-icing agents in soil from construction or demolition projects. This fill has the potential to contaminate groundwater because it is being placed in the type of excavation the Environmental Protection Act (Act) defines as a potential route of groundwater contamination. 415 ILCS 5/3.350. The Agency's testimony has shown that these potential routes of groundwater contamination are located in Illinois' principle aquifer systems in a region of the state that will be heavily dependent on its groundwater resources for the foreseeable future. Pre-Filed Testimony of Richard P. Cobb, P.G., Exh. 26 at 17 - 19. For practical reasons, the Part 1100 regulations do not require the construction of low permeability liners in these quarries to prevent leaching. In contrast, the activities regulated under 35 Ill. Adm. Code 615 and 616 are located on the land surface, not in a potential route of groundwater contamination, and are required to construct low permeability liners to prevent any leaching. Groundwater monitoring is an additional protective measure at these facilities.

Remediation Objectives

10. Mr. Huff states that the Agency's proposal does not include "recognition of risk assessment, receptors, or other concepts, in the CCDD Proposal, as presently available to LUST sites, Site Remediation Program sites, or hazardous waste sites under Part 742. Thus this [CCDD] industry would be faced with a more stringent remedial standard than LUST, RCRA, and voluntary (Site Remediation) programs." PC 59 at 3. Please comment on, including provisions for remediation at CCDD and fill sites.

IEPA Response: Mr. Huff criticizes the Agency's proposal because it does not recognize risk assessment and receptor concepts as contained in the Part 742 regulations (35 Ill. Adm. Code 742, also called TACO for Tiered Approach to Corrective Action Objectives). Presumably, Mr. Huff means that any groundwater contamination attributable to fill operations' past or future practices should be addressed only with groundwater use prohibitions; that is, if the receptors are eliminated by law, the fact that groundwater has been contaminated is of no concern. The Agency does not support using the Part 742 approach in response to groundwater contamination caused by fill operations.

The Agency's proposed corrective action procedures rely on the standards and procedures prescribed by the Board in Part 620 to implement the state's groundwater protection policy. Part

620 procedures are more appropriate for protecting groundwater and preserving or restoring its highest uses. The proposed Subpart G provides for corrective action if exceedances attributable to the fill operations are identified through groundwater monitoring. A groundwater management zone (GMZ) may be established pursuant to Section 620.250 in support of this process. In any case, the nature of the corrective action will be determined on a site-specific basis, but compliance with Part 620 and proposed Subpart G depends on implementing a plan to mitigate impairment of groundwater. 35 Ill. Adm. Code 620.250(a). Impairment of groundwater could be the exceedance of an applicable groundwater quality standard or the preclusion or threatened preclusion of a use or potential use of off-site groundwater. *Id.* §§ 620.301, 620.401, 620.405. Selecting the actions required to "mitigate impairment" will be a site-specific call, but Section 620.450(a)(4) clearly contemplates an attempt to restore groundwater quality (and impairment to uses or potential uses of the groundwater) "to the extent practicable." If, after completion of the corrective action under the GMZ, the groundwater quality has not been restored, the concentration as determined by groundwater monitoring may become the new standard within the GMZ. *Id.* § 620.450(a)(4)(B). Depending on the remaining concentrations, a groundwater use prohibition may be necessary to prevent potable or other uses of the contaminated groundwater.

The Agency does not believe Mr. Huff's suggestions are appropriate for the fill operations. The remediation program rules and TACO methodology require that the nature and extent of the soil and groundwater contamination must be investigated and defined using sampling and analysis. The source of the contaminants (including soil contaminated above the objectives for the soil component of the groundwater ingestion exposure route) must be cleaned up such that no further contaminant loading to soil or groundwater occurs. Once the groundwater contamination source has been removed, the residual groundwater contamination plume previously defined then must be modeled to determine how far it may migrate before it returns to the applicable groundwater quality standard through dilution and attenuation. Then it must be demonstrated that the contamination source is not within the setback zone of an existing potable well and that no existing potable wells are threatened by the migration into a setback zone of measured or modeled contamination exceeding the applicable Tier 1 objective or health-based value calculated under Part 620. Otherwise, corrective action must be performed to protect the existing wells or the responsible party must negotiate the closure of the existing wells, provision of alternate water supplies, and so forth. If existing wells already have been contaminated, that situation must be addressed as well. Only then may a groundwater use prohibition be used to close the remediation site. The purpose of the groundwater use prohibition is solely to ensure no new wells are placed into or near the contamination plume once the cleanup has been completed and the applicant has received a No Further Remediation letter. The prohibition must remain in perpetuity unless there is a subsequent demonstration to the Agency that the groundwater use prohibition is no longer necessary.

A critical step in the process above is mathematical modeling to determine how far the contaminated groundwater may migrate before it returns to the applicable groundwater quality standard through dilution and attenuation. The modeling equation used in TACO to perform this step is known as equation R26. Equation R26 predicts the multidimensional transport behavior of a contaminant of concern in an aquifer based on several assumptions. Two of the assumptions are clearly violated when applied to fill operations:

1. The contaminant concentration at the source area cannot increase due to increasing concentrations from soil contamination leaching into the groundwater; and
2. Steady-state conditions have been reached.

The usual TACO remediation scenario is a site contaminated by a spill or other release of contaminants to relatively undisturbed soils where the source is readily characterized and quantified. However, fill operation source areas for any given contaminant found in the groundwater would be extremely difficult to identify in accumulations from so many source locations over periods of years. Every load of soil containing that contaminant at concentrations exceeding the soil migration to groundwater exposure route, no matter where in the fill operation it came to rest, would be part of the source.

Fill operations cannot effectively address the source to stop further leaching of contaminants.

If the fate and transport of the groundwater contamination at fill operations cannot be accurately modeled, the area threatened by the contamination cannot be defined sufficiently to identify existing potable water wells that must be protected and to adopt a groundwater use prohibition to prevent new potable uses.

11. Mr. Huff states that in order to address concerns regarding groundwater impacts from past practices "there would need to be a baseline (preexisting condition) monitoring period. The fill operators would only then be required to remediate if the groundwater quality changes in a statistically significant manner above the quality present after the first year from when the regulations go into effect. This would reduce the economic implications associated with groundwater compliance going forward." PC 59 at 4. Mr. Huff suggests the fill operators then should only be required to remediate if the groundwater quality were to change in a statistically significant manner. PC 59 at 4.

11a. Please comment on ways to address other parameters without remediation that were found above groundwater quality standards but with no statistically significant change.

No IEPA Response.

11b. Please clarify whether establishing a "baseline" based on the existing groundwater quality at the fill site to account for groundwater impacts from the fill operations essentially "grandfathers" existing contamination.

IEPA Response: Mr. Huff's "baseline" approach clearly is intended to grandfather any existing contamination from the fill operations. On page two of PC # 59, Mr. Huff states, "Not only would groundwater monitoring detect future fill operation impacts, but would also detect historic impacts." This statement is made in the context of the potential costs to fill operations if they should install groundwater monitoring wells only to find in the initial sampling and analysis they have existing contamination from operations prior to the original Part 1100 rules and the recent amendments establishing maximum allowable concentrations of chemical constituents in

uncontaminated soils. Mr. Huff continues by stating his concern that fill site owner/operators will choose to close rather than risk installing groundwater monitoring wells and finding current or future groundwater contamination requiring corrective action of some sort. On page four, Mr. Huff states his intent even more clearly:

> To the extent the quarries have been receiving CCDD and soil fill material for many years; groundwater monitoring will detect not only contaminants from on-going operations, but from past practices. Without some cost effective approach to address any impacts from past practices, each quarry runs the risk of addressing past concerns if it elects to continue to accept CCDD and uncontaminated soil fill. Thus, without some cost effective way to address groundwater impacts such as proposed above [disregarding non-degradation requirements and allowing groundwater use prohibitions in place of remediation], there would need to be a baseline (pre-existing condition) monitoring period. The fill operators would only then be required to remediate if the groundwater quality changes in a statistically significant manner above the quality present after the first year from when the regulations go into effect.

PC # 59 at 4.

On the particular issue of establishing a baseline for existing contamination, Mr. Huff apparently would allow existing sources and plumes to continue unabated. Disregarding the non-degradation standard of Part 620 and relying only on groundwater use prohibitions would be totally passive responses to the contamination. The non-degradation standard of Part 620 is a key component of the Board's groundwater quality regulations intended to prevent a use or potential use of groundwater from being threatened or precluded. With no intervention other than a groundwater use prohibition, the offending materials already within the fill operations would continue to leach contamination, and the resulting groundwater contamination plumes would continue to migrate and expand until reaching some sort of equilibrium at an unknown time and distance. Please see the IEPA Response to PCB Question No. 10 for further discussion of the inadvisability of using groundwater use prohibitions in this context.

11c. If so, please comment whether grandfathering existing contamination at CCDD and uncontaminated fill sites would be consistent with provisions of the IGPA and the Act.

IEPA Response: No. None of the solutions suggested by Mr. Huff are consistent with the state's policy to protect its groundwater resources as set forth in either the IGPA or the Act and the implementing rules. Testimony of Richard P. Cobb, P.G., Exh. 26 at 9 – 10 (quoting legislative groundwater protection policy statements in the Act and IGPA). For decades it has been unlawful to discharge contaminants into the environment so as to cause or tend to cause water pollution or to deposit materials on the land so as to create a water pollution hazard. Section 3.160 has never authorized the acceptance of contaminated soils or other material as fill. The responsibility for compliance is on the owner/operator. In the absence of numeric standards for uncontaminated soil, the prudent response to these prohibitions would have been a very conservative approach to the acceptance of both CCDD materials and soil. If a conservative approach was used and contamination resulted anyway, this would confirm the point the Agency has made throughout this proceeding – contaminated materials are likely to find their way into

fill operations despite good faith efforts to exclude them. It would be a poor precedent for the Board to set by adopting rules that excuse prior actions and their consequences that would have been violations of the Act at the time they were committed. By raising the issue of existing contamination at fill operations and expressing his view of the consequences that may result, Mr. Huff has introduced another strong argument for requiring groundwater monitoring at fill operations.

11d. Under this scenario, would the CCDD or uncontaminated soil fill operation be subject to a nondegradation standard based on existing groundwater quality at the site? If so, please comment on whether being subject to a standard based on a statistically significant change would pose any compliance problems.

No IEPA Response.

Remediation Costs

12. Mr. Huff (PC 59) states, "If impacts are found, remediation approaches would be to either; start a pump and treat system that would literally go on indefinitely, or, attempt to secure a groundwater management zone for the area." PC 59 at 2. Please comment on the range of costs for remediation and establishing a groundwater management zone.

IEPA Response:

Mr. Huff's statement implies that a pump and treat system would be an alternative to a groundwater management zone ("GMZ"). In fact, a GMZ most likely would be established in support of a pump and treat system or any other remediation activities that might be appropriate at a fill site with groundwater contamination. Please see the first paragraph of the Agency's response to PCB Question No. 10. A pump and treat remediation might be appropriate, if, for example, off-site Class I or Class III groundwater has been caused or allowed to be contaminated or is threatened to be contaminated. However, there may be other options to a pump and treat remediation such as hooking up existing contaminated or threatened potable water systems to alternative safe and reliable sources of drinking water, and adopting groundwater use prohibitions to restrict new drinking water uses. The cost of any corrective action process to deal with off-site groundwater contamination, including a pump and treat remediation, would have to be balanced with the cost of drinking water treatment.

The costs for remediation and the establishment of a groundwater management zone are dependent upon site-specific conditions (*e.g.*, source of contamination, nature and extent of contamination, impacts of contamination, type of remediation selected, duration of remediation, cooperation of off-site property owners). These conditions may vary substantially from site to site. Therefore, a range of costs cannot be provided. However, the Agency has provided extensive information on the cost of addressing the impacts of groundwater contamination <u>from sources other than fill operations</u>. PC # 62 at 23 – 29. Clearly, the most cost effective approach to corrective action begins with early detection of the contamination. That is the purpose of requiring groundwater monitoring.

Applicable Groundwater Quality Standards

13. Mr. Huff notes that the Agency originally proposed a non-degradation requirement for off-site contamination. Further, he states that the Board should eliminate any reference to the non-degradation requirement. PC 59 at 4. Please identify the specific provisions of the Agency's proposed rules that reference the non-degradation requirement. Also comment on whether Class I groundwater quality standards are appropriate for CCDD and uncontaminated soil fill operations as compliance standards.

IEPA Response: Under the Corrective Action Program at Section 1100.755, the Agency proposed a standard for off-site contamination that includes the non-degradation provision of the Board's Part 620 Groundwater Quality regulations. Corrective action must "achieve compliance with 35 Ill. Adm. Code 620 beyond the fill operation's property boundary . . . ." 35 Ill. Adm. Code 1100.755(d) (proposed); Pre-Filed Testimony of Stephen F. Nightingale, P.E., Exhibit 1 at 36. Once again, the Agency's proposal relies on the standards and procedures prescribed by the Board in Part 620 to implement the state's groundwater protection policy. Section 620.401 states:

> Groundwaters must meet the standards appropriate to the groundwater's class as specified in this Subpart and the nondegradation provisions of Subpart C.

35 Ill. Adm. Code 401 (emphasis added). While Section 1100.755 does allow contamination up to the Class I standard on the fill site property, the principle underlying the proposed use of the non-degradation provision off-site is that the contamination of other people's property should not be authorized by law nor should the rights of those property owners to seek legal redress for such contamination be preemptively limited. Consistent with this principle, if such contamination occurs, the corrective action should include a plan to mitigate any impairment to the groundwater as provided under the GMZ provisions discussed in response to PCB Question Nos. 10 and 12 such that groundwater quality is protected or restored to the extent practicable, uses or potential uses are protected or restored to the extent practicable, and property values are not diminished.

The Agency proposed the Class I groundwater quality standard as the on-site compliance standard for fill operations because of its relationship to the maximum allowable concentrations (MACs) of chemical constituents in uncontaminated soils. 35 Ill. Adm. Code 1100.Subpart F. Groundwater monitoring is part of the Agency's proposed multi-barrier approach to preventing groundwater contamination at fill operations as directed by the legislature -- (1) the use of numeric standards protective of three human exposure routes for maximum allowable concentrations of contaminants in the "uncontaminated soils"; (2) soil certification requirements for construction/demolition source site owner/operators and load checking procedures for fill operations; and (3) groundwater monitoring for fill operations. No single barrier would provide complete protection of human health, safety and the environment, but each would contribute an important aspect of the necessary protection. PC # 62 at 2 – 6.

Based on the statutory requirements at Section 3.160(c) and (c)(1) of the Act, the MACs were proposed by the Agency and established by the Board so that the contaminant concentrations in the soil itself were low enough to be protective of human health and safety. Among other things,

this meant that MACs would be protective of human health without regard to external controls of any kind (engineered barriers, groundwater use prohibitions, and so forth). The TACO Tier 1 residential remediation objectives are the starting point for the methodology determining the MACs. For chemical constituents whose controlling value under Section 1100.605 is the TACO objective for the soil component of groundwater ingestion exposure route, the Class I value was chosen as the value protective of the human exposure route in all circumstances. As a remediation objective under TACO, the Class I value is calculated to control groundwater contamination from spills and releases at the Part 620 Class I groundwater quality standard. That means concentrations from fill material meeting the MACs based on the migration to groundwater exposure route can be expected to allow groundwater contamination up to the Class I standard but not higher. Therefore, if fill operations are successfully complying with the MACs, Class II groundwater quality standards should not be approached. As part of the multi-barrier approach to groundwater protection, requiring compliance with the Class I standards operates as a cross-check on the effectiveness of the certification and screening (load-checking) components of the controls. Contamination to Class II concentrations would be an indication of serious problems at the front-end of the operations (soil certifications and load checking).

Location Restriction

14. INPC urges "the Board to consider a groundwater monitoring requirement. Specifically, CCDD sites within Class III groundwater contribution areas or areas that potentially qualify as such should be required to monitor due to the distinct potential of, for example, acidic precipitation mobilizing contaminants and causing impact to these dedicated Nature Preserves which the INPC is statutorily charged with protecting." PC 49 at 1.

14a. Please clarify whether INPC has information on the delineation of Class III groundwater contribution areas along with areas that potentially qualify as such. If so, please provide any maps or other information on Class III contribution areas.

No IEPA Response.

14b. Please comment on whether INPC has information on CCDD and uncontaminated soil fill operations located within the boundary of a Class III areas groundwater contribution areas, and those within a one-mile radius of a Nature Preserve. If so, please provide such information into the record.

No IEPA Response:

14c. Please comment on whether a location prohibition similar to the potable water well setback zone prohibition at Sections 1100.201 and 1100.500 would afford adequate protection from any potential threat of groundwater contamination to nature preserves, and Class III groundwater areas from CCDD and uncontaminated soil fill operations.

IEPA Response. A setback outside the contributing area of a Class III area would provide protection from a fill operation.

15. The Agency's proposal at Sections 1100.201 and 1100.500 prohibited the location of CCDD and uncontaminated soil fill operations inside a setback zone of a potable water supply well. This location prohibition was adopted by the Board. The Board asks the Agency to clarify whether the proposed prohibition applies only with respect to setback zones of existing potable water supply wells or does it apply in relation to setback zones of any new potable water supply wells. If the prohibition applies with respect to setback zone of a new potable water supply well, please clarify what actions must be taken by the fill operation if a potable water well is installed within 200 feet of a CCDD or USF operation. Note that the minimum setback zone requirements for location of new wells under Section 14.1 apply to only "community water supply wells".

IEPA Response: The provisions proposed at Sections 1100.201 and 1100.500, which reflect conditions concerning setbacks stated in the definition of CCDD at Section 3.160(b) of the Act, do apply only to the setbacks of existing potable wells. Further, the Board is correct that new community water supply wells are prohibited within the setback zone pursuant to Section 14.1 of the Illinois Environmental Protection Act (Act) (415 ILCS 5/14.1) of an existing potential route of contamination (415 ILCS 5/3.350). However, P.A. 85-0863 not only amended the Act to add a new Section 14.1, but also amended the Illinois Water Well Construction Code at 415 ILCS 30/6 and 6a. Section 6 authorizes rules "providing criteria for the proper location and construction of any water well." Section 6a prohibits (with limited exceptions) the location of any new non-community, semi-private, and private drinking water well within 200 feet of any potential primary or potential secondary source or any potential route of contamination. Further, the rules adopted under Section 6 by the Illinois Department of Public Health also prohibit the location of new wells within the setback zone of an existing potential route of groundwater contamination. (77 Ill. Adm. Code 920.50(b))

The Board asked what actions must be taken by the fill operation if a potable water well is installed within 200 feet of a CCDD or USF operation. Other than reporting to the permitting agency (usually the Illinois Department of Public Health or county health departments), no actions will need to be taken by fill operations. The respective agency will deal with the issue as a permit denial or violation.

Also, comment on whether similar protection should be afforded to regulated recharge areas, designated nature preserves, and Class III groundwater contribution areas referenced by INPC.

IEPA Response: A setback outside of the contributing area of a Class III groundwater, regulated recharge area, and a wellhead protection area (35 Ill. Adm. Code 620.110) would provide additional protection from a fill operation. There are existing procedures for establishing regulated recharge areas and wellhead protection areas, but, in Section 22.51(f), the legislature did authorize "location standards" for fill operations as a means of protecting groundwater, and this authority arguably extends to protection of these sensitive areas. Beyond this, the Agency has not had an opportunity to fully evaluate this policy issue.

III. THE OFFICE OF THE ATTORNEY GENERAL'S PRE-FILED QUESTIONS REGARDING THE NECESSITY FOR GROUNDWATER MONITORING

A1. *Q: What, if any, groundwater monitoring data exists to demonstrate that CCDD fill operations have not impacted groundwater at and around CCDD fill operations?*

IEPA Response: The Agency does have some new data. Pursuant to enforcement case State of Illinois v. J.T. Einoder, Inc., the defendants were ordered to install ground water monitoring wells and monitor the ground water at this unpermitted CCDD disposal site in Lynwood, Illinois. The Einoder site is a former sand pit/quarry that accepted materials for disposal prior to the establishment of the current Board rules at 35 Ill. Adm. Code 1100. While the facility was obligated to accept only uncontaminated material, no uncontaminated soil certifications were required nor were there any pre-acceptance load screening procedures.

In November of 2012, the first round of ground water samples was collected from the nine monitoring wells that were installed around the site. Attachment 1 consists of a memorandum and table that summarizes the metals and chemical constituents that were analyzed for and found in the ground water at the Einoder site. In short, exceedances of the 35 Ill. Adm. Code 620 Class I ground water quality standards were found for arsenic, iron, lead and manganese. One of the nine monitoring wells (MW8) was installed directly into the filled area of the site and, as such, this well is monitoring the ground water that is in direct contact with the fill. MW8 is thus monitoring the leachate at the Einoder site. MW8 shows exceedances of the 620 groundwater standards for three metals (iron, lead and manganese) and eight semi-volatile organic chemicals -- [Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Chrysene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene and Bis(2-ethylhexly)phthalate].

The main reason why very little groundwater monitoring data exists is because the permitted CCDD fill sites or the registered "soil only" sites are not required to monitor groundwater.

A2. *Q1: How do the Board's recently promulgated CCDD Regulations, including "strengthened soil certification and testing and recordkeeping," protect groundwater at CCDD fill operations that accepted CCDD from 1997 to 2005, when there were neither any regulations in place (no requirements for any soil certifications, load checking and/or screening) nor the requirement for an Illinois EPA-issued permit?*

IEPA Response: The Part 1100 regulations as amended to strengthen the soil certification and testing and recordkeeping requirements in the recent amendments at R2012-009 (36 Ill. Reg. 13892, eff. August 27, 2012) are not retroactive and have no limiting effect on soil accepted at regulated fill operations between 1997 and 2005.

Q2: How do the Board's recently promulgated CCDD Regulations, including "strengthened soil certification and testing and recordkeeping," protect groundwater at CCDD fill operations that accepted CCDD from 2005 to 2010, where the only constituents that could potentially be identified were VOCs?

IEPA Response: The Part 1100 regulations as recently amended to strengthen the soil certification and testing and recordkeeping requirements are not retroactive and have no limiting effect on soil accepted at regulated fill operations between 2005 and 2010.

Q3: How do the Board's recently promulgated CCDD Regulations, including "strengthened soil certification and testing and recordkeeping," protect groundwater at CCDD fill operations that knowingly or unknowingly took contaminated soils?

IEPA Response: The Part 1100 regulations as amended in the recent amendments at R2012-009 to strengthen certification and testing and recordkeeping requirements have no limiting effect on non-compliant soil knowingly or unknowingly accepted despite these provisions.

Q4: How do the Board's recently promulgated CCDD Regulations, including "strengthened soil certification and testing and recordkeeping," protect groundwater at CCDD fill operations that accept reclaimed asphalt -- a source of polynuclear aromatic hydrocarbons (PNAs), which are a known carcinogen?

IEPA Response: The strengthened soil certifications and testing don't pertain to the asphalt fraction of CCDD. Acceptance of "reclaimed or other asphalt pavement" at CCDD fill operations is authorized by Section 3.160 of the Act. However, there is no exemption from statutory and regulatory prohibitions against groundwater contamination.

B3. Q: Why do the proposed Part 1100 regulations limit the frequency of groundwater monitoring at CCDD facilities to once a year, when the Board's inert waste landfill regulations require semi-annual testing for contaminants?

IEPA Response: CCDD and uncontaminated soil used as fill at sites regulated under the Part 1100 rules are not wastes as long as they meet the conditions for exemption from classification as waste. However, the Agency and the Board were directed by the legislature in the enabling legislation to ensure that groundwater would be protected by these rules. For reasons stated earlier in this proceeding, the Agency believes the certification and testing requirements will work to exclude non-compliant materials to a significant extent but not completely. PC # 62 at 10 – 17. Therefore, the potential to cause groundwater contamination will remain. The Agency concluded groundwater monitoring is the only reliable way to address this remaining threat.

The Agency further concluded that the groundwater monitoring requirements should be appropriate for the potential threat, and that groundwater monitoring requirements suitable for landfills should not be required for fill operations. Looking for regulatory precedents, the Agency settled on the groundwater monitoring requirements under 35 Ill. Adm. Code 615, 616, and 815 as models for the Subpart G proposal. The costs of compliance also were a consideration. Annual sampling was determined to be the least expensive sampling interval that would still allow for a compliance determination. This frequency also takes into account the front-end precautions, and it was determined that once per year should be adequate. It should be noted that quarterly monitoring would be required if a site were to become subject to corrective action. Sampling and analysis certainly could be increased in frequency along with the attendant cost increase. This might result in discovery of any contamination sooner than under the Agency's proposal. The Agency does not oppose an increase in sampling frequency, but it is not advocating an increase.

B4(I). Q1: Why do the proposed Part 1100 regulations allow a CCDD owner/operator 60 days to report an exceedance when the Board Regulations require an inert waste landfill operator to report an exceedance within 1 business day?

IEPA Response: The Agency believes the question is referring to the inert waste leachate sampling requirements found in Part 811.206 under Subpart B: Inert Waste Landfills. Section 811.206(d) does require that notification be made to the Agency within one business day following the finding that the leachate is contaminated as defined in 35 Ill. Adm. Code 810.103. It is the Agency's position that this condition is intended to require the notification be provided to the Agency within one business day from when the facility obtains the results from a laboratory, not from when the sample was taken.

Q2: Why do the proposed Part 1100 regulations allow a CCDD owner/operator 60 days to report an exceedance, when potentially each additional day more fill material could be disposed upon the contaminated soil or other waste?

IEPA Response: The 60-day clock starts from when the sample is first taken. It allows time for sending the sample to the laboratory, the laboratory to schedule and perform the required tests, sending the test results back to the engineer or the owner/operator, and then submitting the notification to the Agency. It is the Agency's position that some results may be submitted sooner than the 60-day period, but delays are inevitable and should be factored into the timeframe.

B4(II). Q1: How will the proposed Part 1100 regulations insure that these Corrective Action Programs are sufficient to address the identified groundwater contamination?

IEPA Response: As part of the proposed Subpart G regulations, once it has been determined that corrective action is required due to conditions at a site, the facility will be required to develop and implement a corrective action plan. So that the plan will be sufficient to address the identified groundwater contamination, the proposed Subpart G rules will require that all systems, notifications, plans and reports be under the supervision of a licensed professional engineer. In addition to the use of a licensed professional engineer, periodic site inspections will be made by the Agency field office. During these inspections the field office staff will have the opportunity to verify the required equipment has been installed and the site is being operated in compliance with all notifications, plans and reports that have previously been provided to the Agency.

Q2: Should the Corrective Action Programs be subject to review and approval by the Illinois EPA with appropriate time frames so that the approval process does not continue for an overly extended period of time, where groundwater contamination has been identified?

IEPA Response: No, the Agency supports the proposal as submitted. In place of review and approval procedures, Section 1100.745 requires that the corrective action program be submitted to the Agency. The use of a licensed professional engineer to develop the corrective action plan associated with all systems, notifications, plans and reports in accordance with Part 1100.710 of the proposed Subpart G should be adequate to ensure an effective plan. In addition, the facility

must send semi-annual reports to the Agency on the progress and effectiveness of the corrective action program. Design and operating supervision by the professional engineer, periodic progress reports to the Agency, and periodic inspections by the field office staff as described in AGO Question B4(II)-Q1 will provide the necessary oversight.

B5. *Q1: Why do the proposed Part 1100 regulations allow a CCDD owner/operator 300 days to provide an alternate non-compliance plan, when the plan and the support for it may be deficient and then the owner/operator would be required to sample the groundwater again as required in Section 1100.745(b), thereby providing an additional 120 days to provide the Illinois EPA with the sampling results?*

IEPA Response: Section 1100.750(a) allows the owner/operator 180 days to submit an alternate non-compliance report from the date there was an initial notification of an exceedance under Section 1100.745(a). The initial exceedance report must be submitted to the Agency within 60 days of the groundwater sampling event. As a result, the owner/operator will have a total of 240 days to submit a report demonstrating that: (1) the Class I groundwater quality standard was exceeded due to natural phenomena, sampling, or analysis errors, or an offsite source; (2) the exceedance is not statistically significant over background groundwater quality; (3) none of the parameters identified under Part 1100.745(b) exceeded the Class I groundwater quality standards; or (4) groundwater corrective action has been implemented. It is the Agency's position that 240 days will allow sufficient time for an engineer to investigate the site, evaluate the situation, and provide the required report.

Among the activities that may need to be accomplished during this time are initial sampling (bidding, contracting, sampling, mailed samples, analyses, report compilation, submittal of report to operator, and operator notification to Agency); contracting for confirmation sampling after the initial exceedance is identified; confirmation of exceedance (sampling, analyzing, evaluating and reporting confirmation results); completing an investigation for the source; and providing an alternate source demonstration (bidding out work, contracting, performing field activities, compiling report).

Q2: What incentive is there for any owner/operator to initiate the Section 1100.745(b) sampling without first attempting to provide the Illinois EPA with a Section 1100.750 alternate non-compliance program?

IEPA Response: The incentive would be a cost saving incentive. If the resample under Part 1100.745(b) came back below the required Class I groundwater quality standards the facility would not be required to submit a report as required by this Part or initiate the required corrective action process. They would be allowed to go back to detection monitoring.

B6. *Q: Why do not the proposed Part 1100 regulations require the CCDD fill operations or registered uncontaminated soil fill operations currently discharging from their facilities pursuant to an NPDES permit to modify those permits to sample the discharge for all of the constituents identified in Subpart F?*

IEPA Response: There would be no need to require the CCDD fill operations or registered uncontaminated soil fill operations to have their Federal National Pollutant Discharge Elimination System (NPDES) permit modified to sample the discharges for all the constituents identified in Subpart F. Discharges that are subject to the NPDES application and permit program are subject to the regulations found in 35 Ill. Adm. Code 309. The program has been delegated to the Illinois EPA and is being administered by the Bureau of Water.

Under the NPDES program, the applicant is required to prepare an application for the permit. The application requires the applicant to fully characterize what pollutants are expected to be in the wastewater. Based a technical review of the application, the Illinois EPA establishes discharge limitations and\or monitoring requirements, along with the appropriate conditions to protect surface waters on a case-by-case basis. This process is subject to public notice and opportunity for hearing prior to issuance of a final permit. Furthermore, the permit must be renewed every five years, and the applicant is required to reevaluate during the renewal process the pollutants that may be in the discharge.

ATTACHMENT ONE

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829
PAT QUINN, GOVERNOR JOHN J. KIM, DIRECTOR

DATE: February 25, 2013

TO: Division File

FROM: Gino Bruni, BOL/FOS – Des Plaines

SUBJECT: 0318010009 - Cook County
Bloom Twp./J.T. Einoder, Inc.
Compliance File

Groundwater Sampling Evaluation – November 2012 Sampling Event

Nine monitoring wells (MW-1 through MW-9) were sampled by Anderson Environmental Consulting, Inc. (AEC) on November 14, and 15, 2012. Illinois EPA split samples with AEC. Attached are the laboratory results from the Illinois EPA Laboratory and Suburban Laboratories, Inc. Also, attached is a table that I drafted that contains all of the analytes that were detected in samples from both laboratories, and AEC's February 5, 2013 letter requesting changes to the Groundwater Investigation Plan.

The following groundwater exceedences of 35 Illinois Administrative Code 620 Class I Objectives were identified during the November 2012 sampling event:

Monitoring Well – MW-1

Arsenic	0.0166 PPM [Objective: 0.01PPM] – Detected only in Illinois EPA sample
Iron	45.4 PPM (28 PPM) [Objective: 5 PPM] – Detected in both samples
Lead	0.118 PPM (0.0969 PPM) [Objective: 0.0075 PPM] – Detected in both samples
Manganese	2.49 PPM (1.45 PPM) [Objective: 0.15 PPM] – Detected in both samples

Monitoring Well – MW-2

Arsenic	0.0191 PPM [Objective: 0.01PPM] – Detected only in Illinois EPA sample
Iron	32.6 PPM (22.8 PPM) [Objective: 5 PPM] – Detected in both samples
Lead	0.0493 PPM (0.0214 PPM) [Objective: 0.0075 PPM] – Detected in both samples
Manganese	1.99 PPM (1.65 PPM) [Objective: 0.15 PPM] – Detected in both samples

Monitoring Well – MW-2 Illinois EPA Duplicate Sample

Arsenic	0.0275 PPM [Objective: 0.01PPM]
Iron	24 PPM [Objective: 5 PPM]
Lead	0.0199 PPM [Objective: 0.0075 PPM]
Manganese	1.53 PPM [Objective: 0.15 PPM]

Bis(2-ethylhex)phthalate 0.0065 PPM [Objective: 0.006 PPM]

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Monitoring Well – MW-3

Arsenic	0.118 PPM (0.0918) [Objective: 0.01PPM] – Detected only in Illinois EPA sample
Iron	22.3 PPM (10.5 PPM) [Objective: 5 PPM] – Detected in both samples
Lead	0.0146 PPM [Objective: 0.0075 PPM] – Detected only in Einoder's sample
Manganese	1.05 PPM (0.168 PPM) [Objective: 0.15 PPM] – Detected in both samples

Monitoring Well – MW-4

Arsenic	0.0222 PPM (0.0847) [Objective: 0.01PPM]–Detected only in Illinois EPA sample
Iron	29.3 PPM (10.8 PPM) [Objective: 5 PPM] – Detected in both samples
Lead	0.0322 PPM [Objective: 0.0075 PPM] – Detected only in Einoder's sample
Manganese	1.27 PPM (0.901 PPM) [Objective: 0.15 PPM] – Detected in both samples

Monitoring Well – MW-5

Arsenic	0.0672 PPM (0.0258) [Objective: 0.01PPM] – Detected in both samples
Iron	9.44 PPM (20.5 PPM) [Objective: 5 PPM] – Detected in both samples
Lead	0.00154 PPM (0.0112) [Objective: 0.0075 PPM] – Detected in both samples
Manganese	0.824 PPM (0.652 PPM) [Objective: 0.15 PPM] – Detected in both samples

Monitoring Well – MW-6

Iron	8.65 PPM (10.2 PPM) [Objective: 5 PPM] – Detected in both samples
Lead	0.0192 PPM (0.0126) [Objective: 0.0075 PPM] – Detected in both samples
Manganese	2.09 PPM (2.32 PPM) [Objective: 0.15 PPM] – Detected in both samples

Monitoring Well – MW-6 Illinois EPA Duplicate Sample

Iron	8.45 PPM [Objective: 5 PPM]
Lead	0.0198 PPM [Objective: 0.0075 PPM]
Manganese	1.97 PPM [Objective: 0.15 PPM]

Monitoring Well – MW-7

Arsenic	0.0123 PPM [Objective: 0.01PPM] – Detected only in Illinois EPA sample
Iron	21.3 PPM (10.2 PPM) [Objective: 5 PPM] – Detected in both samples
Lead	0.044 PPM [Objective: 0.0075 PPM] – Detected only in Einoder's sample
Manganese	1.72 PPM (0.843 PPM) [Objective: 0.15 PPM] – Detected in both samples

Monitoring Well – MW-8

Boron	3.6 PPM [Objective: 2 PPM] – Detected only in Illinois EPA sample
Iron	25.2 PPM (8.46 PPM) [Objective: 5 PPM] – Detected in both samples
Lead	0.0313 PPM (0.0408) [Objective: 0.0075 PPM] – Detected in both samples
Manganese	0.782 PPM (0.353 PPM) [Objective: 0.15 PPM] – Detected in both samples

Benzene	0.00056 PPM [Objective: 0.005 PPM] – Detected only in Einoder's sample
Benzo(a)anthracene	0.029 PPM [Objective: 0.00013] – Detected only in Illinois EPA sample

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Monitoring Well – MW-8

Benzo(a)pyrene	0.027 PPM [Objective: 0.0002 PPM] – Detected only in Illinois EPA sample
Benzo(b)fluoranthene	0.031 PPM [Objective: 0.00018 PPM] – Detected only in Illinois EPA sample
Chrysene	0.030 PPM [Objective: 0.00012 PPM] – Detected only in Illinois EPA sample
Benzo(k)fluoranthene	0.032 PPM [Objective: 0.00018 PPM] – Detected only in Illinois EPA sample
Ideno(1,2,3-cd)pyrene	0.0076 PPM [Objective: 0.00043 PPM] – Detected only in Illinois EPA sample
Dibenzo(a,h)anthracene	0.0024 PPM [Objective: 0.0003 PPM] – Detected only in Illinois EPA sample
Bis(2-ethylhexl)phthalate	0.023 PPM [Objective: 0.006 PPM] – Detected only in Illinois EPA sample

Monitoring Well – MW-8 Einoder Duplicate Sample

Iron	9.14 PPM [Objective: 5 PPM]
Lead	0.04 PPM [Objective: 0.0075 PPM]
Manganese	0.268 PPM [Objective: 0.15 PPM]

Benzo(b)fluoranthene 0.00197 PPM [Objective: 0.00018]

Monitoring Well – MW-9

Arsenic	0.0256 PPM [Objective: 0.01PPM] – Detected only in Illinois EPA sample
Iron	17.7 PPM (12.6 PPM) [Objective: 5 PPM] – Detected in both samples
Lead	0.0116 PPM [Objective: 0.0075 PPM] – Detected only in Einoder's sample
Manganese	0.973 PPM (0.478 PPM) [Objective: 0.15 PPM] – Detected in both samples

Note:
Monitoring Well MW- 4 and MW-9 are existing wells. All other wells (MW-1, MW-2, MW-3, MW-5, MW-6, MW-7, and MW-8) were installed in 2012.

Monitoring Well MW-1 was installed on top of a fifteen foot berm. Wood debris, stained soil, and brick were observed during the first fifteen feet of the installation. The well screen was installed between twenty-five (25) to thirty-five (35) below ground surface.

During the installation of Monitoring Well MW-8, wood debris, stained soil, and brick, were observed from five (5) feet below ground surface to approximately thirty (30) feet below ground surface. The ten (10) foot well screen was installed at twenty-six (26) feet to thirty-six (36) below ground surface. This well is apparently monitoring leachate.

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In a letter addressed to me dated February 5, 2013, from AEC (see attached letter), AEC made the following recommendations:

1) Eliminate some of the parameters to be analyzed; and
2) Field filtering for metals and polynuclear aromatic compounds (PNAs).

Insufficient background groundwater quality data - It's my opinion that none of the parameters should be eliminated from the groundwater monitoring program. There has been no groundwater quality data prior to the site operation or during the disposal/filling activities.

I approve the request to field filter metals, as long as they collect a filtered and unfiltered sample and report both total metals and dissolved metals.

Field filtering for organics is not normally recommended.

AEC's evaluation of the groundwater exceedences state that this may be the result of hydrophobic organic contaminants (PNAs) having a high affinity for mobile subsurface particles. The exceedences for metals were also presumed to be the result of the high affinity for mobile subsurface particles.

I agree that the high affinity for mobile subsurface particles may be the cause for the exceedences.

The 620 Class I objective for Arsenic (former objective 0.050 PPM) and Chrysene (former objective 0.0015 PPM) have changed, effective October 05, 2012. **Current objectives:**

Arsenic **0.010 PPM**
Chrysene **0.012 PPM**

cc: Des Plaines Region
Mark Gurnik, BOL/DLC

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Bloom Twp. /J. T. Einoder Inc.
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Chemical Constituents	MW-1 PPM	MW-2 PPM	IEPA DUP MW-2 PPM	MW-3 PPM	MW-4 PPM	MW-5 PPM	MW-6 PPM	IEPA DUP MW-6 PPM	MW-7 PPM	MW-8 PPM	Einoder DUP MW-8 PPM	MW-9 PPM	Class I GW OBJ PPM
Aluminum	3.3 (4.28)	2.09 (1.58)	1.41	0.911 (0.757)	1.60 (0.0642)	0.101 (0.432)	1.05 (2.09)	1.03	1.46 (1.51)	1.62 (1.47)	0.786	1.08 (0.419)	3.5
Antimony	0.00062 (ND)	ND (ND)	(ND)	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	0.00143	ND (ND)	0.006
Arsenic	**ND (0.0166)**	**ND (0.0191)**	**0.0275**	**0.118 (0.0918)**	0.0222 **(0.0847)**	**0.0672 (0.0258)**	ND (ND)	ND	ND **(0.0123)**	ND (ND)	ND	ND **(0.0256)**	0.01
Barium	0.979 (1.32)	0.0508 (0.058)	0.0554	0.262 (0.253)	0.053 (0.0382)	0.0331 (0.0532)	0.0341 (0.0505)	0.033	0.0349 (0.0382)	0.911 (0.906)	0.874	0.0321 0.0338)	2
Beryllium	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND	ND (ND)	0.004
Boron	NA (1.36)	NA (0.357)	0.354	NA (1.140)	NA (0.444)	NA (0.360)	NA (0.654)	0.663	NA (1.14)	NA **(3.6)**	NA	NA (0.443)	2
Cadmium	ND (0.00536)	ND (0.00364)	0.00403	0.00224 (ND)	ND (ND)	0.00129 (0.00329)	ND (ND)	ND	0.00216 (ND)	ND (ND)	ND	ND (ND)	0.005
Calcium	243 (235)	465 (364)	368	384 (268)	412 (367)	368 (296)	370 (391)	350	436 (331)	191 (156)	126	340 (271)	NS
Chromium	0.00559 (0.0123)	ND (0.00505)	0.00516	ND (ND)	ND (ND)	ND (ND)	ND (0.00659)	0.00545	ND (ND)	0.0121 (0.0106)	0.00771	ND (ND)	0.1
Cobalt	0.0229 (0.0227)	0.0216 (0.0238)	0.0206	ND (ND)	ND (ND)	ND (ND)	0.0191(0.0 253)	0.0225	0.0105 (ND)	ND (ND)	ND	ND (ND)	1
Copper	ND (0.0566)	0.0171 (0.0131)	0.0113	ND (0.0146)	0.0217 (ND)	ND (0.0161)	0.0116 (0.0318)	0.0456	0.012 (0.0229)	0.00322 (0.018)	0.00839	0.00818 (0.0124)	0.65
Cyanide	0.010 (NA)	ND (NA)	NA	0.026 (ND)	ND (NA)	ND (NA)	ND (NA)	NA	ND (NA)	ND (NA)	ND	ND (NA)	0.2
Iron	**45.4 (28)**	**32.6 (22.8)**	**24**	**22.3 (10.5)**	**29.3 (10.8)**	**9.44 (20.5)**	**8.65 (10.2)**	**8.45**	**21.3 (10.2)**	**25.2 (8.46)**	**9.14**	**17.7 (12.6)**	5
Lead	**0.118 (0.0969)**	**0.0493 (0.0214)**	**0.0199**	**0.0146 (ND)**	**0.0322 (ND)**	**0.00154 (0.0112)**	**0.0192 (0.0126)**	**0.0198**	**0.044 (ND)**	**0.0313 (0.0408)**	**0.04**	**0.0116 (ND)**	0.0075
Magnesium	179 (253)	171 (175)	180	180 (207)	140 (128)	108 (124)	128 (174)	158	136 (140)	282 (424)	272	140 (143)	NS
Manganese	**2.49 (1.45)**	**1.99 (1.65)**	**1.53**	**1.05 (0.168)**	**1.27 (0.901)**	**0.824 (0.652)**	**2.09 (2.32)**	**1.97**	**1.72 (0.843)**	**0.782 (0.353)**	**0.268**	**0.973 (0.478)**	0.15
Mercury	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND(ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND	ND (ND)	0.002
Nickel	0.0256 (0.0354)	0.0285 (0.0322)	0.0255	0.0173 (0.0131)	0.0143 (0.00635)	0.00663 (0.00721)	0.0204 (0.0287)	0.0246	0.013 (0.0119)	0.0118 (0.0124)	0.00796	0.00964 (0.00574)	0.1
Potassium	64.5 (60.9)	6.55 (5.87)	5.87	11.4 (9.190)	4.73 (5.3)	5.89 (4.1)	9 (8.91)	8.26	25.8 (24.4)	75.2 (64.2)	73.6	11.1 (9.47)	NS
Selenium	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (0.0141)	0.012	ND (ND)	ND (ND)	ND	ND (ND)	
Silver	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND	ND (ND)	0.05
Sodium	985 (1060)	53.4(50.6)	53	463 (424)	29.9(80.5)	76 (30.5)	163 (167)	167	300 (291)	613 (583)	586	448 (432)	NS

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Chemical Constituents	MW-1 PPM	MW-2 PPM	IEPA DUP MW-2 PPM	MW-3 PPM	MW-4 PPM	MW-5 PPM	MW-6 PPM	IEPA DUP MW-6 PPM	MW-7 PPM	MW-8 PPM	Einoder DUP MW-8 PPM	MW-9 PPM	Class I GW OBJ PPM
Strontium	NA (1.35)	NA (2.92)	2.96	NA (4.360)	NA (2.99)	NA(2.84)	NA (3.22)	3.19	NA (1.93)	NA (2.17)	NA	NA (3.08)	NS
Thallium	ND (ND)	0.00015(ND)	ND	ND (ND)	ND (ND)	ND (ND)	0.00078 (ND)	ND	0.00016 (ND)	ND (ND)	ND	ND (ND)	0.002
Vanadium	0.0124 (0.0157)	0.00401 (0.00555)	ND	ND (ND)	0.00798 (ND)	ND (ND)	ND (ND)	ND	ND (ND)	0.00614 (ND)	0.0036	0.00351 (ND)	0.049
Zinc	0.0822 (0.187)	0.0616 (0.0617)	ND	0.0151 (ND)	0.0808 (ND)	ND (0.0464)	0.0248 (0.0463)	0.0433	0.0385 (0.0533)	0.108 (0.0697)	0.0372	0.028 (ND)	5
Phenanthrene	0.000193 (ND)	ND (ND)	ND	ND(ND)	ND(ND)	ND (ND)	ND (ND)	ND	ND (ND)	0.00208 (0.056)	0.0052	ND (ND)	0.21
Fluoranthene	0.000162 (ND)	ND (ND)	ND	ND(ND)	ND(ND)	ND(ND)	ND (ND)	ND	ND (ND)	ND (0.051)	0.0042	ND (ND)	0.28
Pyrene	0.000144 (ND)	ND (ND)	ND	ND(ND)	ND(ND)	ND(ND)	ND (ND)	ND	ND (ND)	ND (0.074)	0.00308	ND (ND)	0.21
Acetone	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	0.0317 (0.025)	0.0422	ND (ND)	6.3
Benzene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	**0.00056 (ND)**	0.0005	ND (ND)	0.005
Carbon Disulfide	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	0.0002 (ND)	0.00042	ND (ND)	0.7
Ethylbenzene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	0.00022 (ND)	0.00024	ND (ND)	0.7
Methyl tert-butyl ether	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	0.00053 (ND)	0.00044	ND (ND)	0.07
o-xylene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	0.00035 (ND)	0.00034	ND (ND)	NS
Toluene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	0.00089 (ND)	0.00075	ND (ND)	1
M,P-Cresol	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (NA)	NA	ND (NA)	0.186 (NA)	0.165	ND (ND)	NS
Acenaphthene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	0.00104 (0.0069)	0.00167	ND (ND)	0.42
Naphthalene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	0.00245 (0.0099)	0.00139	ND (ND)	0.14
Anthracene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	ND (0.016)	0.00123	ND (ND)	2.1
Benzo(a)anthracene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	**ND (0.029)**	**0.00152**	ND (ND)	0.00013

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Chemical Constituents	MW-1 PPM	MW-2 PPM	IEPA DUP MW-2 PPM	MW-3 PPM	MW-4 PPM	MW-5 PPM	MW-6 PPM	IEPA DUP MW-6 PPM	MW-7 PPM	MW-8 PPM	Einoder DUP MW-8 PPM	MW-9 PPM	Class I GW OBJ PPM
Benzo(a)pyrene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	**ND (0.027)**	**0.00151**	ND (ND)	0.0002
Benzo(b)fluoranthene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	**ND (0.031)**	**0.00197**	ND (ND)	0.00018
Chrysene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	**ND (0.030)**	0.00158	ND (ND)	0.012
Fluorene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	ND (0.011)	0.00141	ND (ND)	0.28
Butyl benzyl phthalate	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND	ND	ND (ND)	ND (0.0075)	ND	ND (ND)	NS
Benzo(k)fluoranthene	ND (ND)	ND(ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	ND **(0.032)**	ND	ND (ND)	0.00018
Indeno(1,2,3-cd)pyrene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	ND **(0.0076)**	ND	ND (ND)	0.00043
Dibenzo(a,h)anthracene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	**ND (0.0024)**	ND	ND (ND)	0.0003
Benzo(ghi)perylene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND(ND)	ND(ND)	ND	ND(ND)	ND (0.0049)	ND	ND (ND)	NS
Dibenzofuran	ND (ND)	ND (ND)	ND	ND(ND)	ND (ND)	ND(ND)	ND(ND)	ND	ND(ND)	ND (0.0064)	ND	ND (ND)	NS
Carbozol	ND(ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	ND (0.012)	ND	ND (ND)	NS
2-Methylnaphthalene	ND (ND)	ND (ND)	ND	ND (ND)	ND (ND)	ND (ND)	ND (ND)	ND	ND (ND)	ND (0.003)	ND	ND (ND)	0.028
4-Methylphenol	NA (ND)	NA (ND)	NA	NA (ND)	NA (ND)	NA (ND)	NA (ND)	NA	NA (ND)	NA (0.1)	NA	NA (ND)	NS
Bis(2-ethylhexl)phthalate	ND (0.0015)	ND(ND)	**0.0065**	ND(ND)	ND(ND)	ND(ND)	ND (ND)	ND	ND (ND)	**ND (0.023)**	ND	ND (ND)	0.006

Where there are two numbers in a cell, number in parentheses are IEPA's result, numbers not in parentheses are Einoder results.
Class I GW OBJ PPM = 35 Ill. Adm. Code 620 Class I Objective Parts Per Million
PPM: Parts Per Million
NS: No Standard
NA: Not Analyzed
ND: Non-Detect
DUP: Duplicate Sample

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Chemical Constituents	MW-1 PPM	MW-2 PPM	IEPA DUP MW-2 PPM	MW-3 PPM	MW-4 PPM	MW-5 PPM	MW-6 PPM	IEPA DUP MW-6 PPM	MW-7 PPM	MW-8 PPM	Einoder DUP MW-8 PPM	MW-9 PPM	Class I GW OBJ PPM

Bold Results = Exceedence of 35 Ill. Adm. Code 620 Clas I Objective

STATE OF ILLINOIS)
)
COUNTY OF SANGAMON)

PROOF OF SERVICE

I, the undersigned, on oath state that I have served the attached the Illinois Environmental Protection Agency's Responses to Pre-Filed Questions upon the persons to whom they are directed by placing copies of each in an envelope addressed to:

John T. Therriault, Clerk
Illinois Pollution Control Board
James R. Thompson Center
Suite 11-500
100 West Randolph
Chicago, Illinois 60601
(Electronic Filing)

Mitchell Cohen
Chief Legal Counsel
Illinois Dept. of Natural Resources
One Natural Resources Way
Springfield, Illinois 62702-1271
(First Class Mail)

Matthew J. Dunn, Chief
Environmental Enforcement/Asbestos
Litigation Division
Illinois Attorney General's Office
500 South Second Street
Springfield, Illinois 62706
(First Class Mail)

Marie E. Tipsord
Hearing Officer
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph, Suite 11-500
Chicago, Illinois 60601
(Electronic Filing)

(Attached Service List – **First Class Mail**)

and sending or mailing them, as applicable, from Springfield, Illinois on May 13, 2013, with sufficient postage affixed as indicated above.

Mark Wight

SUBSCRIBED AND SWORN TO BEFORE ME

This 13th day of May, 2013.

Notary Public

"OFFICIAL SEAL"
Michael J McCabe
Notary Public, State of Illinois
My Commission Expires 9/29/2016

SERVICE LIST
PCB R2012-009

Claire A. Manning Brown, Hay & Stephens LLP 700 First Mercantile Bank Building 205 South Fifth St., P.O. Box 2459 Springfield, IL 62705-2459	John Henriksen, Executive Director Illinois Association of Aggregate Producers 1115 S. Second Street Springfield, IL 62704
Steven Gobelman Geologic/Waste Assessment Specialist Illinois Department of Transportation 2300 S. Dirksen Parkway Springfield, IL 62764	Tiffany Chappell City of Chicago Mayor's Office of Intergovernmental Affairs 121 N. LaSalle Street City Hall, Room 406 Chicago, IL 60602
Stephen Sylvester Assistant Attorney General Illinois Attorney General's Office 69 West Washington St., 18th Floor Chicago, IL 60602	James M. Morphew Sorling, Northrup, Hanna, Cullen & Cochran, Ltd. Suite 800 Illinois Building 607 East Adams, P.O. Box 5131 Springfield, IL 62705
James Huff, Vice President Huff & Huff, Inc. 915 Harger Road, Suite 330 Oak Brook, IL 60523	Greg Wilcox, Executive Director Land Reclamation & Recycling Association 2250 Southwind Blvd. Bartlett, IL 60103
Brian Lansu, Attorney Land Reclamation & Recycling Association 2250 Southwind Blvd. Bartlett, IL 60103	Dennis G. Walsh Klein, Thorpe and Jenkins, Ltd. 20 North Wacker Drive Suite 1660 Chicago, IL 60606-2903
Gregory T. Smith Klein, Thorpe and Jenkins, Ltd. 20 North Wacker Drive Suite 1660 Chicago, IL 60606-2903	Dennis M. Wilt, Vice President & Area Gen Waste Management of Illinois 720 East Butterfield Road Lombard, IL 60148
Michelle A. Gale Waste Management of Illinois 720 East Butterfield Road Lombard, IL 60148	Doris McDonald Asst. Corp. Counsel Chicago Dept. of Law 30 North LaSalle St., Suite 1400 Chicago, IL 60602

Jeryl L. Olson Seyfarth Shaw LLP 131 South Dearborn Street Suite 2400 Chicago, IL 60603-5803	Philip J. Comella Seyfarth Shaw LLP 131 South Dearborn Street Suite 2400 Chicago, IL 60603-5803
Craig B. Simonsen – Paralegal Seyfarth Shaw LLP 131 South Dearborn Street Suite 2400 Chicago, IL 60603-5803	Dean Olson, Director Will County Land Use Department 58 E. Clinton Street, Suite 500 Joliet, IL 60432
Keith I. Harley Chicago Legal Clinic, Inc. 211 West Wacker Drive Suite 750 Chicago, IL 60606	Mitchell Cohen Illinois Department of Natural Resources One Natural Resources Way Springfield, IL 62702-1271