BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF **PETITION FOR MODIFICATION OF ADJUSTED STANDARD ORDER FOR ELECTRIC ARC FURNACE DUST STABILIZED RESIDUE (AS 2008-010)**	**AS 17-_____** **(Adjusted Standard – Land)** **(RCRA Delisting – Modification)**

ENTRY OF APPEARANCE

To the Clerk of this Court and all parties of record:

Please enter my appearance as counsel of record in this case for the following:

PEORIA DISPOSAL COMPANY

Dated: September 21, 2017

Respectfully submitted,

ELIAS, MEGINNES & SEGHETTI, P.C.

By: _____
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917-0514

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INDEX

PETITION FOR MODIFICATION OF THE ADJUSTED STANDARD ORDER FOR ELECTRIC ARC FURNACE DUST STABILIZED RESIDUE (AS 2008-010)

917-0684

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF **PETITION FOR MODIFICATION OF ADJUSTED STANDARD ORDER FOR ELECTRIC ARC FURNACE DUST STABILIZED RESIDUE (AS 2008-010)**	**AS 17- _____** **(Adjusted Standard – Land)** **(RCRA Delisting – Modification)**

PETITION FOR MODIFICATION OF THE ADJUSTED STANDARD ORDER FOR ELECTRIC ARC FURNACE DUST STABILIZED RESIDUE (AS 2008-010)

NOW COMES Peoria Disposal Company ("PDC"), by its attorneys, Elias, Meginnes, & Seghetti, P.C., pursuant to Section 28.1 of the Illinois Environmental Protection Act (the "Act"), 415 ILCS §5/28.1, 35 Ill. Adm. Code Part 104, and 35 Ill. Adm. Code §720.122 (40 CFR §260.22), and petitions the Illinois Pollution Control Board (the "Board") to modify the Adjusted Standard Order entered in the Board's previous Opinion and Order of January 8, 2009, in Case No. AS 2008-010.

INTRODUCTION

In 1989, PDC's waste stabilization facility (the "WSF") was approved for operations under PDC's RCRA Part B Permit, issued by the Illinois Environmental Protection Agency (the "IEPA"). The WSF has been in continuous operation since 1989. In 1996, the United States Environmental Protection Agency (the "U.S. EPA") approved PDC's request to change the WSF's regulatory status from a "waste pile" to a "containment building unit." The WSF is permitted and authorized for storage and treatment of hazardous and non-hazardous wastes. The principal treatment activity currently conducted in the WSF is chemical treatment of RCRA hazardous wastes utilizing reagents designed to reduce the leachability of inorganic hazardous constituents in accordance with the Best Demonstrated Available Technology Standards prescribed by the U.S. EPA and the IEPA.

The largest volume of listed hazardous waste currently being treated at the WSF is K061 electric arc furnace ("EAF") dust generated by steel mills that produce steel using electric arc furnaces. During 2007-08, PDC developed a proprietary stabilization technology to treat the K061 EAF dust. On April 25, 2008, PDC petitioned the Board for an upfront and conditional delisting for the stabilized residue generated by PDC from the treatment of K061 EAF dust utilizing PDC's proprietary stabilization technology at the WSF ("EAFDSR"). The Board docketed the case as AS 2008-010. After extensive briefing and public involvement, including at a public hearing conducted by the Board, the Board granted the requested delisting with conditions, in its Opinion and Order entered January 8, 2009 (the "Adjusted Standard Order"). The Adjusted Standard Order was affirmed by the Third District Appellate Court and by the Illinois Supreme Court.

In this Petition for Modification, PDC requests that the Board remove one of the testing parameters required in the Adjusted Standard Order, based on data generated during eight (8) years of PDC's operations under the Adjusted Standard Order, as further discussed below and in the Technical Support Document, attached as Exhibit B to this Petition.

PETITION FOR MODIFICATION

A. The Adjusted Standard Order

A copy of the Adjusted Standard Order (including the Opinion and Order itself (pgs. 91-97)) is attached hereto as Exhibit A.

1. Testing Protocols and COCs

In Condition 3 of the Adjusted Standard Order, the Board requires that PDC conduct testing of each batch of EAFDSR:

> PDC must collect representative grab samples of each treated mixer load of the EAFDSR and composite the grab samples to

> produce a daily composite batch sample. This sample must be analyzed for TCLP leachate concentrations for all the constituents listed in condition 4 prior to disposal of the treated daily batch.

(Ex. A, pg. 94, §3(c)(i)).

Condition 4 of the Adjusted Standard Order requires testing certain constituents of concern ("COCs"), namely, fourteen (14) listed metals, plus "Dioxins/Furans expressed as Total 2,3,7,8-TCDD (Total Tetrachlorodibenzo-p-dioxin) Equivalence," referred to herein as dioxins/furans. (Ex. A, pgs. 95-96, §4). Condition 4 lists a "delisting level" for each COC. (Id.)

If testing of a batch of EAFDSR (as required in Condition 3) establishes that all the COCs present in the EAFDSR are below the delisting levels stated in Condition 4 (and meets certain other requirements not at issue in this Petition), then the EAFDSR is a non-hazardous waste, as a matter of law: "PDC's EAFDSR meeting the delisting levels of condition 4 is non-hazardous as defined in 35 Ill.Adm.Code 721 and no longer subject to regulation under 35 Ill.Adm.Code 722-728 or the permitting standards of 35 Ill. Adm. Code 703." (Ex. A, pg. 92, §2(b)).

2. Inclusion of Dioxins/Furans as COC in the Adjusted Standard Order

Inclusion of dioxins/furans as a COC was the subject of debate during Case No. 2008-010. PDC conceded *ab initio* that the EAF dust delivered to the WSF by PDC's customers did, in some instances, contain very low concentrations of dioxins/furans. However, PDC believed that it had demonstrated that dioxins/furans were not a COC in its demonstration testing supporting the request for delisting. The Board disagreed, based in part on certain errors in the Petition, and also on concerns expressed by the public regarding dioxins/furans. (*See* Ex. A, pgs. 42-45).

Therefore, the Board included dioxins/furans as a COC, and set a delisting level for dioxins/furans of 2.05×10^{-10} mg/L. (Ex. A, pg. 96, §4).

B. Operations under the Adjusted Standard Order

Since issuance of the Adjusted Standard Order in 2009, PDC has been accepting and treating EAF dust at the WSF pursuant to the Adjusted Standard Order, and has been disposing of (delisted) EAFDSR at the Indian Creek Landfill #2 in Tazewell County, Illinois, a non-hazardous solid waste landfill operated by an affiliate of PDC. PDC retained PDC Technical Services, Inc. ("Tech Services") to perform a statistical analysis of the results of testing performed on over a thousand batches of EAFDSR. The results of this analysis are set forth in Section 3.0 of the Technical Support Document submitted with this Petition.

In summary, of the 1,285 test results analyzed by Tech Services, there were only twenty-eight (28) apparent detections for dioxins/furans (or only ***2.2%*** of the total), of which only five (5) detections (or ***0.4%*** of the total) exceeded the delisting level in the Adjusted Standard Order. ***None of the five (5) apparent exceedances was confirmed by a second test of the relevant batch of EAFDSR*** (which retesting is expressly permitted under the Adjusted Standard Order).

In contrast with the *de minimis* detections of dioxins/furans, PDC has incurred (and will continue to incur) direct costs averaging more than $140,000 per year in testing EAFDSR for dioxins/furans, in addition to other, indirect costs.

1. Total K061 EAF Dust Treated at the WSF

The following table depicts the total amount of EAF dust treated at the WSF each year, from 2009 through 2016:

Year	Number of Batches	Total EAF Dust Received for Treatment (tons)
2009	182	33,449
2010	143	29,813
2011	174	34,025

2012	186	29,239
2013	160	24,702
2014	143	25,933
2015	134	23,155
2016	159	24,890
Total (2009-2015)	1,281	225,206

During 2015 and 2016, PDC accepted substantial amounts of EAF dust for treatment at the WSF from the following steel mill customers, in the listed volumes:

Generator	2015 (tons)	2016 (tons)
A. Finkl & Sons Co. # 30874-1355 E. 93rd Street Chicago, IL 60619 # 23427-2011 N. Southport Ave Chicago, IL 60614	1,469	1,588
Alton Steel 5 Cut Street Alton, IL 62002	2,443	2,886
Arcelor Mittal USA 3300 Dickey Road MC4-220 E. Chicago, IN 46312	444	0
Arkansas Steel Associates 2803 Van Dyke Road Newport, AR 72112	3	11
Gerdau Ameristeel – Wilton 1500 W. 3rd Street P.O. Box 3002 Wilton, IA 52778	0	8
Kentucky Electric Steel 2704 S. Big Run Road Ashland, KY 41102	7	0
Keystone Steel & Wire 7000 S.W. Adams Street Peoria, IL 61641	10,322	10,209
Nucor Steel (Nebraska) 2911 E. Nucor Road P.O. Box 309 Norfolk, NE 68702	45	0
SSAB (Iowa) 1770 Bill Sharp Blvd. Muscatine, IA 52761	764	1,147
Sterling Steel 101 Avenue K. Sterling, IL 61081	7,658	9,041
Total	23,155	24,890

2. Data from Testing for Dioxins/Furans – No Exceedances of Dioxins/Furans

During the past eight years of operating under the Adjusted Standard Order, PDC had generated 1,285 analytical results for testing of dioxins/furans from February 3, 2009, through December 31, 2016. These results were evaluated by Tech Services, as is described in Section 3.0 of the Technical Support Document filed with this Petition. Tech Services reached the following conclusions regarding the data collected from eight years of testing:

> Based on the population statistics of the dioxin/furan testing that has been performed under the Adjusted Standard Order, the vast majority (i.e., more than 97%) of the data are reported with a value of zero (0) picograms per liter for TEQ. Less than 3% of the data are reported with a detection of any sort. These minimal detections of dioxin/furan in EAFDSR are consistent with laboratory artifacts, which were nearly eliminated through a robust quality assurance program undertaken by several commercial analytical laboratories. There has never been a detection of dioxin/furan in EAFDSR confirmed by resample. Moreover, there has never been an apparent exceedance of the TCLP TEQ delisting limit for dioxins and furans in EAFDSR confirmed by resample.

(Technical Support Document, §3.3).

3. Costs of Testing for Dioxins/Furans

At present, PDC incurs costs in the amount of $900 for testing of each batch of EAFDSR for dioxins/furans. Based on historical volumes, in an average year, PDC tests approximately 160 batches of EAFDSR (1,281 batches over eight years). Therefore, PDC anticipates that it will incur an average of approximately $144,000 in direct costs relating to testing of EAFDSR for dioxins/furans each successive year.

In addition to direct costs, PDC incurs indirect costs relating to delays in operations at the WSF. Among other issues, the testing protocol for dioxins/furans takes approximately twice as long as the testing for the other COCs in the Adjusted Standard Order, which means that EAFDSR is stored for ***twice as long*** at the WSF as would otherwise be necessary (taxing the WSF's limited permitted storage facilities).

C. DRAS Modeling in Adjusted Standard Proceedings

In addition to performing a statistical analysis of the data generated from eight years of operations under the Adjusted Standard Order, PDC has gone the extra step to determine, hypothetically, whether disposal at Indian Creek Landfill #2 of EAFDSR containing dioxins/furans at the levels found in any of the apparent exceedances of the delisting level would have resulted in actual harm to human health or to the environment. (Again, in actuality all five of the apparent exceedances were not confirmed upon retesting). To perform this modeling, Tech Services assumed that ***all of the EAFDSR that could have been disposed under the Adjusted Standard Order*** (*i.e.*, 95,000 cubic yards per year), ***to date and in the future*** (for the 20-year anticipated life of Indian Creek Landfill #2 under those conditions), actually contained dioxins/furans at the levels found in the five apparent (unconfirmed) exceedances. This modeling has confirmed that the TEQ for even the ***largest*** apparent exceedance of the delisting level was still ***so tiny*** that the risk-analysis software found no increase in risk above the baseline risk when the amount of dioxins/furans is set to ***zero***.

1. Purpose and Uses of DRAS Modeling

Tech Services used the Delisting Risk Assessment Software (DRAS) developed and promulgated by the U.S. EPA to perform the risk analysis described in Section 4.0 of the Technical Support Document. The Board discussed DRAS in the Adjusted Standard Order:

"DRAS is a computer program that predicts potential risks to human health and the environment posed by wastes if they are delisted and disposed of in an unlined Subtitle D landfill or surface impoundment. For a given waste stream, DRAS calculates the waste's cumulative cancer risks and non-carcinogenic hazard indices, as well as back-calculates each waste constituent's maximum allowable waste constituent concentration permissible for delisting." (Ex. A, pg. 9). While the results of DRAS are not dispositive in a request for an adjusted standard, they are a factor to be considered by the Board. (Id.)

The current version of DRAS is version 3. At the time of PDC's original Petition in Case No. AS 2008-010, the then-current version of DRAS, version 2, included an error in the calculation regarding dioxins/furans, so the U.S. EPA prepared a spreadsheet work-around for this calculation. The glitch has since been fixed; Tech Services was able to use DRAS v.3 to compute the incremental risk posed to human health and the environment if all of the EAFDSR that could have been and can be disposed under the Adjusted Standard Order actually contained dioxins/furans at the levels found in the five apparent (unconfirmed) exceedances.

2. DRAS Testing and Analysis

The testing results and analyses of Tech Services are described in Section 4.0 of the Technical Support Document submitted with this Petition for Modification. Tech Services concluded that "[t]he DRAS runs for all of the apparent exceedance cases were ***identical*** to the baseline case; in other words, there was no increase in the risk whether the TEQ was zero or was the highest reported TEQ generated in eight years of analyzing EAFDSR. Therefore, these results showed ***no incremental risk increase*** for the hypothetical case where a batch of EAF dust treatment residue with a relatively elevated TEQ was released for shipment to a Subtitle D

landfill." (Technical Support Document, §4.2). Tech Services prepared the following table summarizing these findings:

Run	TCLP TEQ Apparent Exceedance	DRAS Groundwater Pathway Aggregate Risk
1	0.21 picogram/Liter	5.34×10^{-17} *
2	0.21 picogram/Liter	5.34×10^{-17} *
3	0.22 picogram/Liter	5.59×10^{-17} *
4	0.42 picogram/Liter	1.07×10^{-16} *
5	0.46 picogram/Liter	1.17×10^{-16} *
N/A	0.00 picogram/Liter	0.00

* Within the uncertainties of the calculation; therefore, equivalent to zero (0.00).

(Id.)

Based on the above, Tech Services opined that "[f]rom an incremental risk analysis viewpoint, there is no value in continuing to analyze EAFDSR for TCLP TEQ for dioxins and furans." (Technical Support Document, §4.3).

D. Requested Modification and Proposed Modified Adjusted Standard Order

PDC requests that the Adjusted Standard Order be modified to remove any requirement that PDC test for dioxins/furans as a COC, and to remove the delisting level for dioxins/furans presently included in the Adjusted Standard Order. The testing for dioxins/furans is costly and time consuming, and has been shown to ***add no information*** to inform the decision on whether any particular batch of EAFDSR can be safely placed in a properly managed Subtitle D landfill.

1. Legal Basis for Requested Modification

In the Adjusted Standard Order, the Board expressly noted that PDC or the Illinois Environmental Protection Agency may petition the Board for modification of the Adjusted Standard Order: "*See, e.g.*, 415 ILCS 5/4(q), 4(s), 42(e), 43(a) (2006); 35 Ill. Adm. Code 811; *see also* Peoria Disposal Co., AS 91-3, slip op. at 10-11 (Mar. 11, 1993) ('[T]he Agency or PDC

can petition the Board for modification of the adjusted standard if future information indicates that this is necessary.')." (Ex. A, pg. 78).

2. Scientific and Legal Analysis and Conclusions

At present, every batch of EAFDSR is sampled and analyzed for TCLP dioxins and furans, and the resulting TEQs are then compared to the risk-based standard that was established in the Adjusted Standard Order. In eight years of conducting this process according to the approved SAP, there has not been a single instance of a confirmed TEQ exceedance that would have prevented a batch of EAFDSR from being delisted. In addition, even the largest of the apparent detections would have posed no incremental risk to human health or the environment. The testing for TCLP dioxins and furans is technically complex, time consuming, and costly, and has been shown to ***add no information*** to inform the decision on whether any particular batch of EAFDSR can be safely placed in a properly managed Subtitle D landfill. Consequently, PDC proposes that the Adjusted Standard Order be modified, (1) to remove TCLP dioxin and furan testing from the analytical protocol for conditional exclusion, and (2) to remove the TEQ risk-based limit from the delisting levels.

3. Proposed Modified Adjusted Standard Order

The proposed modified adjusted standard order is attached hereto as Exhibit C. The sole substantive change to the existing Adjusted Standard Order is in Section 4, which PDC asks to be revised as follows (strike-out redlined below):

> 4. Delisting Levels. Based on testing pursuant to condition 3, the constituent concentration in TCLP leachate from the EAFDSR must not exceed any of the values shown below, otherwise such wastes must be managed and disposed of as K061 RCRA listed hazardous waste in accordance with 35 Ill. Adm.Code 703 and 722-728.

Constituent	**TCLP Delisting Level (mg/L)**
Antimony	0.206
Arsenic	0.0936
Barium	21.0
Beryllium	0.416
Cadmium	0.11
Chromium (Total)	0.6
Lead	0.75
Mercury	0.025
Nickel	11.0
Selenium	0.58
Silver	0.14
Thallium	0.088
Vanadium	3.02
Zinc	4.3
~~Dioxins/Furans expressed as Total 2, 3, 7, 8-TCDD (Total Tetrachlorodibenzo-p-dioxin) Equivalence~~	~~$2.05 X 10^{-10}$~~

E. Waiver of Hearing

PDC hereby waives hearing on this Petition for Modification (if and to the extent that same would otherwise be required pursuant to 35 Ill. Adm. Code §104.406(j)).

F. Section 27(a) Factors

Section 28.1 of the Act (regarding adjusted standards) incorporates Section 27(a) of the Act, which in turn provides that in making regulations, "… the Board shall take into account the existing physical conditions, the character of the area involved, including the character of surrounding land uses, zoning classifications, the nature of the existing air quality, or receiving body of water, as the case may be, and the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution." 415 ILCS §5/27(a).

PDC demonstrated compliance with Section 27(a) in the proceedings on its original Petition requesting an adjusted standard relative to EAFDSR. The Board extensively discussed Section 27(a) in the Adjusted Standard Order, concluding as follows: "The Board has carefully

considered the information in this record in view of the Section 27(a) factors, as required by Section 28.1(a), and finds that the delisting may be granted consistent with those factors." Ex. A, Adjusted Standard Order, pg. 81 (*see* also pgs. 78-85); *see also* Sierra Club v. Ill. Pollution Control Bd., 403 Ill. App. 3d 1012, 1020-21, 936 N.E.2d 670, 676 (3rd Dist. 2010), *reversed on unrelated grounds by* Sierra Club v. Ill. Pollution Control Bd., 2011 IL 110882, ¶ 3, 957 N.E.2d 888 (upholding Board's issuance of Adjusted Standard Order).

Nothing in the instant Petition for Modification requires the Board to revisit its previous finding that "the delisting may be granted consistent with those factors" identified in Section 27(a) of the Act. Since the filing of the original Petition and the Board's issuance of the Adjusted Standard Order, there have been no substantive changes to "the existing physical conditions, the character of the area involved, including the character of surrounding land uses, zoning classifications, the nature of the existing air quality, or receiving body of water, as the case may be, and the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution." 415 ILCS §5/27(a). Eight years of operations under the Adjusted Standard Order have affirmatively demonstrated that the Adjusted Standard is consistent with those factors.

CONCLUSION

PDC respectfully requests that the Board modify the Adjusted Standard Order, pursuant to Section 28.1 of the Illinois Environmental Protection Act, 415 ILCS 5/28.1, as set forth herein, consistent with the conditions in the modified adjusted standard order proposed in this Petition, or such other reasonable terms and conditions as the Board deems appropriate to provide the relief requested.

Dated: September 21, 2017

Respectfully submitted,

PEORIA DISPOSAL COMPANY,
Petitioner

By: _____
One of its attorneys

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917-0532

CERTIFICATION STATEMENT

I certify, under penalty of law, that I have personally examined and am familiar with the information submitted in this Petition and all attachments (including, without limitation, the Technical Support Document), and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Signed by authorized representative:

Signature: Ronald J. Welk

Name: Ronald J. Welk

Title: Vice President

Date: September 14, 2017

EXHIBIT A

Adjusted Standard Order

ILLINOIS POLLUTION CONTROL BOARD
January 8, 2009

IN THE MATTER OF:	)	
	)	
RCRA DELISTING ADJUSTED	)	AS 08-10
STANDARD PETITION OF PEORIA	)	(Adjusted Standard – RCRA)
DISPOSAL COMPANY	)	

BRIAN J. MEGINNES AND JANAKI NAIR OF ELIAS, MEGINNES, RIFFLE & SEGHETTI, P.C. AND CLAIRE A. MANNING OF BROWN, HAY & STEPHENS, LLP APPEARED ON BEHALF OF THE PETITIONER; and

WILLIAM D. INGERSOLL AND MICHELLE M. RYAN APPEARED ON BEHALF OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY.

OPINION AND ORDER OF THE BOARD (by A.S. Moore):

Peoria Disposal Company (PDC) filed an adjusted standard petition to delist (*i.e.*, exclude from hazardous waste regulation) the residue generated by PDC's treatment of K061 electric arc furnace dust at the company's waste stabilization facility (WSF). The WSF is located at 4349 W. Southport Road in Peoria, Peoria County, and approved by the Illinois Environmental Protection Agency (IEPA) for operations under PDC's Resource Conservation and Recovery Act (RCRA) Part B permit. PDC seeks the delisting for the treatment residue based on what PDC characterizes as its "new proprietary stabilization technology."

The residue will result from PDC's treatment (*i.e.*, stabilization) of electric arc furnace dust (EAF dust) that PDC receives from its steel mill customers. EAF dust is collected by emission control devices during steel production in electric furnaces. EAF dust is the listed hazardous waste K061 under RCRA. The residue generated by PDC's treatment of EAF dust is also considered K061 listed hazardous waste under RCRA's "derived-from" rule. The residue resulting from PDC's new treatment process is referred to as EAF dust stabilization residue (EAFDSR). IEPA recommends that the Board issue the requested delisting. For the reasons provided in this opinion, the Board grants the delisting adjusted standard, but denies PDC's proposal for allowing the company to bring a materially different treatment process into the scope of this delisting without Board review. The Board substantially amends the PDC-proposed conditions to which the delisting is subject.

In this opinion, the Board first provides a summary of its decision (p. 2), followed by the legal framework for today's decision (pp. 2-10). Next, the Board describes the case's procedural background (pp. 10-13), after which the Board sets forth PDC's proposed adjusted standard language (pp. 13-17) and summarizes IEPA's recommendation (pp. 18). The factual background of this case follows (pp. 18-31). The Board then analyzes the issues and renders its legal findings (pp. 31-86). Before setting forth its overall conclusion (pp. 92-93), the Board discusses issues raised in public comment not addressed previously in the opinion (pp. 86-92). Following the opinion is the Board's order, which sets forth the delisting relief and conditions (pp. 93-98).

SUMMARY OF DECISION

Based on a thorough review of this record, the Board finds that PDC has met the legal tests for delisting under Section 28.1 of the Environmental Protection Act (Act) (415 ILCS 5/28.1 (2006)) and Section 720.122 of the Board's hazardous waste regulations (35 Ill. Adm. Code 720.122). PDC has demonstrated that (1) the treatment residue does not meet any of the criteria under which K061 EAF dust was listed as hazardous waste; (2) there is no reasonable basis to believe that factors other than those for which the K061 waste was listed warrant retaining the treatment residue as a hazardous waste; and (3) the treatment residue exhibits no characteristics of hazardous waste. The scientific evidence presented to the Board shows that the treatment residue meeting the Board's designated delisting levels does not pose a substantial present or potential threat to human health or the environment when considering all of the relevant factors, including use of the conservative risk assumptions required by the United States Environmental Protection Agency (USEPA). The Board's ruling today takes into account the conditions crafted for the delisting adjusted standard's language, some of which are highlighted below.

The Board's conditions for this delisting are extensive. No batch of EAFDSR is allowed to leave PDC's facility for non-hazardous waste disposal without analytical proof that the batch does not contain chemical concentrations in excess of those found to be safe. One of the Board's amendments to the conditions proposed by PDC adds dioxins and furans to the constituents of concern for which PDC will have to test, along with a corresponding delisting level with which PDC must comply for the treatment residue to qualify as non-hazardous waste. The Board also tightens the description of disposal facilities that may receive delisted treatment residue. The Board specifies that any delisted EAFDSR must be disposed of off-site in a RCRA Subtitle D[1] landfill that is permitted by IEPA and that has a groundwater monitoring system, in addition to having a liner and leachate collection system. The Board also narrows considerably those instances when PDC can alter its stabilization process without having to first petition the Board to justify an amendment to the delisting.

LEGAL FRAMEWORK

RCRA Hazardous Waste Listing

Section 22.4 of the Act (415 ILCS 5/22.4 (2006)) requires the Board to adopt regulations that are "identical in substance" to federal RCRA regulations. The Board's regulations identifying hazardous wastes are found in 35 Ill. Adm. Code 721. Generally, under the regulations, a solid waste is considered a hazardous waste if it exhibits a "characteristic" of hazardous waste (ignitability, corrosivity, reactivity, or toxicity) or if it is "listed" as hazardous waste; a characteristic hazardous waste remains a hazardous waste as long as it exhibits a characteristic, but a listed hazardous waste remains a hazardous waste until it is delisted. 35 Ill. Adm. Code 721.103, 721.Subparts C, D.

[1] 42 U.S.C. §§ 6941 *et seq.*

USEPA lists wastes as hazardous because (1) the wastes "typically and frequently exhibit one or more of the characteristics of hazardous wastes"; (2) the wastes meet the criteria for listing (*i.e.*, contain significant levels of toxic or carcinogenic constituents, or cause specific detrimental effects on the environment); or (3) the wastes are "mixed with or derived from the treatment, storage or disposal of such characteristic and listed wastes and which therefore become hazardous under . . . the 'mixture' or 'derived from' rules, respectively." 69 Fed. Reg. 77690, 77692 (Dec. 28, 2004); *see also* "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 5-6, USEPA Region 6 (Mar. 23, 2000).

Subpart D of Part 721 sets forth the lists of hazardous wastes. Section 721.132 includes a list of hazardous wastes from specific sources (35 Ill. Adm. Code 721.132). *See* 40 C.F.R. §261.32(a). In that list, USEPA hazardous waste number K061 refers to:

> Emission control dust/sludge from the primary production of steel in electric furnaces. 35 Ill. Adm. Code 721.132(a).

The K061 listing has the hazard code "T," which refers to "toxic waste," the basis for its listing. *Id*.; *see also* 35 Ill. Adm. Code 721.130(b)(1).

Appendix G of Part 721 identifies the constituents that caused USEPA to list the waste as a toxic waste (T) in Section 721.132. 35 Ill. Adm. Code 721.130(b)(2). The hazardous constituents for which K061 is listed are: "Hexavalent chromium, lead, cadmium." 35 Ill. Adm. Code 721.Appendix G (40 C.F.R. 261.Appendix VII). Section 721.103(e)(1) further provides that a material "derived from" the treatment of a listed hazardous waste is itself a hazardous waste. *See* 35 Ill. Adm. Code 721.103(e)(1); 40 C.F.R. §261.3(c)(2)(i). Specifically, Section 721.103(e)(1) provides in relevant part:

> any solid waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, ash, emission control dust, or leachate (but not including precipitation run-off), is a hazardous waste. 35 Ill. Adm. Code 721.103(e)(1).

USEPA, which promulgated the federal regulations upon which these regulations are based, explained that "all of the residues from treating the original listed wastes are likewise considered to be the listed waste . . . ." 54 Fed. Reg. 1056, 1063 (Jan. 11, 1989). Therefore, PDC's EAFDSR, which is generated from the treatment of K061, is also considered K061 listed hazardous waste. *See* 60 Fed. Reg. 31107, 31108 (June 13, 1995) (Chemically stabilized EAF dust is "classified as a K061 hazardous waste by virtue of the 'derived from' rule (§261.3(c)(2)(i)), because it is generated from the treatment of a hazardous waste (electric arc furnace dust) which is currently listed as EPA Hazardous Waste No. K061.").

Delisting Rules

USEPA has acknowledged that "a specific waste from an individual facility may not be hazardous" even though it constitutes a listed waste. 69 Fed. Reg. 77690, 77692 (Dec. 28, 2004). USEPA explained:

> Individual wastes may vary depending on raw materials, industrial processes, and other factors. Therefore, 40 CFR §§ 260.20 and 260.22 contain a procedure whereby anyone can petition [US]EPA to exclude or "delist" such a listed waste.
>
> Originally, the overall intent of the delisting process was to ease the regulatory burden on handlers of listed waste improperly captured by the broad listing definitions. Delisting has since evolved to also include listed wastes that are sufficiently treated such that they no longer pose a health threat. "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 6, USEPA Region 6 (Mar. 23, 2000).

Once delisted, petitioned waste is no longer considered a listed hazardous waste, and may be managed as a non-hazardous solid waste. The generator remains obligated, however, to determine whether the waste is characteristically hazardous waste. "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 9, USEPA Region 6 (Mar. 23, 2000). "Delisting" is a "term of art that refers to the action of excluding a waste or treated waste residue from regulation as a hazardous waste." Petition of Envirite Corporation for an Adjusted Standard from 35 Ill. Adm. Code 721 Subpart D: List of Hazardous Substances, Appendix I, AS 94-10, slip op. at 1 n.2 (Dec. 14, 1994); *see also* Petition of Keystone Steel and Wire Co. for Hazardous Waste Delisting, AS 91-1, slip op. at 18 (Feb. 6, 1992) (delisted waste "is nonhazardous, as defined in 35 Ill. Adm. Code 721").

USEPA made clear that a listed hazardous waste under the "derived-from rule" can be delisted. Even though "any solid waste generated from the storage, treatment, or disposal of a listed hazardous waste is itself a listed hazardous waste (40 CFR § 261.3(c)(2)(i), the 'derived-from rule')," the waste is still "eligible for exclusion." "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 6, USEPA Region 6 (Mar. 23, 2000); *see also* 40 C.F.R. §261.3(d)(2).

On March 1, 1990, USEPA delegated to Illinois the authority to administer several additional components of the RCRA program, including the authority to delist hazardous waste in lieu of USEPA. *See* 55 Fed. Reg. 7320 (Mar. 1, 1990); *see also* RCRA Update, USEPA Regulations, (7/1/85 through 1/31/86), R86-1 (July 11, 1986). In response to this delegation, the Board amended its hazardous waste regulations to allow for use of the adjusted standard procedures for delistings. *See* RCRA Delistings, R90-17 (Feb. 28 & Apr. 11, 1991).

Specifically, under Section 720.122(n) of the Board's hazardous waste regulations (35 Ill. Adm. Code 720.122(n)), "[d]elistings which have not been adopted by USEPA may be proposed to the Board pursuant to a petition for adjusted standard." Adjusted standards are governed by

Section 28.1 of the Act (415 ILCS 5/28.1 (2006)) and Part 104.Subpart D of the Board's procedural rules (35 Ill. Adm. Code 104.Subpart D). Section 28.1 provides in part:

> (a) After adopting a regulation of general applicability, the Board may grant, in a subsequent adjudicatory determination, an adjusted standard for persons who can justify such an adjustment consistent with subsection (a) of Section 27 of this Act. In granting such adjusted standards, the Board may impose such conditions as may be necessary to accomplish the purposes of this Act. The rule-making provisions of the Illinois Administrative Procedure Act and Title VII of this Act shall not apply to such subsequent determinations.
>
> (b) In adopting a rule of general applicability, the Board may specify the level of justification required of a petitioner for an adjusted standard consistent with this Section. 415 ILCS 5/28.1(a), (b) (2006).

As referenced in Section 28.1(a), Section 27(a) of the Act states in part:

> In promulgating regulations under this Act, the Board shall take into account the existing physical conditions, the character of the area involved, including the character of surrounding land uses, zoning classifications, the nature of the existing air quality, or receiving body of water, as the case may be, and the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution. 415 ILCS 5/27(a) (2006).

In accordance with Section 28.1(b) (415 ILCS 5/28.1(b) (2006)), the Board has "specif[ied] the level of justification required of a petitioner" for hazardous waste delistings in Section 720.122 of the Board's regulations (35 Ill. Adm. Code 720.122). Section 720.122 is substantively identical to the USEPA delisting regulation at 40 C.F.R. §260.22. *See* RCRA Delistings, R90-17 (Feb. 28 & Apr. 11, 1991). Section 720.122(n) states that the justification for the adjusted standard "is as specified in subsections (a) through (g) of this Section, as applicable to the waste in question." 35 Ill. Adm. Code 720.122(n).

The Board notes below several of the key requirements under subsections (a) through (g) of Section 720.122. Subsection (a) of Section 720.122 addresses petitions to exclude a particular generating facility's waste from the lists of hazardous wastes in Subpart D. The Board will grant the petition if the following occur:

1) The petitioner demonstrates that the waste produced by a particular generating facility does not meet any of the criteria under which the waste was listed as a hazardous or acute hazardous waste; and

2) The Board determines that there is a reasonable basis to believe that factors (including additional constituents) other than those for which the waste was listed could cause the waste to be a hazardous waste, that such factors do not warrant retaining the waste as a hazardous waste. A Board determination under the preceding sentence must be made by reliance on,

> and in a manner consistent with, "EPA RCRA Delisting Program--Guidance Manual for the Petitioner," incorporated by reference in Section 720.111(a).[2] A waste that is so excluded, however, still may be a hazardous waste by operation of Subpart C of 35 Ill. Adm. Code 721 [characteristics of hazardous waste]. 35 Ill. Adm. Code 720.122(a).

Subsection (b) of Section 720.122 "provides for rendering inapplicable the 'mixtures' and 'derived-from' provisions of 35 Ill. Adm. Code 721.103(a)(2)(B) and (a)(2)(C) [*see* Section 721.103(c), (e)] (40 CFR 261.3(a)(2)(ii) and (a)(2)(iii) [*see* §261.3(c)]), which basically maintain that any mixture containing a Subpart D listed waste and any material derived from a Subpart D listed waste are hazardous wastes." Petition of Keystone Steel and Wire Company for an Adjusted Standard from 35 Ill. Adm. Code 721.132, AS 93-7, slip op. at 7 (Feb. 17, 1994). Section 720.122(b) reads:

> A person may also petition the Board to exclude from 35 Ill. Adm. Code 721.103(a)(2)(B) or (a)(2)(C), a waste that is described in these Sections and is either a waste listed in Subpart D of 35 Ill. Adm. Code 721, or is derived from a waste listed in that Subpart. This exclusion may only be granted for a particular generating, storage, treatment, or disposal facility. The petitioner must make the same demonstration as required by subsection (a) of this Section. Where the waste is a mixture of a solid waste and one or more listed hazardous wastes or is derived from one or more listed hazardous wastes, the demonstration must be made with respect to the waste mixture as a whole; analyses must be conducted for not only those constituents for which the listed waste contained in the mixture was listed as hazardous, but also for factors (including additional constituents) that could cause the waste mixture to be a hazardous waste. A waste that is so excluded may still be a hazardous waste by operation of Subpart C of 35 Ill. Adm. Code 721 [characteristics of hazardous waste]. 35 Ill. Adm. Code 720.122(b).

As the Board explained upon its adoption, this subsection (b):

> emphasizes that wastes which are hazardous due to the "derived from" or "mixture" . . . rules may also be delisted. However, it also clarifies that constituents of concern may arise from the non-hazardous wastes mixed with hazardous waste, and that the petitioner must analyze for everything of concern in the mixture. RCRA Delistings, R90-17, slip op. at 6 (Feb. 28, 1991); *see also* 35 Ill. Adm. Code 721.103(d)(2) ("a waste that is derived from a waste listed in Subpart D of this Part" is not a hazardous waste if it "has been excluded from subsection (e) of this Section pursuant to 35 Ill. Adm. Code 720.120 and 720.122").

[2] "EPA RCRA Delisting Program--Guidance Manual for the Petitioner," USEPA Region 6 (Mar. 23, 2000). *See* USEPA Region 6 Delisting Guidance Manual at http://www.epa.gov/region6/6pd/rcra_c/pd-o/dlistpdf.htm (last updated Apr. 26, 2007).

For waste that is listed with a "T" for "toxic waste," as is K061, subsection (d) of Section 720.122 provides:

> 1) The petitioner must demonstrate that the waste fulfills the following criteria:
>
> A) It does not contain the constituent or constituents (as defined in Appendix G of 35 Ill. Adm. Code 721) that caused USEPA to list the waste; or
>
> B) Although containing one or more of the hazardous constituents (as defined in Appendix G of 35 Ill. Adm. Code 721) that caused USEPA to list the waste, the waste does not meet the criterion of 35 Ill. Adm. Code 721.111(a)(3) when considering the factors used in 35 Ill. Adm. Code 721.111(a)(3)(A) through (a)(3)(K) under which the waste was listed as hazardous.
>
> 2) Based on a complete petition, the Board will determine, if it has a reasonable basis to believe that factors (including additional constituents) other than those for which the waste was listed could cause the waste to be hazardous waste, that such factors do not warrant retaining the waste as a hazardous waste.
>
> 3) The petitioner must demonstrate that the waste does not exhibit any of the characteristics, defined in 35 Ill. Adm. Code 721.121 [ignitability], 721.122 [corrosivity], 721.123 [reactivity], or 721.124 [toxicity], using any applicable methods prescribed in those Sections.
>
> 4) A waste that is so excluded, however, may still be a hazardous waste by operation of Subpart C of 35 Ill. Adm. Code 721 [characteristics of hazardous waste].[3] 35 Ill. Adm. Code 720.122(d).

PDC addresses both subsections (a) and (b) of Section 720.122. Further, because PDC's EAFDSR contains hazardous constituents that caused USEPA to list K061, PDC has proceeded under subsection (d)(1)(B) of Section 720.122, rather than subsection (d)(1)(A). Accordingly, the factors used in 35 Ill. Adm. Code 721.111(a)(3)(A) through (a)(3)(K) are relevant here. Section 721.111(a) reads as follows:

[3] As USEPA has noted, "[a]lthough wastes which are 'delisted' (i.e., excluded) have been evaluated to determine whether or not they exhibit any of the characteristics of hazardous waste, generators remain obligated under RCRA to determine whether or not their waste remains non-hazardous based on the hazardous waste characteristics." 60 Fed. Reg. 6054, 6055 (Feb. 1, 1995).

a) USEPA stated in corresponding federal 40 CFR 261.11 that it lists a solid waste as a hazardous waste only upon determining that the solid waste meets one of the following criteria:

* * *

3) Toxic waste. The solid waste contains any of the toxic constituents listed in Appendix H of this Part and, after considering the following factors, USEPA concludes that the waste is capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed:

***

A) The nature of the toxicity presented by the constituent;

B) The concentration of the constituent in the waste;

C) The potential of the constituent or any toxic degradation product of the constituent to migrate from the waste into the environment under the types of improper management considered in subsection (a)(3)(G) of this Section;

D) The persistence of the constituent or any toxic degradation product of the constituent;

E) The potential for the constituent or any toxic degradation product of the constituent to degrade into nonharmful constituents and the rate of degradation;

F) The degree to which the constituent or any degradation product of the constituent bioaccumulates in ecosystems;

G) The plausible types of improper management to which the waste could be subjected;

H) The quantities of the waste generated at individual generation sites or on a regional or national basis;

I) The nature and severity of the human health and environmental damage that has occurred as a result of the improper management of the wastes containing the constituent;

J) Action taken by other governmental agencies or regulatory programs based on the health or environmental hazard posed by the waste or waste constituent; and

K) Such other factors as may be appropriate. 35 Ill. Adm. Code 721.111(a).

In addition to the "EPA RCRA Delisting Program--Guidance Manual for the Petitioner," USEPA Region 6 (Mar. 23, 2000), the Board has looked to whether the petitioner used USEPA's Delisting Risk Assessment Software (DRAS) when the Board has considered a delisting request. *See* Petition of BFI Waste Systems of North America, Inc. for Waste Delisting, AS 08-5, slip op. at 26-29 (Dec. 4, 2008); Petition of BP Products North America, Inc. For RCRA Waste Delisting Under 35 Ill. Adm. Code 720.122, AS 07-1, slip op. at 7-9 (Feb. 15, 2007). DRAS is a computer program that predicts potential risks to human health and the environment posed by wastes if they are delisted and disposed of in an unlined Subtitle D landfill or surface impoundment.

For a given waste stream, DRAS calculates the waste's cumulative cancer risks and non-carcinogenic hazard indices, as well as back-calculates each waste constituent's maximum allowable waste constituent concentration permissible for delisting. The Board has previously held that use of DRAS is not a regulatory requirement when evaluating a petitioned waste, and DRAS risk assessment results are but one factor the Board may consider in its delisting decision. *See* BFI Waste Systems, AS 08-5, slip op. at 6; BP Products North, AS 07-1, slip op. at 6 n.2; USEPA Region 6 RCRA-Risk Assessment Program at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-o/midlo.htm#risk (last updated Sept. 10, 2007); PC 2 at 1.

The Board has also relied upon USEPA's "RCRA Delisting Technical Support Document," USEPA Region 6, EPA906-D-98-001 (Aug. 1, 2000). *See* BFI Waste Systems, AS 08-5, slip op. at 34; BP Products, AS 07-1, slip op. at 7. The Delisting Technical Support Document delineates all chemical release, exposure, and risk assessment algorithms used by DRAS. *See* USEPA Region 6 Delisting Technical Support Document at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-o/dtsd.htm (last updated Apr. 26, 2007).

Finally, the Board's delisting rules require, for any delisting, "[d]emonstration samples must consist of enough representative samples, but in no case less than four samples, taken over a period of time sufficient to represent the variability or the uniformity of the waste." 35 Ill. Adm. Code 720.122(h). Each petition must describe the manufacturing processes or other operations and feed materials producing the waste and include "an assessment of whether such processes, operations, or feed materials can or might produce a waste that is not covered by the demonstration." 35 Ill. Adm. Code 720.122(i)(5). Any exclusion would apply only to the "waste generated at the individual facility covered by the demonstration and will not apply to waste from any other facility." 35 Ill. Adm. Code 720.122(k). Petitioners must show that waste will be generated or managed in Illinois. 35 Ill. Adm. Code 720.122(p). Board-issued delistings apply only within Illinois. 35 Ill. Adm. Code 720.122(r). The Board "will not grant any petition that would render the Illinois RCRA program less stringent than if the decision were made by USEPA." 35 Ill. Adm. Code 720.122(q).

USEPA Delisting Decisions

In considering delisting petitions, the Board has looked to relevant USEPA delisting decisions as persuasive authority. *See* BFI Waste Systems, AS 08-5, slip op. at 24. Two USEPA delisting decisions, Heritage Environmental Services, LLC (Heritage) and Conversion Systems, Inc. (CSI), are cited by PDC and public commenters alike.

On January 15, 2002, USEPA issued Heritage a delisting to exclude treated EAF dust produced at Nucor Steel in Crawfordsville, Indiana. Heritage proposed to treat EAF dust by stabilizing it with "treatment reagents" in a mixing device for eventual disposal in a Subtitle D landfill. On June 13, 1995, USEPA issued CSI a delisting to exclude EAF dust treated by a specific stabilization process at CSI's Sterling, Illinois facility, as well as at CSI's future facilities, for eventual disposal in a Subtitle D landfill. CSI petitioned for a multiple-site exclusion for "chemically stabilized electric arc furnace dust (CSEAFD)" resulting from the SuperDetox^{TM} treatment process as modified by CSI.

Although specifics of the respective treatment processes were held confidential by USEPA in each case, Heritage and CSI both submitted descriptions and diagrams of their EAF dust treatment systems and chemical and physical analyses of the treated EAF dust to support their petitions. As a condition of both delistings, USEPA required Heritage and CSI to verify on a monthly basis that constituent concentrations of 14 metals in the treated EAF dust do not exceed specific delisting levels. 67 Fed. Reg. 1888-1896 (Jan. 15, 2002), 65 Fed. Reg. 75897-75906 (Dec. 5, 2000); 60 Fed. Reg. 31107-31115 (June 13, 1995), 58 Fed. Reg. 58521-58533 (Nov. 2, 1993). The Board discusses these USEPA delistings in greater detail later in this opinion when they are especially instructive for today's decision.

PROCEDURAL BACKGROUND

Petition and Acceptance for Hearing

PDC filed a petition on April 25, 2008, to delist a RCRA waste from the list of RCRA wastes pursuant to 35 Ill. Adm. Code 720.122 (Pet.). Attached to PDC's petition is a technical support document prepared by PDC's consultant, RMT, Inc. (TSD). On April 30, 2008, PDC filed a certificate of publication, documenting that notice of the petition and the public's opportunity to request a hearing was published on April 28, 2008, in the *Peoria Journal Star*.

In an order of June 5, 2008, the Board found that PDC had met the jurisdictional notice requirements of the Act. That same order noted PDC's waiver of hearing (Pet. at 27) but held that timely-filed public requests for hearing required that a public hearing be held. The Board received timely hearing requests from Lisa Offutt, Tom Edwards, Kim McLean Converse on behalf of Peoria Families Against Toxic Waste (PFATW), and Joyce Blumenshine on behalf of the Heart of Illinois Group Sierra Club (HOI Sierra Club). The Board therefore accepted the matter for hearing. Also in the June 5, 2008 order, the Board granted PDC's unopposed motion for expedited review based on representations that PDC's hazardous waste landfill was predicted to be "completely full in 2009," at which time PDC, absent the adjusted standard, would have to transport the stabilized residue hundreds of miles away for disposal at an additional cost of over $12.5 million annually.

Pre-Hearing

On June 12, 2008, IEPA filed a favorable recommendation to PDC's petition, but asked for additional information regarding PDC's site-specific modeling for dioxins and furans (Rec.). On June 16, 2008, the Board's hearing officer issued a notice and order setting the public hearing for August 18, 2008. Notice of the hearing was published on July 3, 2008, in the *Peoria Journal Star*. Further public notice of the hearing was provided through the Board's website and monthly newsletter, the *Environmental Register*.

PDC filed a response to IEPA's recommendation on June 26, 2008 (Resp. to IEPA Rec. Exh. A). By order of July 15, 2008, the hearing officer directed PDC to respond to 19 attached questions prepared by Board staff (HOO Att.). On August 7, 2008, PDC filed a 137-page response to the questions of Board staff (Resp. to HOO Exh. A).

Hearing

The Board's hearing officer held a public hearing on August 18, 2008, in Peoria, Peoria County. The Board filed the hearing transcript (Tr.) on August 25, 2008. Two witnesses testified at hearing: Laura Curtis, Project Manager with RMT, Inc., PDC's technical consultant; and Dr. Ajit Chowdhury, who developed PDC's new stabilization technology. The hearing officer found the witnesses credible. PDC offered four exhibits at hearing, and IEPA did not object to their admission. Exhibit 1 is the resume of Curtis and Exhibit 2 is an outline that provided the basis for her testimony. Exhibit 3 is the resume of Dr. Chowdhury and Exhibit 4 is a list of ten steel mill locations. All four exhibits (Exh.) were admitted into the record.

The August 18 hearing was attended by upwards of 100 members of the public, including citizens of Peoria, Tazewell, and DeWitt Counties. Twenty-seven citizens provided oral public comments at hearing, including members of the HOI Sierra Club and PFATW, as well as Matt Varble, resident of DeWitt County and President of "WATCH Clinton Landfill" ("We're Against Toxic Chemicals") (WATCH). A complete list of those who provided oral public comment is set forth as Attachment A to this opinion and order. The hearing officer also received seven written public comments (PC) at hearing (PC 9-15).

In an August 21, 2008 order, the Board addressed an information request filed by Tracy Meints Fox on August 13, 2008. Fox asked that the Board review the redacted information in Appendix B of the TSD and determine whether the locations of the ten steel mills used in the sampling process could be disclosed. On August 14, 2008, PDC filed a response, maintaining that Appendix B does not list the geographic locations of the ten steel mills. The Board found that Appendix B does not provide the geographic locations of the steel mills. The Board noted, however, that at the August 18, 2008 hearing, PDC offered a hearing exhibit that discloses the steel mill locations, which exhibit was admitted into the public record and could be viewed and downloaded through the Board's website.

Also in the August 21, 2008 order, the Board reserved ruling on several requests that the Board hold one or more additional public hearings. As stated in that order, because some of the citizen requests were made verbally on the record at the August 18 hearing, the Board decided to

wait until it received the official hearing transcript before ruling on the requests for additional hearings. The Board also stated that it expected to rule on the requests at its September 4, 2008 meeting, and directed that any response from PDC or IEPA be received by the Board no later than 10:00 a.m. on September 2, 2008.

On August 13, 2008, the Board received a letter from Illinois State Representative Bill Mitchell of the 87th District. Representative Mitchell asked that the Board hold an additional public hearing, this time in Clinton, DeWitt County. PDC filed a response on August 14, 2008, opposing Representative Mitchell's request. At the August 18 hearing in Peoria and through post-hearing written public comment, a total of seven citizens also requested that one or more additional public hearings be held in DeWitt, Tazewell, and Pike Counties. On August 29, 2008, PDC filed a response opposing the citizen requests. Also on August 29, 2008, the Board received a letter from Illinois State Senator Bill Brady of the 44th District, expressing his opinion that further public hearings in this proceeding did not appear to be necessary.

In a September 4, 2008 order, the Board declined to hold additional public hearings, but extended the deadline for filing public comments from September 11, 2008 to September 25, 2008. Due to that extension, the Board pushed back the filing deadlines for the post-hearing briefs of PDC and IEPA to October 9, 2008 and October 23, 2008, respectively.

Written Public Comments

The Board received 330 written public comments. These public comments are identified as PC 1 through PC 327, as some comments were docketed, for example, as PC 80 and PC 80A. The list of those filing written public comments is attached to this opinion and order as Attachment B. The commenters include members of the general public, environmental groups, government and elected officials, and industry representatives.

Among the 330 public comments, the Board received 185 postcards, each with the same pre-printed comment along with handwritten names, addresses, and in some instances brief notes in the postcard margins. PC 35, 39, 42-51, 53-57, 59-61, 63, 68, 72-75, 78, 80-81, 83-84, 89-98, 101-110, 113, 115-126, 128-129, 133-160, 162, 167, 169, 171-176, 179, 182-183, 198-208, 212-215, 217-219, 223-225,227-237, 239-243, 245-248, 250, 253-259, 261, 263, 265-267, 269-271, 273, 276-277, 279, 281-283, 285, 287, 289-291, 294, 309-310, 320-321. One postcard also attached a newspaper article. PC 256. These public comments are collectively cited as "Postcard 1." Two letters are substantially the same as Postcard 1. PC 85, 221.

The Board also received a second form of postcard public comment. Specifically, 91 of these postcards were received, each with the same pre-printed comment along with handwritten names, addresses, and on occasion brief notes in the postcard margins. PC 27-32, 34, 40-41, 48, 52, 58, 62, 64-67, 69-71, 76-77, 79, 82, 99-100, 111-112, 114, 127, 130-132, 161, 163-166, 168, 170, 177-178, 180-181, 184-197, 210-211, 226, 238, 244, 249, 251-252, 260, 262, 264, 268, 272, 274-275, 278, 280, 284, 286, 292-293, 295-296, 299, 303, 311, 316-319, 322. These public comments, each of which identifies the commenter as a member of HOI Sierra Club, are collectively cited to as "Postcard 2."

Public comments 316 through 327 were not timely filed and therefore will not be considered. The Board notes, however, that public comments 316 through 322 were either Postcard 1 or Postcard 2.

Post-Hearing

On October 8, 2008, PDC filed an 84-page brief (Br.), accompanied by 12 supporting exhibits. With PDC's filing, PDC included a motion to file a brief in excess of the 50-page limit in order to address the numerous public comments filed. The hearing officer granted the motion on October 9, 2008. IEPA did not file a post-hearing brief. However, as a supplement to its initial recommendation, IEPA did file an amended recommendation on October 27, 2008 to, recommending that the Board grant PDC's requested delisting (Am. Rec.). In accordance with the Board's June 5, 2008, the Board has rendered today's decision expeditiously, consistent with the Board's resources.

PDC'S PROPOSED ADJUSTED STANDARD LANGUAGE

PDC proposes the following adjusted standard language:

The Illinois Pollution Control Board hereby grants to Peoria Disposal Company ("PDC") an adjusted standard from 35 Ill. Adm. Code 721 Subpart D subject to the following conditions:

1. This adjusted standard becomes effective on (effective date here).

2. This adjusted standard is provided only for K061 wastes treated using PDC's new proprietary stabilization technology described in the RCRA Delisting Adjusted Standard Petition for PDC EAF Dust Stabilized Residue ("EAFDSR") filed by PDC on April 25, 2008 (the "Petition"), unless and until it is modified in accordance with condition 3(b). This adjusted standard is provided for up to a total annual waste disposal volume of EAFDSR of 95,000 cubic yards. PDC's EAFDSR is non-hazardous as defined in 35 Ill. Adm. Code 721. The EAFDSR must meet the verification and testing requirements prescribed in paragraph 3 listed below to ensure that hazardous constituents are not present in the EAFDSR at levels of regulatory concern. The EAFDSR will no longer be subject to regulation under 35 Ill. Adm. Code Parts 722-728 and the permitting standards of 35 Ill. Adm. Code 703. The EAFDSR shall be disposed of pursuant to the Board's non-hazardous landfill regulations found at 35 Ill. Adm. Code 810-815, and disposed of in a lined landfill with leachate collection and all necessary permits issued by the Illinois Environmental Protection Agency (the "IEPA") to receive the non-hazardous EAFDSR. The landfill used for disposal shall be located in the State of Illinois.

3. Verification and Testing.

a. Treatability Testing. PDC shall verify through bench-scale treatability testing that each K061 waste stream (other than those already represented in the full-scale, in-plant trials) received by PDC for chemical stabilization can be treated to meet the delisting levels of paragraph 4 prior to the operation of full-scale treatment of that waste stream. PDC shall submit a report of the treatability testing to the Agency within seven days of the completion of such testing.

b. Technology Modification Demonstration. With any significant change in the chemicals used by PDC in its full-scale treatment process, PDC shall first verify through bench-scale treatability testing that each K061 waste stream received by PDC for chemical stabilization can be treated to meet the delisting levels of paragraph 4 using the new chemical treatment regimen prior to the operation of full-scale treatment using the new chemical regimen.

Prior to adopting any significant change in treatment chemicals as part of the full-scale treatment process, PDC shall evaluate each new chemical or chemical treatment regimen for the presence of potential constituents of concern (COC's). The evaluation shall include, but not be limited to the consideration of producer knowledge, MSDS sheets, producer specification sheets, and/or producer- or PDC-supplied analytical data, as necessary to identify any potential COC's reasonably expected to be present at concentrations of concern in the EAF dust stabilized residue resulting from a new chemical treatment regimen. The universe of potential COC's that must be considered is the same as that considered for the Petition. To eliminate a constituent from further evaluation, the concentration must be no greater than the screening concentrations determined and modeled for the Petition as they appear in Tables 3a, 3b, 3c, and 8 of the Technical Support Document included with the Petition as Attachment 2 (the "TSD"). If the concentration of a potential COC in the EAF dust stabilized residue resulting from the proposed chemical treatment regimen is determined to be greater than that analyte's screening concentration, or for any constituents detected but not present on the previously referenced tables, PDC shall conduct a further evaluation, which may include running the then-approved version of the United States Environmental Protection Agency Delisting Risk Assessment Software ("DRAS") (or other appropriate model or risk assessment method) with the inputs reflecting the EAFDSR concentrations as treated with the proposed chemical. PDC may proceed with the change in treatment chemical or chemical treatment regimen as part of the full-scale treatment process only if

the evaluation demonstrates that the treated EAF dust stabilized residue does not exceed the target human health and environment risk factors upon which the approved Petition is based (see Section 6.3.2 of the TSD).

PDC, at least 15 days before adopting any significant change in the full-scale treatment process, shall submit a report of the technology modification demonstration and bench-scale treatability testing to the IEPA, addressed as specified in condition 5. The Illinois Pollution Control Board recognizes that insofar as the submittal contains non-disclosable information regarding a specific proprietary chemical or chemical treatment regimen, PDC may redact such information from its submittal to the IEPA.

For the purpose of this condition, significant change is defined as the utilization of any new chemical or chemical treatment regimen containing active ingredients different from those utilized in the full-scale, in-plant trials represented in the Petition.

c. Testing of Treatment Residues for Inorganic Parameters. PDC shall collect representative grab samples of each treated mixer load of the EAFDSR and composite the grab samples to produce a daily composite sample. This sample shall be analyzed for TCLP leachate concentrations for all the constituents listed in paragraph 4 (a) prior to disposal of the treated daily batch. If the initial composite sample does not indicate compliance with the delisting levels, the treated residues will either be: 1) treated further using additional curing time as the chemical reagents complete their reactions with the waste, followed by another round of verification sampling and analysis, or 2) re-processed through the WSF for additional treatment, followed by another round of verification sampling and analysis, or 3) managed as a K061 hazardous waste at a properly permitted RCRA Subtitle C[4] facility. All verification analyses shall be conducted on a composite that effectively represents the entire daily batch as did the initial sample, and shall include analysis for all 14 constituents identified in condition 4. If delisting levels are not achieved within the maximum storage time allowed PDC by its RCRA Part B Permit, the entire daily batch must undergo re-treatment or be managed as a hazardous waste as required by 35 Ill. Adm. Code 728 and the WSF RCRA Part B Permit.

PDC shall submit annually to the IEPA the data (and/or a subset or summary thereof to which the IEPA agrees) collected pursuant to

[4] 42 U.S.C. §§ 6921 *et seq*.

this condition. The data submittal shall be addressed as specified in condition 5.

d. All analyses shall be performed according to SW-846 methodologies incorporated by reference in 35 Ill. Adm. Code 720. The analytical data shall be compiled and maintained on site for a minimum of three years. These data must be furnished upon request and made available for inspection by any employee or representative of the State of Illinois.

4. Delisting Levels.

The concentration in TCLP leachate from the EAFDSR must not exceed the values shown below, otherwise such wastes shall be managed and disposed in accordance with 35 Ill. Adm. Code 703 and 722-728.

Constituent	TCLP Delisting Level (mg/l)
Antimony	0.206
Arsenic	0.0936
Barium	21.0
Beryllium	0.416
Cadmium	0.11
Chromium (Total)	0.6
Lead	0.75
Mercury	0.025
Nickel	11.0
Selenium	0.58
Silver	0.14
Thallium	0.088
Vanadium	3.02
Zinc	4.3

5. Data Submittal. All data must be submitted to the Manager of the Permit Section, Bureau of Land, Illinois Environmental Protection Agency, 1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 within the time period specified. At the IEPA's request, PDC must submit any other analytical data obtained pursuant to paragraph C within the time period specified by the IEPA. Failure to submit the required data will be considered a failure to comply with the adjusted standard adopted herein and subject PDC to an enforcement action initiated by the IEPA. All data must be accompanied with the following certification statement:

> Under civil and criminal penalty of law for the making or submission of false or fraudulent statements or representations (pursuant to the applicable provisions of the

Illinois Environmental Protection Act), I certify that the information contained in or accompanying this document is true, accurate and complete.

In the event that any of this information is determined by the Board in its sole discretion to be false, inaccurate or incomplete, and upon conveyance of this fact to Peoria Disposal Company, I recognize that this exclusion of wastes will be void as if it never had effect to the extent directed by the Board and that Peoria Disposal Company will be liable for any actions taken in contravention of its RCRA Part B Permit and CERCLA obligations premised upon the Peoria Disposal Company's reliance on the void exclusion.

6. PDC, at least 15 calendar days before transporting an initial load of delisted EAFDSR to a given disposal facility, shall provide the IEPA with a one-time, written notification identifying that disposal facility. The notification submittal shall be addressed as specified in condition 5.

_____
(Name of certifying person)

_____
Title of certifying person)

Date_____

Br. at 78-82.

IEPA'S RECOMMENDATION

IEPA recommends that the Board grant the requested delisting. Am. Rec. at 1. In its original recommendation, filed on June 12, 2008, IEPA stated that it "has no objection" and that PDC's request would "likely meet the required level of justification with some additional information." Rec. at 1. IEPA raised two concerns related to the site-specific assumptions used by PDC in DRAS modeling for dioxins and furans. First, while not taking issue with the use of site-specific information, IEPA asked for more information to support PDC's adjustment in the fraction of fish intake, which PDC reduced from the generic input of 1.0 to a site-specific input of 0.5 under the assumption that 50% of all freshwater fish consumption for an individual is taken from Indian Creek. Rec. at 2. Second, IEPA pointed out a discrepancy in the figures within a site-specific model assumptions table concerning the fish consumption rate. *Id*. at 2-3.

PDC filed a response to IEPA's concerns on June 26, 2008, providing additional information in support of its site-specific analysis and clarifying numerical discrepancies. However, in response to Board staff questioning, PDC, as discussed below, ultimately eschewed these site-specific modeling assumptions based on Indian Creek in favor of more conservative generic model values applicable for disposal in any Subtitle D landfill in Illinois.

On October 27, 2008, IEPA filed an amended recommendation. IEPA notes that "additional information provided by PDC in its response of June 26, 2008 and at hearing on August 18, 2008, adequately addresses the issues raised in the Illinois EPA's June 12, 2008 response." Am. Rec. at 1. IEPA therefore "recommends the granting of the requested RCRA delisting adjusted standard." *Id*.

FACTS

The following facts are provided by way of background. Additional findings of fact are set forth later in this opinion as those facts become relevant.

PDC

PDC is an environmental services company based in Peoria, Illinois. PDC transports, treats, and disposes of hazardous and non-hazardous industrial and remediation wastes. TSD at 1-1. The PDC waste stabilization facility (WSF) and PDC No. 1 Landfill are permitted under Subtitle C of RCRA and located adjacent to each other on a roughly 90-acre property in unincorporated Peoria County. *Id*. PDC is classified as Standard Industrial Classification (SIC) code 4953, for refuse systems, and North American Industry Classification System (NAICS) code 562211, for hazardous waste treatment and disposal. *Id*.

Waste Stabilization Facility

PDC's waste WSF is located entirely within a containment building at 4349 W. Southport Road in Peoria, Peoria County. Pet. at 9; TSD at 3-3. The WSF was approved in 1989 to operate under the RCRA Part B permit issued by IEPA. Pet. at 1, 9. Since 1989, the WSF has been in continuous operation. *Id*. at 1, 10. In 1996, PDC's request to change the WSF

from "a waste pile to a containment building unit" was approved. *Id*. A "mixer" in the WSF is a unit (tank) under the Part B permit. TSD at 3-6.

The WSF containment building is a fully-enclosed, pre-engineered steel structure with a floor area of approximately 11,000 square feet. TSD at 3-3. The building is founded on 5-foot high reinforced poured concrete containment walls and has a 12-inch thick poured concrete floor slab. *Id*. For receiving waste, the WSF is accessed at the north end by one of four overhead doors. Just inside each of these doors are individual waste receiving bays, which are constructed of reinforced concrete. *Id*. at 3-3, 3-4. A 100-mils thick, high-density polyethylene synthetic liner, serving as secondary containment and as a component of the liquids collection system, underlies the entire facility, including the concrete receiving apron and receiving bays. *Id*. at 3-4

The WSF is permitted to store and treat hazardous and non-hazardous wastes. Pet. at 1; TSD at 3-3. Currently, the WSF's principal treatment activity is chemical microencapsulation of hazardous wastes using "reagents designed to reduce the leachability of inorganic hazardous constituents." Pet. at 1-2; TSD at 3-1. The largest volume of listed hazardous waste presently being treated at the WSF is K061 electric arc furnace dust. This EAF dust is generated by steel mills that produce steel using electric arc furnaces. Pet. at 2.

The EAF dust that PDC receives from the steel manufacturers is the residual from air pollution control systems. TSD at 1-2. In manufacturing steel, electric arc furnaces are commonly used to melt scrap metal. EAF dust consists of particulates captured from the furnace off-gases in, for example, a baghouse. TSD at 2-1, Fig. 2, 3. EAF dust composition varies depending upon the types of scrap and the types or quantities of flux and other additives used in the melting, but it is principally composed of iron and iron oxides, flux (typically lime or fluorspar), zinc, chromium and nickel oxides, and other metals associated with the scrap. TSD at 2-1, 2-2; *see also* TSD at 3-15 ("The variability in the EAF dust primarily results from variations in the characteristics of the scrap steel and the grade of carbon steel that is produced.").

PDC No. 1 Landfill

PDC currently disposes of WSF-treated K061 EAF dust (the "chemically stabilized residues that remain hazardous") in PDC's on-site RCRA Subtitle C hazardous waste landfill (PDC No. 1 Landfill).[5] Pet. at 2, 11; TSD at 1-4. PDC No. 1 Landfill, which has been PDC-

[5] In an opinion issued on October 7, 2008, the Third District Appellate Court upheld the Board's decision to affirm the Peoria County Board's denial of siting for PDC to expand PDC No. 1 Landfill. Peoria Disposal Company v. Illinois Pollution Control Board and County of Peoria, 896 N.E.2d 460, 324 Ill. Dec. 674, 2008 Ill. App. LEXIS 999, *43 (3rd Dist., Oct. 7, 2008) (Board docket PCB 06-184). PDC has since filed with the Illinois Supreme Court a petition for leave to appeal the Third District Appellate Court's decision. In another case still pending before the Third District Appellate Court, PDC appealed the Board's January 10, 2008 decision affirming IEPA's denial of PDC's application to modify PDC No. 1 Landfill's RCRA Part B permit. Peoria Disposal Company v. Illinois Pollution Control Board and Illinois Environmental Protection Agency, No. 3-08-0030 (3rd Dist.) (Board docket PCB 08-25). PDC's permit application had proposed an expansion of PDC No. 1 Landfill.

owned throughout its operating life, first became a RCRA hazardous waste management facility with the effective date of RCRA in November 1980. TSD at 3-4. PDC No. 1 Landfill was issued a RCRA Part B permit on November 4, 1987. Pet. at 2, 9.[6]

Area C of PDC No. 1 Landfill is currently active and contains all of the landfill's remaining disposal capacity. Pet. at 11. Specifically, Area C is a 42-acre area containing four individual landfill cells identified as Trenches C-1 through C-4. Most of Trenches C-1 and C-2 are closed and in post-closure care. The remaining portions of Trenches C-1 and C-2, as well as Trench C-3, are nearly filled to capacity and are currently used as a container storage area for treatment residues while Land Disposal Restriction (LDR) verification analyses are pending. Almost all remaining landfill capacity exists in Trench C-4, an 11.5 acre landfill area. TSD at 3-5.

At its level of operation as of April 2008, PDC No. 1 Landfill "will reach capacity in 2009." Pet. at 2, 11 ("Area C will reach capacity sometime in 2009"); TSD at 1-4, 3-5. For the WSF, the next closest operating Subtitle C landfill is located approximately 220 miles away in Roachdale, Indiana. Pet. at 3; TSD at 1-4.

PDC currently ships some treatment residues off-site for disposal as non-hazardous waste at its affiliated Subtitle D landfill located in Tazewell County (Indian Creek Landfill No. 2): "The non-hazardous residues are decharacterized waste (i.e., originally D004-D011 waste codes) and delisted residues from PDC's treatment of F006 waste."[7] Pet. at 11; TSD at 1-1.

Proposed Operations

Because the EAFDSR results from a new chemical treatment technology, PDC has never managed the EAFDSR in any land-based unit (*e.g.*, a landfill), except for the quantities generated during the delisting demonstration trials. TSD at 2-2, 2-3, 3-15, 7-1. With the exception of using new treatment reagents, the procedures for receiving, handling, and treating K061 EAF dust would be largely the same as those used by PDC since 1989. TSD at 2-2.

All fixed assets necessary to receive waste, treat waste, and store treated waste before disposal are in place at the WSF. Pet. at 12. With the new chemical treatment regimen, PDC upgraded and modified its reagent storage and delivery system to accommodate the storage and

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[6] In a third-party appeal, the Board recently upheld IEPA's November 27, 2007 renewal of the RCRA Part B permit for PDC No. 1 Landfill. *See* Tom Edwards v. Peoria Disposal Co. & IEPA, PCB 08-42 (June 19, 2008).

[7] The Board granted an adjusted standard delisting to PDC for the stabilized residue generated from the company's treatment of F006 waste. *See* Petition of Peoria Disposal Co. for Adjusted Standard from 35 Ill. Adm. Code 721 Subpart D, AS 91-3 (Feb. 4, 1993, Mar. 11, 1993)). TSD at 1-1.

blending of one additional chemical relative to the existing regimen. These changes were made prior to the in-plant trials. *Id*. at 20-21.

As part of normal WSF operations, PDC anticipates receiving K061 EAF dust at an approximate average rate of 74,000 tons per year (TPY), with a maximum of 95,000 TPY. Based on those receipts, the estimated average and maximum amounts of EAFDSR that would be generated by the treatment process are:

- Average Monthly Volume Generated: 9,300 tons (approx. 6,200 cubic yards)
- Average Yearly Volume Generated: 111,000 tons (approx. 74,000 cubic yards)
- Maximum Monthly Volume Generated: 11,900 tons (approx. 7,950 cubic yards)
- Maximum Yearly Volume Generated: 142,500 tons (approx. 95,000 cubic yards)

Pet. at 3; TSD at 2-2.

These figures include the ten current steel mill customers of PDC plus potential future business. TSD at 2-2. EAF dust shipments may be stored and processed without commingling with other K061 wastes, or may be commingled homogeneously before treatment as is allowed by the facility RCRA Part B permit. TSD at 3-15

For PDC's current K061 treatment, the RCRA Part B permit requires two grab samples from each batch for LDR compliance verification, one from the first mixer load and one from the last mixer load. Pet. at 20; Resp. to HOO, Att. 1. PDC's proposed adjusted standard would require a grab sample from each mixer load to form a daily composite sample. Pet. at 20.

Two process materials are used to treat the K061 EAF dust: water and proprietary chemical treatment reagents. This "newly licensed technology"[8] was developed by Dr. Ajit Chowdhury "expressly for PDC's delisting effort." TSD at 3-16. PDC primarily uses water directly from the local potable water supply utility, the Pleasant Valley Water District. The precise amount of water added to each mixer load is part of PDC's proprietary regimen. The amount of water, however, would be only that amount necessary to "facilitate mixing and eliminate the potential for fugitive dust emissions when offloaded at the active landfill face." *Id*.

The EAF dust stabilization process would be performed in "batches." TSD at 3-7. A typical batch is one day of K061 receipts or 200-300 tons. *Id*. Under the RCRA Part B permit, each K061 EAF dust wastestream must be pre-approved for acceptance before being shipped to PDC. *Id*. K061 EAF dust would be trucked to the WSF by public roads and weighed and inspected at the PDC gate control facility. Approved waste would be trucked to the WSF

[8] On December 18, 2008, Terra Materials, LLC filed a December 17, 2008 letter from Terra Materials, LLC to PDC. What purport to be United States patents are an attachment to the letter. The Clerk of the Board entered the filing into this docket as PC 324. The letter refers to various patents and patent applications. PDC states that "[n]o existing patent was utilized by PDC in developing the Petition"; that Dr. Chowdhury has "retained ownership of the process he designed for this delisting, and will license the process to PDC if the delisting is approved"; and that "[w]hile Dr. Chowdhury has not yet patented any of the elements of the process, he is considering applying for patent protections for same." Br. at 13-14, 54.

receiving doors and discharged into the appropriate receiving bay. *Id*. EAF dust would be transferred (with a front-end loader) from the receiving bays to the hydraulic mixing unit (mixer) located within the containment building. TSD at 3-7, 3-9.

Water and chemical reagents would be added to the mixer. TSD at 3-7. The mixer would be covered and mixing would begin. TSD at 3-8. Following mixing, the mixer would be inverted and the treatment residue would be discharged into a steel trough installed above the concrete floor slab. The treated waste would be removed from the trough with a track-type excavator and loaded into either roll-off containers or dump trucks, and then transferred to the storage area for curing and storage pending receipt of the verification analytical test results for the treated waste. TSD at 3-8, 3-12. EAFDSR that meets the delisting levels would be transported off-site to a RCRA Subtitle D landfill located in Illinois. Treatment residue not meeting the delisting levels through "treatment using additional cure time and/or re-treatment at the WSF" would be shipped to a RCRA Subtitle C facility for further management as a hazardous waste. TSD at 3-8.

Other wastes managed at the WSF would be segregated from the K061 EAF dust being treated under this adjusted standard. The K061 EAF dust being treated to the delisting levels would not be commingled with any other waste type or waste code. TSD at 3-3, 3-8. The RCRA Part B permit requires a cleaning and decontamination procedure of the treatment equipment between treated batches of different waste types. TSD at 3-8.

The reagent storage and delivery system includes a steel storage silo with a capacity of approximately 150 tons, a steel split-bin (two separate compartments) silo with a capacity of approximately 50 tons per compartment, and a dedicated, top-mounted baghouse dust collection unit for each silo. TSD at 3-9. An electric blower would pneumatically convey and circulate reagents between the split-bin silo and the larger storage silo to blend individual chemicals into a uniform composite chemical. TSD at 3-10. The mixer is equipped with a reagent receiving bin that controls reagent flow into the mixer and has a dedicated baghouse unit. *Id*. The make-up or slurrying water system includes a two-inch "city" water service line and a 20,000-gallon storage tank. *Id*.

The stationary stabilization mixer, which is permitted as a RCRA tank, is a hydraulic-driven, dual rotating shaft paddle mixer. TSD at 3-10. The mixer is equipped with seventeen steel paddles and arms on each shaft. Load cells are located beneath the mixer to weigh each ingredient. The shafts are variable speed operating in a range of 0 to 43 revolutions per minute. For approximately two to five minutes, the mixer homogenizes the waste, reagent, and water. The mixer is emptied by being hydraulically elevated and inverted, depositing the EAFDSR into a steel trough. *Id*. at 3-11. During each mixing cycle, approximately five tons of untreated K061 is treated. Each mixing cycle takes approximately seven to twelve minutes, including transferring the waste, reagents, and water into the mixer, homogenizing the mix, and emptying the mixer. TSD at 3-11.

In either 25-cubic yard steel roll-off boxes or 168-cubic yard gondola-type rail boxes, the treatment residue would be "stored within the footprint of the PDC No. 1 Landfill or other permitted storage unit." TSD at 3-12. Unless temporarily uncovered to collect re-samples, the

roll-off boxes would remain covered with a weather-proof tarpaulin until authorized for disposal. The gondola-type containers are equipped with removable steel lids that are placed and removed by a track-type excavator. Except when temporarily removed during periods of additional filling, re-sampling, or removal for disposal, the lids would remain in place. *Id*.

Treatment residue not verified as meeting delisting levels following adequate curing would either be transported back to the WSF for re-treatment or shipped to a RCRA Subtitle C facility as a hazardous waste. Waste stored in gondola-type rail boxes would be removed from the boxes and transferred into either a dump truck or roll-off box using an excavator. TSD at 3-12.

EAFDSR verified as meeting the delisting levels would be removed from the gondola-type boxes using a track-type excavator and loaded into tractor-dump trailer combinations. The EAFDSR would then be transferred to the gate control area for inspection and weighing before being shipped to the designated RCRA Subtitle D landfill in Illinois for disposal. TSD at 3-12, 3-13, 3-15. Potential Subtitle D landfills to which delisted treatment residue may be shipped include the following PDC-affiliated landfills, though Indian Creek Landfill No. 2 "is the most likely facility that will be used" to dispose of the EAFDSR:

- Tazewell County Landfill, Inc.
  d/b/a Indian Creek Landfill No. 2
  24501 McMullen Road
  Hopedale, IL 61747

- Clinton Landfill, Inc.
  Route 51 South, Box 216L
  Clinton, IL 61727

- Pike County Landfill, Inc.
  32246 375th Street
  Baylis, IL 62314

TSD at 2-3, 7-1.[9]

Compliance Costs

[9] According to PDC, two local entities with jurisdiction over Indian Creek Landfill No. 2, the Tazewell County Board and the Hopedale Township Board, adopted resolutions on May 30, 2007, and August 12, 2008, respectively, approving delivery of delisted waste to Indian Creek Landfill No. 2. Br. at 4, Exhs. B, C. PDC further represents that the operator of the Clinton Landfill, PDC-affiliate Clinton Landfill, Inc., agreed to an amendment to its Host Community Agreement with DeWitt County to provide for approval by the County Board prior to disposal of EAFDSR at the Clinton Landfill. Br. at 4 n.1, Exh. E; *see also* Tr. at 38-41, PC 9; *but see* Tr. at 41-44, PC 222 (Ila Minson). This record is replete with citizen opposition to PDC disposing of any delisted EAFDSR in particular landfills and in landfills generally. *See*, *e.g.*, PC 3, PC 10.

PDC compared the cost of compliance if the EAFDSR remained K061 hazardous waste versus the cost of compliance if the delisting were granted. No new capital investments would be required under the delisting and many variable operating costs would remain largely unchanged (*e.g.*, labor, laboratory analysis, utilities). Pet. at 12-13. The cost of post-treatment transportation and disposal of treatment residue, however, would differ:

Transportation to and Disposal at Nearest Subtitle C Hazardous Waste Landfill		
Expense Item	**Cost Per Ton**	**Estimated Cost Per Year**
Transportation for Disposal	$44.00	$4,884,000
Disposal	$97.76	$10,851,360
Total	$141.76	$15,735,360

Transportation to and Disposal at Subtitle D Non-Hazardous Waste Landfill in Tazewell County		
Expense Item	**Cost Per Ton**	**Estimated Cost Per Year**
Transportation for Disposal	$8.86	$983,460
Disposal	$20.00	$2,220,000
Total	$28.86	$3,203,460

Pet. at 12-13.

All of the above costs are based on averages of 22 tons per shipment (semi-truck and aluminum dump trailer combination) and 111,000 TPY shipped. The estimated cost difference is $112.90 per ton or $12,531,900 per year. Pet. at 13. Due primarily to the higher relative cost of the new chemical treatment regimen, PDC estimates that the cost of meeting its proposed delisting levels at $110 per ton of untreated waste, compared to the current cost of meeting the LDRs, which is $90 per ton of untreated waste. Pet. at 21.

Testing New Treatment Technology

During 2007-08, PDC developed what it describes as a "new proprietary stabilization technology"[10] for treating K061 EAF dust. Pet. at 2. In testimony, Dr. Chowdhury[11] generally described the new stabilization process:

[10] The Board uses PDC's terminology ("new proprietary stabilization technology") in this opinion and order but makes no finding that the technology is "new" or "proprietary." *See* footnote 8.

[11] For 34 years, Dr. Chowdhury has been a chemical engineer and for the past 20 years, he has worked in the field of hazardous waste stabilization. Tr. at 30, 32. He is an author or co-author of fourteen U.S. patents and one Canadian patent. Tr. at 31. Approximately one-half of Dr. Chowdhury's patents relate to solid waste treatment, including hazardous waste stabilization. Tr. at 31-32.

> The new chemical treatment regimen PDC utilized for the trials incorporated addition of reagents involving sulfur oxy-anion compounds of alkaline-earth metals along with agents for pH control which included calcined and uncalcined lime. As necessary, the pH control agents which may be used include various phosphate and iron compounds. The additive mix ratio and dosage were controlled to provide a robust chemistry such that the potential for leaching of heavy metals of concern are minimized under various natural and induced leaching scenarios. During this treatment, the heavy metals are stabilized through a series of complex precipitation and adsorption-coprecipitation reactions in a pH regime of very low solubility of the metals. The material after stabilization is characterized by low potential for leaching of heavy metals as indicated by the TCLP (U.S. EPA Toxicity Characteristic Leaching Procedure) which is TCLP, analysis with using different extraction fluids like acidic, neutral and a pH 11.0 solution and also the corresponding MEP tests which is a multiple extraction procedure of U.S. EPA. Tr. at 33-34.

PDC used this technology in full-scale production at the WSF to conduct nine in-plant trials, including analysis of twelve demonstration samples. Pet. at 2, 26. PDC receives multiple K061 waste streams for treatment at its WSF under PDC's RCRA Part B permit. TSD at 2-2. Below are PDC's ten steel mill customers on whose K061 waste streams PDC performed full-scale, in-plant tests after stabilization (*i.e.*, treatment) with PDC's new technology:

Mill Name	**Steel Mill Location (City, State)**
A. Finkl	Chicago, Illinois
Alton Steel	Alton, Illinois
Charter Steel	Saukville, Wisconsin
Gerdau Ameristeel	Wilton, Iowa
IPSCO Steel	Muscatine, Iowa
Kentucky Electric Steel	Ashland, Kentucky
Keystone Steel and Wire	Peoria, Illinois
Arcelor Mittal Steel	East Chicago, Indiana
Nucor Steel	Norfolk, Nebraska
Sterling Steel	Sterling, Illinois

Exh. 4; TSD at 1-3, 2-2.

PDC's Sampling and Analysis Plan/Quality Assurance Project Plan (SAP/QAPP) for the in-plant trials originally included eight rounds of demonstration sampling and analysis. TSD at 4-3. The SAP/QAPP called for testing representative samples for the following:

- 40 C.F.R. Part 264.Appendix IX parameters, less herbicides and pesticides;
- Oil and grease, pH, total cyanide, total sulfide; and
- The RCRA Toxicity Characteristic constituents at 35 Ill. Adm. Code 721.124.

TSD at 4-4.

The RCRA hazardous waste characteristics of ignitability, corrosivity, and reactivity were not laboratory-analyzed. *Id*.

The sampling scheme for sample rounds 1 through 8 was developed to "mimic the monthly and annual receipts from each mill tested in the demonstration." TSD at 3-14. Some initial sample results showed exceedences of the proposed delisting levels. TSD at 3-15. The initial sampling program did not reflect "additional curing time and/or re-treatment," which is provided for in the RCRA Part B permit and proposed by PDC for the delisting. TSD at 4-2. PDC therefore conducted an additional in-plant trial "to more fully demonstrate PDC's procedure when the initial sample does not meet the proposed delisting levels." *Id*.

The additional in-plant trial was conducted between February 11, 2008 (in-plant treatment), and February 27, 2008 (final analytical result reported by TriMatrix Laboratories, Inc.) and included three additional sample rounds: round 9, round 10, and round 11. TSD at 4-4. Samples in round 9 were analyzed for the proposed constituents of concern (CoCs), *i.e.*, 14 metals analyzed for totals and the Toxicity Characteristic Leaching Procedure (TCLP), the basis of the previous sampling events. Samples also were collected after additional curing (round 10) and eventual re-treatment (round 11) and were tested just for those constituents that exceeded proposed delisting concentrations in round 9. *Id*.

More than 1,000 analytical results were obtained and validated. TSD at 6-1. Samples were collected on the following dates:

- December 7, 2007
- December 10, 2007
- December 11, 2007
- December 12, 2007
- December 13, 2007
- December 17, 2007
- December 18, 2007
- December 19, 2007
- February 11, 2008
- February 14, 2008 (after additional curing)
- February 21, 2008 (after re-treatment)

TSD at 5-1, 5-2.

For the first eight days of the demonstration, PDC treated an average of 71 tons of K061 EAF dust per day. TSD at 5-2. To ensure that the amount of waste processed from each mill during the trials was "proportional to the quantity PDC normally processes from each mill on an overall basis," shipments of EAF dust from the individual source mills were segregated from all other waste streams entering the WSF. PDC "selectively designated the K061 waste loads that would be processed each day to maintain this proportional representation objective." *Id*. In round 8, PDC commingled the EAF dust from multiple mills before treatment so the volatile organic compound (VOC) sample, a grab sample, would contain stabilized waste from multiple mills. *Id*.

The loads chosen for processing during the trial were unloaded and processed individually:

> Once in the receiving bay, a front-end loader transferred approximately 3.5 tons of the pre-selected EAF dust into the mixer. This is less than the 5 to 6 tons of K061 EAF dust that is normally processed in each mixer load due to the physical characteristics of the new chemical treatment regimen. Specifically, the new chemical reagents became very stiff and somewhat hydrophobic (relative to PDC's typical treatment reagents) when water was added. To adapt to this, PDC personnel quickly learned it was best to treat smaller than normal loads, and to first blend the waste and all chemical reagents prior to adding water. Water was then added and mixed with the pre-blended waste and chemical reagents. *** Ultimately, all treated waste was thoroughly blended and properly representative of the chosen "mix design." TSD at 5-2.

The mixer was emptied after treatment and the treatment residue was transferred into a 25-cubic yard roll-off box. TSD at 5-2. Before the box was moved to a dedicated sampling rack at the gate control load inspection area for sampling, two mixer loads were placed in each roll-off box. During each sample round, on average, nine roll-off boxes of K061 EAF dust treatment residues were generated and available for sampling. To allow the mixer loads to be separately identified and sampled, PDC segregated the mixer loads that were placed in an individual roll-off box. RMT collected at least two grab samples from each mixer load, sampling both loads placed in each roll-off box. TSD at 5-3, 5-4. The grab samples were collected directly from each roll-off box soon after the treatment residues were first placed in the roll-off box, typically within one hour. TSD at 5-4.

The amount of waste treated in each mixer load was uniform and each mixer load was sampled. TSD at 5-5. The number of mixer loads sampled is directly proportional to the volumes of treated K061 EAF dust from each of the ten mills. The two grab samples per mixer load were included in each sample round composite, but prior to final compositing during each sampling event:

> RMT reviewed the waste treatment volumes for each mill and added additional (previously collected) grab samples as needed to ensure that the composite sample was representative of the percentage of treatment residues from each mill. TSD at 5-5, 5-6.

During the first eight sampling events, a few of the samples exhibited TCLP cadmium and zinc concentrations above proposed delisting levels. The batches sampled in the first eight rounds were not subject to additional curing time or re-treatment. TSD at 5-3. The additional in-plant trial, rounds sampling 9 through 11, was conducted:

> to demonstrate PDC's proposed procedure to re-sample the waste batch when necessary and, if necessary re-treat the waste batch, in the event the initial (or subsequent) verification sample exceeds the proposed delisting levels. This

> inplant treatment trial was set up to treat EAF dust from the four mills (mills 2, 4, 7, and 10) with the highest pre-treatment TCLP cadmium concentrations. TSD at 5-3; *see also* TSD at 6-2 ("Wastes from the four mills exhibiting the highest mean concentrations of TCLP cadmium in untreated K061 EAF dust").

The untreated EAF dust from the four mills was homogenized before treatment rather than segregated. TSD at 5-3. At the scheduled trial start time, the ambient air temperature was 2°F. The trial was delayed for approximately three hours while a frozen water line was repaired. Between the initial treatment (round 9) on February 11, 2008, and the re-sampling on the morning of February 14, 2008 (round 10), daily temperatures ranged from a high of 26°F to a low of 3°F. Low ambient air temperatures can retard chemical reaction. TSD at 5-4.

The round 9 analysis indicated a cadmium concentration (0.14 mg/L[12]) exceeding the proposed delisting level (0.11 mg/L) and a mercury concentration (0.026 mg/L) exceeding the proposed delisting level (0.025 mg/L). TSD at 6-2. After three days of additional curing time, the batch was re-sampled for cadmium and mercury (round 10). TSD at 6-2, 6-3. The mercury concentration dropped below the proposed delisting level but the cadmium concentration remained 0.01 mg/L above its proposed delisting level. TSD at 6-3. Rather than provide additional curing time, PDC conducted additional treatment on the batch. PDC transported the roll-off box back to its WSF for additional treatment on February 21, 2008:

> Prior to this, PDC conferred with the consultant who developed the treatment technology to establish the appropriate reagent recipe for re-treatment that would provide sufficient additional treatment without over-treatment . . . . The re-treated treatment residues were again sampled in accordance with the SAP/QAPP. This cadmium result of 0.019 mg/L . . . achieved the proposed delisting levels. TSD at 6-3.

Curtis, Project Manger with RMT, Inc., PDC's technical consultant, testified about the TCLP:

> In addition to the compositional analyses, stabilized waste also requires, per the U.S. EPA delisting guidance document, additional leaching procedures. One is the toxicity characteristic leaching procedure or the TCLP. This is performed to simulate the leaching potential in an improperly run, unlined municipal solid waste landfill. What was required was not only running it as it is written in SW846, but with three different extraction fluids. Now at the same time these are separate analytical runs, which has an acidic, a neutral and an alkaline leach. Tr. at 21-22.

Curtis also provided testimony on the Multiple Extraction Procedure (MEP):

> This waste is also required to have another leaching potential procedure called a multiple extraction procedure or the MEP. This is performed to simulate the

[12] Milligrams per liter.

> leaching potential over a 1,000-year period. And, again, we were using the three different extraction fluids -- an acidic, a neutral, and an alkaline leach. Tr. at 22.

Curtis responded to questions at hearing about how the TCLP and MEP tests are performed:

> Q How is the TCLP test itself performed?
>
> A The TCLP test takes the material -- in this case it's a solid material. It will grind it up, and then tumble it in the extraction fluid for over 24 hours. Then the extraction fluid is removed and analyzed for any constituents of concern to see what has migrated from the waste.
>
> Q And comparing that to the MEP test, what is added in the MEP test?
>
> A The MEP is doing that in ten successive times and using the same material, but it's exposing it. For example, if we do it with the acidic, we do it -- tumble it for 24 hours, remove the extraction fluid, but then fresh new acidic at the same, 2.88, is added to the waste. It's tumbled again another 24 hours. So the material is the most aggressive for all ten successive tumbles and extractions. Tr. at 23.

For the in-plant trials, all 14 proposed CoCs were analyzed during each of the first eight demonstration sampling events using TCLP with three extraction fluids: acidic, neutral, and alkaline. TSD at 6-2. The purpose of this leaching procedure is to "evaluate the efficacy of the stabilization chemistry when exposed to potentially aggressive pH conditions in a landfill." *Id*. In the neutral and alkaline tests, analytical results for the CoCs show all concentrations below the proposed delisting levels. In the acidic extractions, some CoCs exhibited concentrations greater than the proposed delisting levels: cadmium during sample rounds 2, 3, 4, 5, and 9; mercury during sample round 9; and zinc during rounds 2, 4, 5, and 8. *Id*. On February 5, 2008, in communications with RMT, IEPA agreed that the data from the additional in-plant trial "could replace previous data for cadmium and zinc exceeding the LDR treatment levels in the risk analyses since the earlier sample rounds did not take into account the established procedures under PDC's Part B Permit to provide additional curing and/or re-treat the treatment residues." TSD at 4-2, App. C.

PDC also analyzed the CoCs using the MEP (SW-846 Method 1320), substituting TCLP (SW-846 Method 1311) for the EP Tox (SW-846 Method 1310). The MEP, a sequence of ten TCLP extractions, is, according to the Method language:

> designed to simulate the leaching that a waste will undergo from repetitive precipitation of acid rain on an improperly designed sanitary landfill. The repetitive extractions reveal the highest concentration of each constituent that is likely to leach in a natural environment. TSD 6-3, 6-4.

The MEP analyses showed "[a]ll COC concentrations were well below their risk-based levels throughout all ten extraction steps." TSD at 6-4.

WSF Air Pollution and Wastewater Control

The RCRA Part B permit requires that the WSF be fully enclosed and maintained under negative pressure to prevent fugitive air emissions. Pet. at 10. The WSF has two air pollution control devices: a 60,000 cubic feet per minute (cfm) baghouse dust collector; and a 30,000 cfm cartridge dust collector. *Id*. The dust collection system is designed to maintain negative pressure throughout the WSF and to collect and filter dusts generated by handling waste materials and conveying reagents. TSD at 3-4. The primary collector, the 60,000 cfm baghouse unit, is equipped with draft hoods located above the mixer, mixer outloading trough, and receiving bay No. 4, and a suction pipe under the mixer lid for reagent dust control. *Id*. The baghouse has a diverter plate, allowing targeted apportioning of its total air flow in any percentage to the mixer or receiving bay No. 4. The secondary dust collection device, the 30,000 cfm cartridge, is dedicated to the receiving bay No. 4 enclosure, providing localized exhaust for discharging dusty loads into the WSF. *Id*.

The WSF operates as an area air emissions source under an IEPA lifetime permit, which limits emissions from the WSF to a maximum of 33.8 TPY of particulate matter and 3.9 TPY of volatile organic materials. Pet. at 10. Calculated actual WSF emissions reported to the IEPA for calendar year 2006 were 7.70 tons of particulate matter and 0.9 tons of volatile organic materials. *Id*. at 10-11.[13]

The RCRA Part B permit prohibits wastewater discharges from the WSF. Pet. at 11. Primary containment for the WSF is provided by the twelve-inch thick concrete floor slab. Secondary containment is provided by the 100-mils thick high-density polyethylene (HDPE) liner. *Id*. Rainwater and wash water from the curbed and HDPE-lined concrete receiving apron is directed to a master sump within the WSF building by the contour of the containment slab and by pipes. *Id*. Wash water generated within the building is likewise directed to the master sump. Water collected in the master sump is used as a slurrying agent in the chemical stabilization process. This water would not be used, however, in the waste treatment that would be performed under the delisting. *Id*.

DISCUSSION

For the reasons articulated below, the Board finds that the residue generated from PDC's new stabilization process of treating K061 EAF dust is not, upon meeting the Board's delisting levels, a RCRA hazardous waste. The Board accordingly grants PDC a delisting adjusted standard, subject to conditions. For qualifying EAFDSR generated by PDC at the Peoria facility, this grant effects relief from the "derived-from" rule and K061 listing status.

[13] PDC maintains that the proposed delisting "does not include changes that will increase air emissions from the WSF," adding that "[e]ven at the maximum petitioned volume of EAFDSR, emissions from the WSF would remain well below the limits in the facility's air emissions permit." Pet. at 19-20.

This portion of the opinion is divided into three main parts, each with Board findings of fact and conclusions of law: first (pp. 31-58), the Board discusses the technical RCRA regulatory requirements for establishing that a delisting is warranted and why the Board finds that PDC has made the necessary demonstration; second (pp. 58-79), the Board discusses the conditions being imposed on this delisting; and third (pp. 79-87), the Board discusses the record information concerning Section 27(a) of the Act (415 ILCS 5/27(a) (2006)).

The first part of this discussion, on the technical regulatory delisting requirements, consists of the following sections: the burden of proof (pp. 31-32); the use of DRAS (pp. 32-33); PDC's delisting request generally (pp. 33-34); PDC's consideration of site-specific factors (pp. 34-35); PDC's proposed constituents of concern and delisting levels (pp. 35-47); issues raised in public comment concerning the adequacy of PDC's demonstration (pp. 48-55); and the Board's conclusion on whether PDC has satisfied the technical RCRA regulatory delisting requirements (pp. 55-58). The second part of this discussion, on the adjusted standard conditions, is broken down into the following sections: specified stabilization technology (p. 58); additional K061 waste streams (pp. 58-63); curing and re-treatment (pp. 63-65); initial and subsequent verification testing (pp. 65-68); disposal of delisted EAFDSR (pp. 68-69); changes in treatment chemicals or process (pp. 69-75); the delisting's specificity to PDC's Peoria facility (p. 75); the delisting's duration and volume cap (pp. 75-76); the handling of EAFDSR as hazardous waste (p. 76); submittals and recordkeeping (pp. 76-77); and "reopener" language (pp. 77-79).

Technical RCRA Regulatory Requirements for Delisting Demonstration

Burden of Proof

As noted previously, because it is generated from treating the listed hazardous waste K061, EAFDSR remains classified as K061 listed hazardous waste by operation of the "derived-from rule." *See* 35 Ill. Adm. Code 721.103(d)(2), (e)(1). Accordingly, absent a delisting, disposal of the EAFDSR must be in a RCRA Subtitle C hazardous waste landfill.

To be eligible for a delisting exclusion, a petitioner must demonstrate that the listed waste:

1. Does not meet the criteria for which it was listed; and

2. Does not exhibit any of the characteristics of hazardous waste. "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 6 USEPA Region 6 (Mar. 23, 2000); *see also* 35 Ill. Adm. Code 35 Ill. Adm. Code 720.122(a)(1), (b), (d)(3).

"In addition, a listed waste must not exhibit any other factors (including additional constituents) that could cause the waste to be a hazardous waste, unless . . . such factors do not warrant characterizing the waste as hazardous." "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 6 USEPA Region 6 (Mar. 23, 2000); *see also* 35 Ill. Adm. Code 35 Ill. Adm. Code 720.122(a)(2), (d)(2).

Where the waste at issue is "derived from" a listed hazardous waste, the petitioner's demonstration must be made with respect to the "waste mixture as a whole." 35 Ill. Adm. Code 720.122(b). Accordingly, "analyses must be conducted for not only those constituents for which the listed waste contained in the mixture was listed as hazardous, but also for factors (including additional constituents) that could cause the waste mixture to be a hazardous waste." *Id*.

For waste that is listed based on toxicity, the petitioner must demonstrate that the waste either (1) does not contain the constituents that caused USEPA to list the waste or, (2) although containing one or more of the constituents that caused its listing, the waste is not capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed, considering the factors used to list the waste as hazardous. 35 Ill. Adm. Code 720.122(d)(1), 721.111(a)(3). The factors are codified at 35 Ill. Adm. Code 721.111(a)(3)(A) through (a)(3)(K).

Use of DRAS

DRAS was developed by USEPA to compute the risks and hazards associated with a specific waste stream for which a delisting petition has been submitted. DRAS assesses the toxicity of a petitioned waste by calculating (1) screening exit values (delisting levels) and (2) cumulative carcinogenic risks and noncarcinogenic hazard indices. "User's Guide for the U.S. EPA Region 6 Delisting Risk Assessment Software (DRAS)" at 1, USEPA Region 6, EPA906-D-98-001 (Aug. 31, 2000). As noted above, the Board has found that using the DRAS program may be appropriate in evaluating delisting petitions. *See* BP Products, AS 07-1, slip op. at 8. As USEPA Region 5 points out, however, the use of DRAS is not a requirement: "[T]he State of Illinois has been authorized to conduct delistings for wastes disposed of within Illinois and is free to evaluate the waste and the criterion in 40 C.F.R. 261.11(a)(3) [35 Ill. Adm. Code 721.111(a)(3)] using DRAS or any other appropriate assessment approach." BFI Waste Systems, AS 08-5, slip op. at 26, quoting letter of July 16, 2008, to Board staff from Dale Meyer, Chief, RCRA Programs Section, USEPA Region 5.

Modeling risk and hazard using a "reasonable worst-case management scenario" is consistent with USEPA policy:

> In considering whether to exclude a particular solid waste from the list of hazardous wastes contained in 40 CFR 261.31 and 261.32, [USEPA] has historically considered disposal in an unlined landfill or surface impoundment to be representative of the reasonable worst-case management scenarios for such waste. [USEPA] believes it is appropriate to consider the worst-case management scenario because it is extremely difficult to project all potential management scenarios that can occur once the waste is delisted. Thus, [USEPA] generally has only modeled the risks related to these two disposal practices. "National Policy for Hazardous Waste Delistings" at 1-2, Memorandum from Elizabeth A. Cotsworth, Acting Director, Office of Solid Waste, to Regional RCRA Senior Policy Advisors, RO 14282 (July 1, 1998).

Among the factors the Board is to consider are the "plausible types of improper management to which the waste could be subjected." 35 Ill. Adm. Code 721.111(a)(3)(G). As USEPA explained:

> In our technical evaluation, we often use appropriate fate and transport models that rely on waste-specific information (e.g., waste volume, constituent concentration data) to predict the potential environmental impact of the petitioned waste. In selecting appropriate models, we choose a reasonable worst-case management scenario and consider plausible exposure routes for the hazardous constituents found to be present. "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 12-13, USEPA Region 6 (Mar. 23, 2000).

Here, PDC used DRAS to model a reasonable worst-case management scenario of disposal in an unlined landfill. It must be emphasized, however, that PDC's proposed conditions of delisting would not permit disposal in an unlined landfill.

PDC's Delisting Request Generally

PDC petitioned the Board to delist the "stabilized residue generated by PDC from the treatment of K061 electric arc furnace [EAF] dust at PDC's waste stabilization facility [WSF] in Peoria County." Pet. at 1. Under PDC's proposal, "the EAFDSR will be excluded from the list of hazardous wastes contained in Subpart D of 35 Ill. Adm. Code 721," allowing PDC to "transport and dispose of the EAFDSR at a Subtitle D landfill permitted by the IEPA." Pet. at 3.

According to PDC, the DRAS modeling results and risk analysis presented demonstrate that the constituents of concern "detected in the residues treated during the full-scale in-plant trials will not pose a risk to human health or the environment." Pet. at 20. PDC maintains that its:

> improved treatment and verification process . . . will demonstrably reduce the leachability of the hazardous constituents to such a degree that, when properly disposed in a RCRA Subtitle D landfill, the EAFDSR will not pose a threat to human health or the environment. TSD at 1-4.

PDC asserts that the testing performed as part of the full-scale stabilization process trials demonstrates that the company's new treatment technology renders extractable metals below their LDRs and proposed delisting levels. Pet. at 4.

Site-Specific Factors

USEPA has acknowledged:

> that for a relatively small number of petitioned wastes that are not (or will not be) managed under a scenario [USEPA's] generic delisting models can assess, Regions may have to consider site-specific circumstances or consider adding specific conditions, on a case-by-case basis. "National Policy for Hazardous

> Waste Delistings" at 3, Memorandum from Elizabeth A. Cotsworth, Acting Director, Office of Solid Waste, to Regional RCRA Senior Policy Advisors, RO 14282 (July 1, 1998).

PDC originally premised the dioxin modeling on disposal in the Indian Creek Landfill No. 2. In doing so, RMT modified the generic input assumptions in the spreadsheet calculation model provided by USEPA for the dioxin fish tissue ingestion pathway. TSD, App. H. The generic inputs that were modified by RMT included waste volume, period of exposure, rainfall erosion potential, support practice factor, distance to stream, and fraction of fish intake from this source. Of these, at least some appear to be specific to Indian Creek:

- "Period of Waste Exposure *** The disposal area is covered on a daily basis"
- "Rainfall Erosion Potential *** Modified to reflect area-specific value"
- "Support Practice Factor *** Surface is contour terraced"
- "Distance to Stream *** Value modified to reflect site-specific conditions – 1,100 ft to Indian Creek"
- "Fraction of fish intake from this source *** Assumes 50% of all freshwater fish consumption for an individual is taken from Indian Creek" TSD, App. H.

In the dioxin/furan summary, RMT also concludes that the "modeled fish tissue dioxin TEQ [toxicity equivalency quotient] concentration for fish in Indian Creek is 0.87 ng/kg." TSD, App. H.

PDC originally stated that it planned to dispose of the EAFDSR in any of three landfills. PDC's proposed adjusted standard language, however, limits disposal not to those three landfills, but instead requires disposal pursuant to the Board's non-hazardous solid waste landfill regulations at a landfill located in Illinois. RMT's dioxin spreadsheet calculation model used site-specific information only for Indian Creek, not Pike County or Clinton Landfill or any other possible Illinois landfills.

> USEPA has discussed the use of site-specific information in assessing risk:
>
> To reduce the uncertainty caused by the potential unrestricted use or management to delisted waste, it is important that new delistings apply only to wastes managed in the type of unit (e.g., "a landfill") modeled in the delisting risk assessment.
>
> * * *
>
> [US]EPA's policy of not considering site-specific factors when applying the fate and transport models remains unchanged. Therefore, at this time, Regions should not conditionally delist a waste based on consideration of protective site-specific hydrogeologic conditions (e.g., underlying clay) or specific landfill designs (e.g., liners, or covers). We would not be comfortable at this time delisting a waste based on consideration of site-specific hydrogeologic conditions and specific landfill designs that would not be delisted based on a less site-specific analysis. "National Policy for Hazardous Waste Delistings" at 2-3, Memorandum from Elizabeth A. Cotsworth, Acting Director, Office of Solid Waste, to Regional RCRA Senior Policy Advisors, RO 14282 (July 1, 1998).

A July 15, 2008 hearing officer order posed this question from Board staff to PDC:

> PDC premises its dioxin modeling for the fish ingestion pathway on disposal in the Indian Creek Landfill. The proposed adjusted standard language, however, does not limit disposal of EAFDSR to that landfill. Please consider re-running the model using the default generic values for a less site-specific analysis. If PDC wishes to use site-specific information in its modeling, rather than the default generic values, please consider either providing site-specific modeling for all the potential Illinois landfills at which the EAFDSR might be disposed, or limiting the proposed adjusted standard language to only those disposal facilities for which site-specific modeling was performed. HOO, Att. A, Question 16.

On August 7, 2008, PDC responded by stating that RMT had revised the risk modeling for dioxin using "input data determined to be applicable for any permitted Subtitle D landfill in Illinois." Resp. to HOO Exh. A at 13.

Proposed CoCs and Delisting Levels

PDC's proposed constituents of concern (CoCs) for the EAFDSR are 14 metals: antimony, arsenic, barium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, vanadium, and zinc. TSD at 6-4. The proposed delisting levels for all the constituents of concern were established as the lower (*i.e.*, more stringent) of the following:

- Toxicity characteristic level, as specified at 35 Ill. Adm. Code 721.124;
- LDR Universal Treatment Standards (UTS) for K061 EAF dust, as specified at 35 Ill. Adm. Code 728.Subpart D; or
- Risk-based concentration, as established using the DRAS v.2 model, "and/or other values established in consultation with personnel from USEPA-5." TSD at 4-3, 6-4, 6-5

The DRAS analysis was completed using a landfill management unit with the following settings:

- Annual waste acceptance rate of 95,000 cubic yards of delisted EAFDSR;
- A 20-year lifetime ("a default and recommended value for the DRAS model"); and
- Multiple-year batch. TSD at 6-5, App. H.

The delisting levels are based on these risk targets "set by USEPA-5 and confirmed by IEPA":

- Individual cancer risk of 1×10^{-4} for arsenic and 1×10^{-6} for all other constituents,
- An aggregate carcinogenic risk of 1×10^{-5} (not including contribution from arsenic); and
- A hazard quotient of 1.0 for non-carcinogenic compounds. TSD at 6-5, App. H.

As discussed above, DRAS employs modeling to:

> compute the risks and hazards associated with a specific waste stream for which a delisting petition has been submitted. The Region 6 DRAS will assess the toxicity of a petitioned waste by calculating: (1) chemical and waste volume-specific screening exit values, and (2) cumulative carcinogenic risks and hazard indices (for non-carcinogens). "User's Guide for the U.S. EPA Region 6 Delisting Risk Assessment Software (DRAS)," EPA906-D-98-001 at 1 (Aug. 31, 2000).

CoCs - Initial Evaluation. Generally, the delisting CoCs to be addressed by a petitioner are those listed in 35 Ill. Adm. Code 721.Appendix H ("Hazardous Constituents") (40 C.F.R. 261.Appendix VIII), as well as acetone, ethylbenzene, isophorone, 4-methyl-2-pentanone, styrene, and xylenes (total). "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 26, 30-31, USEPA Region 6 (Mar. 23, 2000). A petitioner "should demonstrate that these delisting constituents of concern are not present in [the] waste at hazardous levels based on analytical data, mass balance demonstrations, or other appropriate information." *Id*. at 26. The petitioner should provide information regarding the hazardous constituents used as the criteria for listing the petitioned waste and all of the hazardous waste characteristics. *Id*. USEPA also generally requests the following analyses: total oil and grease, total cyanide, total sulfide, and total constituent levels of all inorganic and organic constituents of concern. *Id*.

USEPA Region 6, the drafter of the Guidance Manual, identifies "the minimum constituent list for initial analysis" as the list at 40 C.F.R. 264.Appendix IX (35 Ill. Adm. Code 724.Appendix I "Groundwater Monitoring List"), adding that this list should be augmented to include any other constituents for which the waste was listed and any other hazardous constituents known to have been managed at the site. "EPA RCRA Delisting Program--Guidance Manual for the Petitioner," App. H, Region 6, Att. 2 at 1, USEPA Region 6 (Mar. 23, 2000).

PDC provided several samples that were analyzed to address the 40 C.F.R. 264.Appendix IX constituents (minus pesticide and herbicides), plus acetone, ethylbenzene, isophorone, 4-methyl-2-pentanone, styrene, and xylenes (total), total oil and grease, total cyanide, and total sulfide.

The USEPA Guidance Manual calls for at least four samples to be collected over a period of time sufficient to represent the uniformity of the petitioned waste, with "[o]ne sample with Total constituent analyses for the entire Part 264 Appendix IX constituent list." "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 28, 38, USEPA Region 6 (Mar. 23, 2000). PDC did not provide one sample with total constituent analyses for the entire Part 264 Appendix IX constituent list. PDC chose to exclude pesticides and herbicides from the Part 264 Appendix IX list. PDC explains:

> Since none of this EAF dust, nor any of the treatment chemicals, are managed on the ground where chlorinated pesticides and herbicides can be introduced, both IEPA and the USEPA-5 representatives agreed that these parameters are not

> present. Therefore, no chlorinated pesticides or herbicides were designated as COCs. TSD at 4-6.

The Board notes that in USEPA's CSI and Heritage delistings, pesticides and herbicides were also not included in the initial list of constituents of concern. 60 Fed. Reg. 31107, 31108 (June 13, 1995); 65 Fed. Reg. 75897, 75899 (Dec. 5, 2000).

There is another constituent from 40 C.F.R. 264.Appendix IX that is neither a pesticide nor a herbicide and for which PDC did not provide analytical results. TSD, App. L. That constituent is hexachlorophene. When asked by Board staff about sampling and analysis for hexachlorophene, PDC pointed to the narrative finding for hexachlorophene in the laboratory's Statement of Data Qualification. Resp. to HOO, Exh. A at 5; *see* TSD, App. N at 00013. PDC explains that this analyte is "an unstable compound and is difficult to accurately analyze due to extraction inefficiency." Resp. to HOO, Exh. A at 5. For this situation, PDC's laboratory, TriMatrix Laboratories, has a policy to perform a gas chromatography-mass spectrometry (GC/MS) mass search and report its findings as a narrative. TriMatrix reported that hexachlorophene was not detected in any sample analyzed. Based on its research, TriMatrix found that many laboratories do not include hexachlorophene in the SW-846 Method 8270C Appendix IX list of analytes because of the recovery issues. *Id.*

CoCs - Waste Specific Evaluation. After examining the constituents in 40 C.F.R. 264.Appendix IX plus the other recommended constituents (acetone, ethylbenzene, isophorone, 4-methyl-2-pentanone, styrene, xylenes (total), total oil and grease, total cyanide, and total sulfide), USEPA advises the petitioner to examine other possible constituents specific to the petitioned waste:

> In subsequent steps, you should complete your list of constituent[s] of concern by adding all other hazardous constituents which may be present in your petitioned waste based on: (l) the special analytical methodologies discussed below, and (2) the results of an engineering analysis of all process and materials contributing to your waste." "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 26, USEPA Region 6 (Mar. 23, 2000).

For example, if the petitioned waste is "generated from the chemical stabilization of a listed waste," USEPA calls for quantifying leachable metal concentrations by using the Multiple Extraction Procedure (MEP) and TCLP analyses. USEPA states that the MEP test results are needed for "stabilized wastes to assess the long term stability of the waste." "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 30, USEPA Region 6 (Mar. 23, 2000). For the engineering analysis, USEPA instructs the petitioner to:

> consider all available information on contributing processes and raw materials, including (but not limited to) Material Safety Data Sheets (MSDS), production data, and process rates. You should identify the constituents of all raw materials, intermediate products, by-products, and final products of contributing processes. *Id*.

Besides the metals analyzed in the petitioned waste under the initial evaluation, PDC evaluated metals present in the treatment reagents. According to the TSD, because PDC's chemical treatment technology is proprietary in nature, the evaluation of these metals in Appendix F to the TSD is marked "NDI," non-disclosable information. *Id*. PDC provided supporting information for the reagents in the unredacted version of Appendix F. The redacted version sets forth the subheadings of Appendix F under which the information was provided: "PDC Chemistry Description," "Material Safety Data Sheets (MSDS)," and "Reagent Constituent of Concern Evaluation." TSD at 4-7, App. F. The TSD notes that other metals are present in the treatment reagents:

> Also, other metals identified as being in the treatment reagents were determined not be COCs since they are either unregulated metals of very low concern, or the reagent contribution is well below the risk-based screening level. TSD at 4-7.

The Board has carefully considered PDC's evaluation and finds that excluding these metals from the final list of CoCs is appropriate.

CoCs - Final List. Based on the analytical results of the foregoing initial list of CoCs, USEPA advises:

> Using results of this totals analysis, a final list of constituents can be prepared to include only the metals and organics from the 40 CFR 261.24 Toxicity Characteristics list plus all additional constituents that were detected in the first sample when analyzed for totals concentrations of constituents on the initial list. "EPA RCRA Delisting Program--Guidance Manual for the Petitioner," App. H, Region 6, Att. 2 at 1, USEPA Region 6 (Mar. 23, 2000).

PDC formed its final list of CoCs by first excluding constituents that were not detected in the analyses. TSD at 4-5. This conclusion is consistent with USEPA guidance in an e-mail from Todd D. Ramaly, Environmental Scientist, RCRA Programs Section, USEPA Region 5, stating "[g]enerally, we do consider across-the-board NDs [non-detects] as a zero." TSD, App. C e-mail from Ramaly (10/4/2007); *see also* 65 Fed. Reg. 75897, 75901 (Dec. 5, 2000). The TSD also notes "IEPA has agreed that constituents not detected at or above the MDL [Method Detection Limit] can be omitted from consideration." TSD at 4-5.

Several constituents were detected above the instrument Method Detection Limit (MDL) but below the laboratory Estimated Quantitation Limit (EQL). The EQL, also known as the Practical Quantitation Limit (PQL), is defined as "the lowest concentration that can be reliably measured within specified limits of precision and accuracy for a specific laboratory analytical method . . . ." 35 Ill. Adm. Code 742.200. "The non-detect concentration may be reported as the method detection limit (MDL) or as the estimated quantitation limit (EQL)." "User's Guide for the U.S. EPA Region 6 Delisting Risk Assessment Software (DRAS)," EPA906-D-98-001 at 11 (Aug. 31, 2000).

PDC proposes a final list of CoCs to consist of these 14 metals:

- antimony
- arsenic
- barium
- beryllium
- cadmium
- chromium
- lead
- mercury
- nickel
- selenium
- silver
- thallium
- vanadium
- zinc

Br. at 81; Pet. at 15.

The metals selected include those forming the basis of the K061 listing in 35 Ill. Adm. Code 721, plus additional constituents with K061 LDR treatment standards in 35 Ill. Adm. Code 728 and vanadium. TSD at 4-9, 6-4, App. G (SAP/QAPP) at 8. The 14 metals selected by PDC are the same metals chosen for two USEPA delistings of chemically-treated EAF dust: Heritage on January 15, 2002, and CSI on June 13, 1995. TSD at 4-9; *see also* 65 Fed. Reg. 75897 (Dec. 5, 2000), 67 Fed. Reg. 1888-1896 (Jan. 15, 2002); 58 Fed. Reg. 58521-58533 (Nov. 2, 1993), 58 Fed. Reg. 67389 (Dec. 21, 1993), 60 Fed. Reg. 31107-31115 (June 13, 1995).

In the CSI federal delisting, the only initial constituents of concern established were the 14 metals PDC is proposing, as well as total oil and grease, total cyanide, and total sulfide. 60 Fed. Reg. 31107, 31108 (June 13, 1995). In the Heritage federal delisting, the initial constituents of concern represented a broader list than in CSI: the 14 metals PDC is proposing, along with total oil and grease, total cyanide, total sulfide, as well as semivolatile organic compounds (SVOCs), VOCs, and total polychlorinated biphenyls (PCBs). 65 Fed. Reg. 75897, 75899 (Dec. 5, 2000). This broadening of the initial constituents of concern from 1995 to 2002 for the same type of petitioned waste might reflect the increasing level of federal guidance issued between the two delistings: The "EPA RCRA Delisting Program Guidance Manual for the Petitioner" is dated March 23, 2000; the "RCRA Delisting Technical Support Document" (EPA906-D-98-001) is dated August 1, 2000; and the "User's Guide for the U.S. EPA Region 6 Delisting Risk Assessment Software (DRAS)" (EPA906-D-98-001) is dated August 31, 2000.

In each of the two USEPA delistings, the final list of constituents of concern to be monitored for compliance with delisting levels contains only the 14 metals PDC is proposing. Beyond the 14 metals, oil and grease, cyanide, and sulfide, the CSI delisting did not examine other CoCs, and the Heritage delisting had no detections of VOCs, SVOCs, or PCBs in the petitioned waste. 60 Fed. Reg. 31107, 31108 (June 13, 1995); 65 Fed. Reg. 75897, 75900 (Dec. 5, 2000). Although PDC is proposing the same final list of 14 metals as these federal delistings, PDC's petitioned waste cannot be characterized as having "no detections" of any of the other CoCs on PDC's initial list.

CoCs - Excluded from Final List. As discussed above, PDC excluded metals present in the treatment reagents from the list of CoCs. PDC also excluded some constituents that were detected above both the MDL and EQL:

ANALYTE	LABORATORY ID	SAMPLE ID	SAMPLE DATE	RESULTS	UNITS

Sulfide, total	0802176-01	R9-01	2/11/2008	700	mg/kg[14]
Acetone	0712181-01	R2-01	12/10/2007	0.025	mg/kg
Bis(2-ethylhexyl)phthalate	0712158-04	R1-03	12/7/2007	0.34	mg/kg
Dioxins/Furans	1064827001-R	R1-03	12/7/2007	120	ng/kg[15]
	1064827003-R	R2-03	12/10/2007	33	
expressed as	1065168001	R3-01	12/11/2007	130	(totals)
Total 2,3,7,8-TCDD	1065168002	R4-01	12/12/2007	100	
Equivalence	1065168004	R5-01	12/13/2007	160	
	1065459001-R	R6-01	12/17/2007	55	
	1065459002-R	R7-01	12/18/2007	78	
	1065459003-R	R8-01	12/19/2007	100	

TSD, Table 3A, App. N.

For sulfide, there is no delisting level produced by DRAS, and sulfide is not listed in the Illinois groundwater quality standards (35 Ill. Adm. Code 620) or USEPA's Integrated Risk Information Systems (IRIS) database. Therefore, the Board finds PDC's exclusion of sulfide appropriate.

The TSD acknowledges that acetone was the only VOC detected above the MDL and the laboratory EQL. Acetone was detected in sample R2-01 at 0.025 milligrams per kilogram (mg/kg), slightly higher than its EQL of 0.02 mg/kg. The TSD reasons:

> when one considers that the EAF dust is generated in a high-temperature setting (1,520 to 1,800°C), these sporadic and low detections support the exclusion of VOCs as COCs for the delisting process. TSD at 4-5.

Because acetone was detected in only one sample on the order of the EQL and would not be expected in the EAFDSR because of the high-temperature setting, the Board is amenable to excluding acetone from the final list of CoCs.

For bis(2-ethylhexyl)phthalate, there is no specific discussion in the TSD. Bis(2-ethylhexyl)phthalate was the only SVOC detected above both the MDL and EQL. Bis(2-ethylhexyl)phthalate was detected in sample R1-03 at 0.34 mg/kg, slightly higher than its EQL of 0.33 mg/kg. TSD App. L. The TSD generally discusses the detection of 35 SVOCs above the MDL, which include bis(2-ethylhexyl)phthalate, but the other 34 are below the EQL. TSD Table 3a. The TSD excludes all 35 as CoCs, reasoning that the MDLs were below the soil remediation objectives for industrial/commercial properties under the Tiered Approach to Corrective Action Objectives (TACO). TSD at 4-6.

PDC later noted further that bis(2-ethylhexyl)phthalate is considered a typical laboratory contaminant. Resp. to HOO, Exh. A at 7. PDC also characterized the reported value as being

[14] Milligrams per kilogram.

[15] Nanograms per kilogram.

below the TACO soil remediation objectives and the DRAS delisting level. *Id.* Based on this, PDC did not include bis(2-ethylhexyl)phthalate in the list of constituents to be monitored for compliance with delisting levels. Because bis(2-ethylhexyl)phthalate was detected in only one sample on the order of the EQL and is considered a typical laboratory contaminant, the Board concurs with PDC's exclusion of bis(2-ethylhexyl)phthalate from the final list of COCs.

The Board notes that the EQL itself is a type of detection limit as defined in 35 Ill. Adm. Code 742.200. Additionally, the DRAS User's Guide states the MDL and EQL may be used interchangeably as the "non-detect concentration." "User's Guide for the U.S. EPA Region 6 Delisting Risk Assessment Software (DRAS)," EPA906-D-98-001 at 11 (Aug. 31, 2000). Because acetone and the 35 SVOCs detected were below or on the order of the EQL and they were either not expected in the EAFDSR because of the high temperature setting or attributed to laboratory contamination, the Board will not include these in the list of constituents to be monitored for compliance.

For dioxins/furans, various forms (congeners) were detected in all EAFDSR samples when so analyzed. TSD at 4-6, App. L, App. N. Although detected, PDC does not designate dioxins and furans as CoCs. TSD at 4-7. For the reasons discussed below, the Board will include dioxins and furans in the final list of constituents to be monitored for compliance with delisting levels.

CoCs - Delisting Levels. The "delisting level" is "the maximum allowable concentration of a waste constituent that will not exceed the target risk level for that compound." "User's Guide for the U.S. EPA Region 6 Delisting Risk Assessment Software (DRAS)" at 13, USEPA Region 6, EPA906-D-98-001 (Aug. 31, 2000). USEPA elaborated:

> The delisting levels for each waste constituent are the maximum concentrations (total and TCLP) allowed for the constituent in any batch of the petitioned waste, based on the most sensitive pathway associated with exposure dependent on the TCLP waste constituent concentration and the waste constituent total concentration. Although the DRAS calculated a delisting level . . . for each of the groundwater pathways, only the most sensitive pathway for each constituent is selected as that constituent's TCLP delisting level. USEPA's "RCRA Delisting Technical Support Document," USEPA Region 6, EPA906-D-98-001, at 4-10 (Aug. 1, 2000).

Generally. Once a final list of CoCs is established, delisting levels (also referred to as "screening levels") are determined for the CoCs to demonstrate the petitioned waste meets the conditions of the exclusion. PDC also used screening levels as a basis for excluding constituents from the final list of CoCs. TSD at 4-4. The TSD explains that RMT established screening levels for all constituents that were detected at least once during the demonstration. Screening levels were established as the lower (*i.e.*, more stringent) of the following:

- Toxicity characteristic (35 Ill. Adm. Code 721.124)
- LDR UTS for K061 (35 Ill. Adm. Code 728.Subpart D (Section 728.148 and Table U)

- Risk-based concentration, established using DRAS v.2 and/or other values and updates established in consultation with USEPA Region 5.
  TSD at 4-3; Pet. at 19.

Comparison of Proposed Delisting Levels

Constituent	PDC Proposed TCLP Delisting Level (mg/L)	DRAS v. 2 Calculated Maximum Allowable TCLP Concentrations (mg/L)	35 Ill. Adm. Code 728.Tables T, U (40 C.F.R. §268.40) LDR UTS for K061 (mg/L)	35 Ill. Adm. Code 721.124(b) (40 C.F.R. §261.24(b)) Toxicity Characteristic (mg/L)
Antimony	0.206	0.206	1.15	
Arsenic	0.0936	0.00936	5.0	5.0
Barium	21.0	55.7	21.0	100
Beryllium	0.416	0.416	1.22	
Cadmium	0.11	0.15	0.11	1.0
Chromium (total)	0.60	385	0.60	5.0
Lead	0.75	75	0.75	5.0
Mercury	0.025	0.0814	0.025	0.2
Nickel	11.0	28.3	11.0	
Selenium	0.58	0.58	5.7	1.0
Silver	0.14	3.84	0.14	5.0
Thallium	0.088	0.088	0.20	
Vanadium	3.02	21.1		
Zinc	4.3	280	4.3	

Pet. at 15; TSD, Table 8, App. H.

RMT opines that model-generated screening levels are:

> sufficiently conservative so that constituents that are neither a basis of listing for K061 nor have an LDR established for K061 can be eliminated from further consideration as a COC, provided their concentrations do not exceed the screening levels. TSD at 4-4 to 4-5.

However, PDC cites no USEPA policy to support this conclusion. The USEPA Guidance Manual does not speak of eliminating detected constituents solely because their concentrations do not exceed screening levels, they are not the basis of the K061 listing, and they lack LDR UTS. The Board will establish delisting levels for the 14 metals plus dioxins and furans based on the screening levels determined by PDC as the lowest (*i.e.*, most stringent) of the three criteria above.

Dioxins and Furans. The TSD notes that various dioxins and furans were detected in the EAF dust treatment residue. TSD at 4-6 to 4-7. Many commenters had concerns about

dioxins and furans. *See*, *e.g.*, Postcard 2; Tr. at 82 (Bob Jorgensen). Bill Cook, a chemist by profession, questions why dioxins and furans were not included as constituents of concern. Tr. at 94. He states that unlike metals, dioxins and furans cannot be converted into insoluble salts and consequently, dioxins and furans "are going to find their way into the leachates below these landfills." *Id.*

For the purposes of modeling, a toxicity equivalency quotient (TEQ) is used to express the collective dioxins and furans as 2,3,7,8-TCDD (tetrachlorodibenzo-p-dioxin). TSD 4-16. The TSD refers to the maximum concentration for the TEQ as 160 mg/kg that corresponds to a carcinogenic risk of 2.1×10^{-6}. TSD at 4-7. RMT used DRAS v. 2 to calculate a risk-based screening level of 7,580 mg/kg for the 2,3,7,8-TCDD TEQ. TSD at 4-7, Table 3a. The TSD notes that all the TEQs are significantly below the reported risk-based screening level of 7,580 mg/kg. TSD at 4-7. Although this discussion from the TSD refers to units of mg/kg, the data in the Table 3a, App. L, and App. N indicate the values are off by 10^{-3} and should be 160 ng/kg and 7,580 ng/kg, respectively.

A side-by-side comparison of the values for dioxins and furans in Table 3a and Appendix L with those in the Appendix N raw laboratory data revealed discrepancies. None of the values of the dioxin and furan congeners or the 2,3,7,8-TCDD TEQ in the summary tables agree with the raw laboratory data. When identified by Board staff, PDC clarified that the raw data included in Appendix N was incorrectly based on a dry-weight basis instead of a wet-weight basis, and that RMT instructed the laboratory to resubmit the summary reports. Resp. to HOO, Exh. A at 9. RMT used the revised values in Table 3a, but inadvertently did not place the corresponding raw laboratory data of Pace Analytical Services, Inc. in Appendix N. *Id.* PDC later provided the corrected laboratory reports. *Id.*, Exh. A, Att. 5.

Included in the Pace Analytical report regarding the reporting of the TEQ is an e-mail from Laura Curtis of RMT instructing Pace Analytical that "all TEFs [2,3,7,8-TCDD Equivalency Factors] must be reported using the U.S. EPA accepted 1989 ITEF default factors . . . ." It appears that Pace Analytical did just that. The Pace Analytical reports each contain a sheet listing the "2,3,7,8-TCDD Equivalency Factors (TEFs) for the Polychlorinated Dibenzo-p-dioxins and Dibenzofurans, 89-ITE Factors" and a notation below each of the TEFs, "(Using ITE Factors)."

Because of an error in DRAS v.2 for the fish ingestion pathway, USEPA provided the spreadsheet on surface runoff and risk from dioxin. Ramaly, Environmental Scientist, RCRA Programs Section, USEPA Region 5, provided the spreadsheet calculation model to be used as a substitute model for the dioxin/furan evaluation of the fish ingestion pathway. TSD, App. H. RMT calculated the level of risk using a spreadsheet calculation model and the TEQ value considered maximum of 160 ng/kg. Results of the spreadsheet calculation model under the Dietary Exposure/Risk Modeling show:

- "Fishing CR" (Cancer Risk) of 2.08×10^{-6}
- "Fish Concentration Edible Portion" of 8.66×10^{-7} mg/kg
- "Fishing DL" (Delisting Level): 7.70×10^{-5} mg/L

TSD, App. H.

The TSD concludes that although the modeled risk for dioxin of 2.08 x 10^{-6} is greater than the target risk of 1.0 x 10^{-6}, the modeled fish tissue concentration is consistent with national background TEQ concentrations in fish tissues. TSD App. H "Dioxin/Furan Summary" at 2.

Besides the fish ingestion pathway evaluated in the spreadsheet calculation model, DRAS examines other pathways to identify the most limiting one – the pathway with the lowest concentration. The TSD observes that the TEQ of 160 ng/kg is below the screening level of 7,580 ng/kg for the *soil ingestion pathway*. However, the TSD does not mention how the TEQ compares to the *groundwater adult dermal pathway*. Results of DRAS v.2 indicate the limiting pathway for the 2,3,7,8-TCDD TEQ is the groundwater adult dermal pathway, with a maximum allowable TCLP concentration of 2.05 x 10^{-10} mg/L. TSD, App. H "Limiting Pathways: Results for Analysis: Updated DRAS 2-19-08, Max values used." Upon questioning by Board staff, PDC clarified that the maximum observed TCLP concentration for dioxin TEQ for the PDC EAFDSR is 0.040 pg/L[16] for sample R5-01, and that the limiting pathway determined by DRAS was the groundwater adult dermal pathway. Resp. to HOO, Exh. A at 9. PDC points out that the 0.040 pg/L (0.40 x 10^{-10} mg/L) value is less than the most stringent DRAS-derived maximum allowable TCLP concentration for the groundwater adult dermal pathway of 2.05 x 10^{-10} mg/L. *Id*. at 9-10.

Although detected, PDC asserts that dioxins and furans need not be included in the final list of CoCs because "concentrations are not expected to pose an unacceptable risk over background and are, as a result, not designated as COCs." TSD at 4-7. PDC cites no USEPA policy for the proposition. Excluding dioxins/furans here finds no support in the CSI and Heritage delistings. As noted, the CSI delisting did not examine other CoCs beyond the 14 metals, oil and grease, cyanide, and sulfide, and the Heritage delisting had no detections of VOCs, SVOCs, or PCBs in the petitioned waste. 60 Fed. Reg. 31107, 31108 (June 13, 1995); 65 Fed. Reg. 75897, 75900 (Dec. 5, 2000). The USEPA Guidance Manual states the final list of constituents can be prepared to include all constituents that were detected:

> a final list of constituents can be prepared to include only the metals and organics from the 40 CFR 261.24 Toxicity Characteristics list plus all additional constituents that were detected in the first sample when analyzed for totals concentrations of constituents on the initial list. "EPA RCRA Delisting Program--Guidance Manual for the Petitioner," App. H, Region 6, Att. 2 at 1, USEPA Region 6 (Mar. 23, 2000).

Although dioxins and furans were reported below screening levels in the TCLP EAFDSR samples, dioxins and furans were present at detectable levels in the totals analysis. Because the totals analysis detected dioxins and furans above the MDL and EQL, the Board will add dioxins/furans to the final list of CoCs to be monitored. Dioxins/furans do not have a toxicity characteristic standard or LDR UTS. Consequently, the delisting level is the DRAS-derived maximum allowable TCLP concentration for the groundwater adult dermal pathway of

[16] Picograms per liter.

2.05×10^{-10} mg/L, expressed as 2,3,7,8-TCDD. The Board therefore adds the following entry to the table of delisting levels in condition 4:

Constituent	**TCLP Delisting Level (mg/L)**
Dioxins/Furans expressed as Total 2,3,7,8-TCDD (Total Tetrachlorodibenzo-p-dioxin) Equivalence	2.05×10^{-10}

Mercury. USEPA Region 5 indicated that DRAS v.2 incorrectly calculates the surface/fish ingestion pathway for mercury. Ramaly, Environmental Scientist, RCRA Programs Section, USEPA Region 5, "recommended provisional DRAS v.3 outputs to more correctly evaluate the risk posed by mercury from the disposal of the EAFDSR." TSD, App. H, DRAS provisional v.3, Tables and Summary. The TSD states that "[b]oth USEPA-5 and IEPA agreed this Petition use the DRAS v.2 with updates provided by USEPA-5." *Id.* The TSD explains that DRAS provisional v.3 is currently being used by USEPA Region 5, but the Region verified that DRAS v.3, with the remaining contractor modifications, would not be available to PDC before its adjusted standard petition would be filed with the Board. TSD at 4-2.

"To assist in the evaluation, Mr. Ramaly provided provisional DRAS v.3 generated screening levels for all database constituents." TSD, App. H, DRAS provisional v.3 RMT performed "a cursory review of the DRAS v.3 data but since the DRAS v.3 model is not available to anyone by U.S. EPA, a full assessment regarding the different values will not be fully discussed." *Id*. Of the DRAS v.3 data generated, PDC focused only on the values for mercury. TSD at 4-3.

The delisting level proposed by PDC for mercury is based on the LDR UTS of 0.025 mg/L because it is lower than the lowest DRAS calculated value of 0.0292 mg/L, which is the lowest TCLP value calculated by DRAS v.2 and provisional v.3 for the soil ingestion pathway. USEPA pointed out in the Heritage delisting that "[s]ince LDRs attach at the point of generation this waste would not be considered hazardous and therefore is not subject to LDRs." 67 Fed. Reg. 1888, 1893 (Jan. 15, 2002); *see also* "RCRA, Superfund & EPCRA Call Center Monthly Report," EPA530-R-04-003a, RO 14699 (Jan. 2004) ("LDR attaches at the point of generation"). PDC is nevertheless proposing to base the delisting level for mercury on the LDR UTS, opting for a more stringent standard than the value produced through DRAS.

Arsenic. Although the target risk level for carcinogens in Illinois delistings is generally 1 in 1,000,000 (1×10^{-6}), PDC is requesting an arsenic delisting level of 0.0936 mg/L (9.36×10^{-2} mg/L) at a carcinogenic risk level of 1×10^{-4}. At a target cancer risk level of 1×10^{-6}, delisting levels for arsenic calculated by DRAS v.2 are 0.00936 mg/L (using the updated MCL of 0.01 mg/L). TSD at 6-6 through 6-9. PDC is seeking a higher risk level for arsenic of 1×10^{-4}. In response to a question from Board staff, PDC supplemented its initial filing with all of the pages from the 2/20/08 DRAS run that was performed for arsenic only with a target cancer risk level of 1×10^{-4}. Resp. to HOO, Exh. A at 10, Att. 6. At the 1×10^{-4} risk level, the maximum allowable TCLP concentration for the limiting pathway (groundwater ingestion) derived by DRAS is 9.36

x 10^{-2} mg/L. The maximum detected concentration of arsenic in the PDC EAFDSR is 3.70 x 10^{-3} mg/L. *Id.*

PDC comments that it discussed the target risk for arsenic with IEPA and USEPA Region 5 on January 29, 2008. Resp. to HOO, Exh. A at 11. According to PDC, Ramaly, Environmental Scientist, RCRA Programs Section, USEPA Region 5, stated that site-specific conditions could justify alternative arsenic levels, *e.g.*, values similar to the drinking water MCL. PDC comments that Ramaly indicated that in past delistings, USEPA has allowed a target arsenic aggregate risk in the 1 x 10^{-4} to 1 x 10^{-6} range. *Id.*

PDC refers to the federal delisting for Heritage. As Heritage faced the same issue regarding arsenic risk levels, the Board quotes USEPA's discussion from the *Federal Register*:

> The total cumulative risk posed by the waste is approximately 1.6x10^{-5}. Although this value exceeds the Region 5 Delisting Program's target risk level of 1x10^{-6} for delisting hazardous waste, [US]EPA believes that this risk is acceptable because the estimated risk is almost entirely associated with a single contaminant/pathway which may be evaluated in more than one way. Furthermore, [US]EPA has considered cancer risks in the range of 1x10^{-4} to 1x10^{-6} to be acceptable in other programs and the Region 5 Delisting Program has considered risks in this range acceptable if there are reasons to do so.
>
> In this case exposure to carcinogenic arsenic through ingestion of contaminated drinking water accounted for almost all of the risk estimated from disposal of the petitioned waste at a Subtitle D landfill. If the POE [point of exposure] target concentration was set at the Safe Drinking Water Act (SDWA) Maximum Contaminant Level (MCL), the maximum allowable waste leachate concentration would be 0.96 mg/L TCLP, over 60 times higher that the maximum observed leachate concentration in the waste. *** Given that the difference between the MCL for arsenic and the health-based POE concentration is three orders of magnitude and that . . . naturally occurring levels of arsenic are often higher than these levels, we believe that some allowance can be exercised in setting the allowable level for arsenic in the leachate. [US]EPA proposes to set the allowable arsenic leachate level at a concentration which corresponds to a total waste cancer risk of 1x10^{-4} . . . . By this method, the delisting level for leachable arsenic in this proposed exclusion will be set at a value [0.005 mg/L] which corresponds to a POE concentration of approximately one-tenth of the existing MCL. The [US]EPA has recently proposed to lower the arsenic MCL to one-tenth its current value and thus, if finalized, it would correspond well with the delisting level we are setting. 65 Fed. Reg. 75897, 75901-75902 (Dec. 5, 2000).

For analysis of the Heritage waste itself, USEPA set the corresponding arsenic maximum allowable leachate concentration (mg/L TCLP) at 0.0936 mg/L. *Id.*

USEPA lowered the arsenic MCL from 0.05 ppm to 0.01 ppm, only two-tenths of its previous value and thus not as low as anticipated by USEPA in the Heritage delisting decision.

On January 22, 2001, USEPA adopted "a new standard for arsenic in drinking water at 10 parts per billion (ppb) [0.010 ppm], replacing the old standard of 50 ppb. The rule became effective on February 22, 2002. The date by which systems must comply with the new 10 ppb standard is January 23, 2006." http://www.epa.gov/safewater/arsenic/regulations.html PDC is proposing the same delisting level for arsenic as USEPA set for Heritage: 0.0936 mg/L. USEPA's reasoning in Heritage applies to PDC, especially as the arsenic MCL was not lowered as much as had been proposed. PDC further notes that Illinois accepted a higher risk level for arsenic when setting its Class I groundwater remediation standard of 0.05 mg/L, when the 1 in 1,000,000 (1×10^{-6}) risk level is listed at 0.000057 mg/L. TSD at 6-9; 35 Ill. Adm. Code 742.Appendix A, Table I.

Given the precedent set by USEPA in the Heritage delisting and the Illinois action in setting the groundwater remediation standard for arsenic, the Board finds in this case that PDC's proposal to use the 1×10^{-4} carcinogenic risk level for arsenic to derive a delisting level is acceptable and that the delisting level of 0.0936 mg/L is appropriate in this case.

Issues Raised in Public Comment Concerning the Adequacy of PDC's Demonstration

DRAS. Several commenters express concern about the adequacy of DRAS. Dr. Peter L. deFur, for HOI Sierra Club and PFATW, suggests that shortcomings in DRAS v.2 indicate the risk-based concentrations (delisting levels) calculated are not scientifically sound. PC 302 at 3. Tracy Meints Fox observes that although total chromium is included among PDC's proposed delisting levels, hexavalent chromium is not. PC 313 at 2. Fox also comments that PDC did not adequately demonstrate that the generic "DRAS is an appropriate model for predicting the behavior of stabilized wastes in the presence of MGPs [manufactured gas plant wastes], PCBs and industrial waste streams." *Id*. William Spencer, however, supports PDC's use of DRAS as the appropriate model for evaluating migration and exposure. PC 298 at 1.

PDC explains that DRAS "is intentionally site-neutral and incorporates a number of default inputs that are recognized by the USEPA to conservatively model the risks from any RCRA Subtitle D landfill." Br. at 38. PDC adds that the "only changes made by RMT to the default input values are applicable to all RCRA Subtitle D IEPA-permitted landfills in Illinois." *Id*.

As the Board stated in BFI, using DRAS is not required by regulation, but DRAS has been looked to by the Board in considering delistings. *See* BFI Waste Systems, AS 08-5, slip op. at 6. USEPA Region 5 explained:

> DRAS is a tool we [USEPA] use in order to evaluate the potential risk posed by delisted wastes when disposed of in a subtitle D landfill or surface impoundment. DRAS is designed to conduct this evaluation based on the criteria for listing a hazardous waste (40 C.F.R. § 261.11(a)(3)). Although this evaluation is a requirement of the regulations governing delistings (40 C.F.R. § 260.22), the specific use of DRAS and its methodologies are not. As such, there is no regulatory requirement to use DRAS (or any specific version of DRAS). Letter of

> July 16, 2008, to Board staff from Dale Meyer, Chief, RCRA Programs Section, USEPA Region 5, PC 2 in BFI Waste Systems, AS 08-5.

USEPA is proceeding with updates to DRAS:

> At this time, EPA Region 5 is using DRAS version 2 with modifications for projects which have already been proposed by EPA for approval. DRAS version 3 is under active repair and a version suitable for release to the general public should be available this summer. EPA Region 5 intends to use this repaired version of DRAS 3 for new delisting determinations immediately upon its release. *Id*.

The Board accepted the application of DRAS v.2 with modifications in the recent BFI delisting. *See* BFI Waste Systems, AS 08-5, slip op. at 26-27, 33. The Board does so again here. The Board finds that PDC, in consultation with USEPA Region 5, has properly corrected for known errors in DRAS v.2, as discussed above. Moreover, eight of PDC's proposed delisting levels are more protective values taken from the LDR UTS for K061 EAF dust (35 Ill. Adm. Code 728.Subpart D), including concentrations for cadmium, chromium, lead, and mercury.

As to Fox's concern regarding hexavalent chromium, the Board notes that the DRAS v.2 maximum allowable concentration is 385 mg/L for total chromium and 1.55 mg/L for hexavalent chromium. TSD, App. H; USEPA Region 6 RCRA-Risk Assessment Program at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-o/midlo.htm#risk (last updated Sept. 10, 2007). PDC instead proposed a delisting level for total chromium based on the LDR UTS of 0.60 mg/L, which is below the DRAS-derived values for both forms of chromium, and therefore protective of both. The USEPA delistings for CSI and Heritage set delisting levels for total chromium. 60 Fed. Reg. 31107, 31114 (June 13, 1995); 67 Fed. Reg. 1888, 1895 (Jan. 15, 2002).

Demonstration Testing. A number of commenters express concerns with the testing information submitted by PDC to demonstrate the viability of the new stabilization process. Carol VanWinkle comments that a study should be done to ensure the long-term viability of PDC's treatment process. VanWinkle recommends testing the process over a period of at least a year to determine if the stabilized waste will stand up to conditions prevalent in a landfill. PC 10. Rosson questions the adequacy of PDC's testing period of December 2007 to February 2008 and requests that PDC provide more extensive testing. Tr. at 113-114, 120; PC 16 at 2, 5; *see also* PC 305 (Kim McLean Converse); PC 86 at 1 (Lisa Sandell); Postcard 1; Postcard 2.

Tracy Meints Fox expresses concern that the sampling was conducted over a short timeframe and feels that PDC has not demonstrated the new treatment process' effectiveness during the higher temperature summer months. PC 313 at 1. In addition, Fox indicates PDC's "first-pass failure rate" for its waste stabilization process of 63.5% does not demonstrate the process is production-ready. Tr. at 107-108; PC 313 at 4. Dr. deFur suggests that PDC's need to re-treat certain batches during its full-scale study indicates that "the process still has a number of problems and is not ready for full-scale use." PC 302 at 4.

Rosson suggests that standard EPA laboratory testing proposed by PDC may not provide results indicative of actual conditions in a municipal landfill, adding that "[a] landfill is forever." Tr. at 115-116; PC 16 at 2. Tom Edwards points out that PDC does not claim the treatment process removes the toxic metals or how long "they would be held in check." PC 23 at 2. Lisa Sandell similarly questions "how do we know EAF [dust] treated now will be forever stabilized"? PC 86 at 2. Bill Cook questions whether PDC's stabilized residue was subjected to the extreme exposure of temperature, acidity, and alkalinity that the residue may be subject to in a landfill. Tr. at 93. Cook notes that the U.S. Army Corp of Engineers conducted a 10-year study to evaluate the disposal of TNT wastewater on municipal landfills. He argues that a similar long-term study is needed to evaluate the disposal of PDC's stabilized residue in landfills. Tr. 93-94. Tracy Meints Fox states that while she does not expect PDC to conduct a 10- or 50- year evaluation, she believes that it is reasonable to expect PDC to provide a full year of test results. Tr. at 108.

Ila Minson questions if the data presented considers the long-term effects, and factors in the freezing and thawing of Illinois weather. PC 222 at 1. Minson suggests more intensive research. *Id*. at 2. Dennis Ford also expresses concern regarding the lack of long-term studies to evaluate "what is actually going to take place when this treated waste product ends up in a municipal landfill, a RCRA Subtitle D landfill." Tr. at 56. Tessie Bucklar echoes the concerns that PDC has not completed a long-term study, noting that PDC's testing did not involve "the real world setting of a municipal landfill." Tr. at 75; PC 306 at 1.

Dr. deFur suggests the TCLP and MEP tests PDC used possibly underestimate the leaching potential of the material because of the complex chemical nature of landfill leachate compared to the laboratory use of acetic acid alone. PC 302 at 2. Citing a 2004 report by Fuessle and Taylor, Dr. deFur states experimental evidence demonstrates that stabilized waste from electric arc furnaces does leach toxic metals and that leaching increases after 50 days. *Id*.

Charles Norris, PG, considers TCLP "not indicative of leachate compositions from a waste or their evolution in the disposal environment" because TCLP will often under-predict concentrations of inorganic contaminants in leachate. PC 312 at 3. Norris cites to findings of the National Research Council indicating the NRC found laboratory characterization tests inadequate when used as surrogates for determining field leachate composition of coal combustion ash disposed in mined settings. *Id*. Norris adds that USEPA ranked TCLP as fourth among available data types as indicators of real-world leachate composition for disposal of coal combustion wastes. *Id*. at 11. In his experience with placement of stabilized materials for structural fill at two applications in Virginia, Norris states that leachate is now causing contamination of groundwater or surface water even though the stabilization process passed the TCLP test. *Id*. at 11-12.

Dave Long, Environmental Manager, Sterling Steel, states that any interactions in landfills between the stabilized waste and other wastes, such as acids in batteries or nail polish removers, have very limited impact because such materials are present in very small amounts. Tr. at 135. He argues that the TCLP testing procedure simulates a more acidic condition than what is expected in a landfill. *Id.*

> PDC states that its laboratory testing for the petition covered a period of:
>
> more than one and one-half years and generated thousands of laboratory data points before a chemical treatment regimen was developed and refined that was ready to take to full-scale in the form of the in-plant trials represented in the Petition and its TSD. Br. at 33-34.

Samples were subjected to both the TCLP and MEP tests, the purpose of which is "to simulate very long term exposure of the EAFDSR to the harshest possible Subtitle D landfill conditions, under the worst regulatory conditions reasonably conceivable." Br. at 34. PDC explains that the TCLP is "designed to simulate co-disposal in an improperly managed, unlined municipal solid waste landfill." *Id*. PDC adds that the MEP estimates synthetic acid rain extractions that simulate approximately 1,000 years of acid rainfall. *Id*. at 35, citing 47 Fed. Reg. 52687 (Nov. 22, 1982). PDC observes that the TCLP remains USEPA's prescribed method for identifying hazardous waste, demonstrating LDR compliance, and establishing delisting levels. *Id*. at 35.

PDC also responds to the comment of Tracy Meints Fox about PDC's purported 63.5% first-pass failure rate during the treatment demonstration. PDC explains that its SAP/QAPP protocol inadvertently did not provide for re-sampling to gauge the efficacy of the treatment as the chemical reaction progressed. Under its IEPA-issued operating permit, PDC was able to re-sample, demonstrating the delisting levels are achieved as the treatment reactions are allowed to continue. Br. at 49-50. Further, according to PDC, Dr. deFur incorrectly states that the TCLP and MEP tests do not "provide any data about the long-term integrity of the treated waste." Br. at 30, quoting PC 302 at 2. PDC adds that Dr. DeFur comments on other EAF dust stabilization regimens, but not this one. Br. at 30.

> Regarding Norris' comments on coal combustion wastes, PDC states that it is:
>
> confused as to the pertinence of this comment because no inference can be made from the Petition or TSD that PDC's technology employs any such materials. PDC's Petition and TSD, its statements herein, and Dr. Chowdhury's testimony verify that none of the commenter's perceived shortcomings will be experienced with PDC's treatment technology. Br. at 37.
>
> The Board notes that for any delisting, demonstration samples must consist of:
>
> enough representative samples, but in no case less than four samples, taken over a period of time sufficient to represent the variability or the uniformity of the waste. 35 Ill. Adm. Code 720.122(h).

PDC analyzed twelve representative demonstration samples over several months of full-scale, in-plant trials on EAF dust waste streams from ten steel mills. PDC obtained and validated over 1,000 data points. PDC treated an average of 71 tons of K061 EAF dust per day for the first eight sampling rounds of its demonstration. Twelve to 22 mixer loads were treated each day. The treatment residue analyzed in the ninth sampling round was from a 35-ton batch. TSD at 5-2, 5-3. The Board finds that PDC has satisfied Section 720.122(h).

The Board also notes that the TCLP is at the heart of USEPA's delisting guidance for fate and transport analysis and for deriving delisting. "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 26, 27, 28, 30, 34, 35, USEPA Region 6 (Mar. 23, 2000). USEPA prescribes the TCLP and the MEP specifically for stabilized wastes:

> 6.2.2 Stabilized Wastes
> If your petitioned waste is generated from the chemical stabilization of a listed waste, then you should quantify leachable metal concentrations using the Multiple Extraction Procedure (MEP), SW-846 Method 1320, as well as by TCLP analyses. We need MEP test results for stabilized wastes to assess the long-term stability of the waste. You should change the MEP by using the TCLP in place of the EP in Method 1320. "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 30, USEPA Region 6 (Mar. 23, 2000).

In the Heritage and CSI delistings, USEPA relied upon the TCLP and MEP tests in conducting its evaluations and making its determinations. USEPA's response to a commenter's concern regarding TCLP and MEP illustrates USEPA's position. In the CSI delisting, one commenter states:

> that the petition relied on the TCLP and MEP chemical testing procedures to determine the efficacy of CSI's stabilization process, but largely failed to address the long-term physical durability (or structural integrity) of the stabilized EAFD. The commenter believed that the stabilized EAFD will deteriorate over time once disposed of in landfills or elsewhere, which could result in airborne or waterborne exposure which was not evaluated. The commenter presented a list of applicable physical test methods, and suggested that at a minimum, freeze-thaw and wetdry durability tests be performed, and that EPA should apply "deterioration models."
>
> [USEPA] Response: This rulemaking adequately addresses the potential deterioration of CSI's CSEAFD and the resulting leachability of the material. The MEP was developed to predict the long-term leachability of stabilized wastes, consisting of ten sequential extractions that simulate approximately 1,000 years of acid rainfall. This method requires that the sample of stabilized material be first crushed and ground so that the sample material can pass through a 9.5-mm [millimeter] sieve (as part of the TCLP extraction incorporated in the MEP). The use of particles less than 9.5 mm is comparable to a worst-case assumption of degradation of the stabilized material. 60 Fed. Reg. 31107, 31111 (June 13, 1995).

Consistent with USEPA guidance and precedent discussed above, the Board relies on the TCLP and MEP analyses provided by PDC.

Independence of Testing. Postcards 1 and 2 express concern over the lack of independent testing to verify the results of PDC's waste stabilization process. Julie Luner similarly states that the Board should not delist PDC's waste without independent testing and

verification of the efficacy and long-term safety of the new proprietary stabilization technology. Tr. at 78. Dan Pioletti echoes Luner's concern. Tr. at 85; *see also* PC 222 at 2 (Minson); PC 305 (Kim McLean Converse); PC 86 at 1 (Lisa Sandell).

In response, PDC emphasizes that it did not perform any of its own sampling and analysis. PDC states, "RMT, the company that performed all the sampling and analysis for the Petition, is an independent consulting company, with its own reputation and integrity to safeguard." Br. at 33. In turn, PDC notes, RMT itself chose an independent testing laboratory to perform all the testing used in developing the petition and TSD. *Id.* In addition, the Peoria County Board independently hired Patrick Engineering to review the petition and TSD. PDC asserts that Patrick Engineering did not find any flaws with RMT's work on the petition or TSD. *Id.*

The Board notes that in Illinois, a petitioner seeking a delisting has the burden to demonstrate that the petition and supporting documentation justify the request in accordance with the applicable laws and regulations. The Act requires IEPA to review the petition and all supporting information, including any sampling and laboratory testing data, and file its recommendation for Board consideration. IEPA's recommendation here did not take issue with the approach taken by PDC regarding sampling and analysis. Further, it is common practice for petitioners to hire consulting firms to perform sampling and analysis in support of adjusted standard petitions before the Board. *See*, *e.g.*, BFI Waste Systems, AS 08-5, slip op. at 7. PDC's approach is consistent with that used by Heritage and CSI in their delisting petitions before USEPA. *See* 65 Fed. Reg. 75897, 75898-75906 (Dec. 5, 2000); 58 Fed. Reg. 58521-58533 (Nov. 2, 1993).

The Board further notes that the Act provides for a laboratory accreditation process, authorizing IEPA to "establish and enforce minimum standards for the operation of laboratories relating to analyses and laboratory tests . . . ." 415 ILCS 5/4(n) (2006). IEPA regulations on laboratory accreditation require compliance with NELAC standards and the USEPA Test Methods for Evaluating Solid Waste, SW-846. 35 Ill. Adm. Code 186.110(a), 186.180(b)(3). Both laboratories retained by PDC to perform analytical testing on EAFDSR, TriMatrix Laboratories, Inc. in Grand Rapids, Michigan and Pace Analytical Services, Inc.'s Dioxin Laboratory in Minneapolis, Minnesota, have been accredited by IEPA under 35 Ill. Adm. Code 186. TSD, App. E of App. G, SAP/QAPP at 3-26 through 3-27, App. F of App. G, citing www.pacelabs.com/about-us/certifications.html.

Stabilization. To demonstrate that EAFDSR can satisfy the criteria for delisting, PDC worked with a consultant to develop a new proprietary stabilization technology for treating K061 EAF dust. Pet. at 2; TSD at 3-16. The new PDC technology stabilizes metals through a series of chemical reactions while providing buffers to resist changes in pH. TSD at 3-18. For the treatment demonstration, pH buffering is important when both acidic and alkaline extraction fluids are used in the sample analysis. *Id.*

Under the proposed adjusted standard, PDC would have to use this "new proprietary stabilization technology" to treat the listed K061 EAF dust, though PDC's proposal "allows conditioned flexibility regarding the chemical technology employed," as discussed later in this

opinion. Pet. at 2, 18. PDC explains that its new stabilization technology "effectively stabilizes K061 metal constituents and removes the hazard of toxicity." *Id*. at 4. The hazardous constituents contained in the EAFDSR (*i.e.*, metals listed in 35 Ill. Adm. Code 721.Appendix G), continues PDC, are:

> essentially rendered immobile, such that the concentrations of these hazardous constituents are below: 1) the LDRs applicable to K061 EAF dust, 2) the Characteristic of Toxicity levels established at 35 Ill. Adm. Code 721.124, and 3) risk-based levels established by the USEPA's Delisting Risk Assessment Software ("DRAS") model or other method approved by the USEPA and IEPA to demonstrate that the constituents of concern are at concentrations that are non-threatening to human health and the environment. *Id*.

Dr. Chowdhury specifically stated at hearing that the new stabilization process is not mere dilution of the EAF dust. Tr. at 34. Dr. Chowdhury further testified as follows under direct examination:

Q The process you created to stabilize the electric arc furnace dust, does it permanently stabilize that dust? Will there be changes over time?
A No.
Q And under landfill conditions would the stabilized electric arc furnace dust ever destabilize in an extreme acidic environment in a landfill?
A No.
Q An extreme alkaline environment in a landfill?
A No. The answer is no.
Q In heat encountered in a landfill?
A No.
Q How about in cold that one would encounter in a landfill?
A No. Temperature has no effect on the chemistry. Tr. at 34-35.

The Baker & McKenzie, LLP law firm suggests that with PDC's new technology, it is the TCLP test itself that causes the reaction leading to stabilization. Baker & McKenzie asserts that PDC did not "explain if sufficient water is added to provide a medium in which the reactions can occur." PC 33 at 3-4. PDC counters that it does not dry mix waste with treatment chemicals. Adding water, PDC continues, is a process component that facilitates mixing and prevents airborne emissions when the treated waste is deposited at the face of the landfill. PDC emphasizes that the treatment technology does not rely on the TCLP extraction fluid to initiate the chemical reaction. Br. at 54.

The Board notes that the effectiveness of stabilization has been questioned in earlier proceedings. In response to this concern in the Heritage delisting, USEPA stated:

> At this time, stabilization is considered to be the best available treatment for metal bearing wastes. We have no evidence that constituents of concern have ever leached from this stabilized waste. To assure that the waste continues to meet the levels established here, we are requiring periodic testing of the waste and

> placement of the waste in a solid waste landfill which has ground water monitoring. 67 Fed. Reg. 1888, 1894 (Jan. 15, 2002).

Further, USEPA has established the process of stabilization as a Best Demonstrated Available Technology (BDAT) for metal-bearing wastes such as the K061 EAF dust. 62 Fed. Reg. 26041, 26044 (May 12, 1997); TSD at 1-2.

Generator and Out-of State Waste. In a joint public comment, HOI Sierra Club and PFATW take issue with PDC receiving EAF dust generated outside of Illinois, noting that PDC proposes accepting EAF dust from steel mills in Wisconsin, Iowa, Kentucky, Indiana, and Nebraska, accounting for at least 60% of the EAF proposed to be accepted from the ten pre-approved mills. PC 301 at 8. HOI Sierra Club and PFATW further note that under the proposed adjusted standard, PDC could accept additional waste streams "potentially from a wide universe of potential sources in the Midwest and beyond." *Id*.

Most of the arguments of HOI Sierra Club and PFATW regarding out-of-state waste relate to container storage and truck traffic, which the Board addresses below in its discussion of the Section 27(a) factors. PC 301 at 8-9. According to these groups, PDC's claim that its EAFDSR will be generated or managed in Illinois "elevates form over substance." *Id*. at 9; *see also* PC 300 at 3-4 (Stephen Lester); PC 307 (Edwards). The Board disagrees with the HOI Sierra Club and PFATW on this point.

Section 720.122(p) provides that any petition to delist "must include a showing that the waste will be generated or managed in Illinois." 35 Ill. Adm. Code 720.122(p). While the steel mills generate EAF dust sent to PDC, the Board has held that PDC is the "generator," within the meaning of the Act, of the stabilized residue resulting from PDC's current treatment of K061. Peoria Disposal Co. v. IEPA, PCB 08-25, slip op. at 25 (Jan. 10, 2008); *see also* 415 ILCS 5/3.205 (2006) ("generator" means "any person whose act or process produces waste"), 35 Ill. Adm. Code 720.110 ("generator" means "any person, by site, whose act or process produces hazardous waste identified or listed in 35 Ill. Adm. Code 721 . . . ."). This determination is in accord with finding that the EAFDSR is the listed waste K061 under the "derived-from" rule: "any solid waste *generated from the treatment* . . . of a hazardous waste . . . is a hazardous waste." 35 Ill. Adm. Code 721.103(e)(1) (emphasis added). PDC has proposed as a condition for the adjusted standard that the EAFDSR must be disposed of in landfills located in the State of Illinois. The Board's delisting, of course, applies only in this State. 35 Ill. Adm. Code 720.122(r) ("Delistings apply only within Illinois.").

Board Conclusion on Whether PDC Has Satisfied the Technical RCRA Regulatory Delisting Requirements. As discussed above, the treatment residue contains hexavalent chromium, lead, and cadmium, the constituents for which EAF dust is listed, and there are constituents of concern in the treatment residue other than hexavalent chromium, lead and cadmium. The Board finds, however, that the data, including that obtained through application of USEPA's DRAS, demonstrate that PDC's new proprietary technology effectively immobilizes the metal constituents of concern. PDC subjected demonstration samples to the aggressive leaching simulations mandated by USEPA. In PDC's demonstration, PDC's new treatment

technology, including additional curing time and re-treatment (discussed below), achieved each of the 14 delisting levels for the metals of concern.

The Board adds dioxins and furans as a constituent of concern as they were present in the treatment residue at detectable levels. Dioxins and furans accordingly must be monitored for compliance with a delisting level, which the Board sets at the most stringent DRAS-derived TCLP concentration of 2.05×10^{-10} mg/L, expressed as 2,3,7,8-TCDD. The maximum observed TCLP concentration in PDC's treatment residue (0.40×10^{-10} mg/L) was less than this delisting level.

The Board finds that the treatment residue, derived from EAF dust, does not meet the criteria under which K061 EAF dust was listed and that no other factors warrant retaining the treatment residue as listed hazardous waste. PDC has proven that the treatment residue does not pose a substantial present or potential threat to human health or the environment when considering all of the relevant factors, including the results of modeling a "reasonable worst-case management scenario" of disposal in an unlined landfill. *See* 35 Ill. Adm. Code 720.122(a), (b), (d), 721.111(a)(3). The Board's decision takes into account PDC's risk assessment and the conditions crafted for the adjusted standard's language, which are further discussed below.

To receive a delisting, the petitioner must also demonstrate that the waste does not exhibit any of the characteristics of hazardous waste, *i.e.*, ignitability (35 Ill. Adm. Code 721.121), corrosivity (35 Ill. Adm. Code 721.122), reactivity (35 Ill. Adm. Code 721.123), or toxicity (35 Ill. Adm. Code 721.124). 35 Ill. Adm. Code 720.122(d)(3). For the reasons below, the Board finds that PDC has made this demonstration.

PDC did not test in the laboratory for the waste characteristics of ignitability, corrosivity, or reactivity. TSD at 4-4, 4-8. If the petitioner does not provide analyses for the characteristics of ignitability, corrosivity, or reactivity, USEPA advises that the petitioner may "provide a detailed explanation regarding why the waste does not exhibit a given characteristic." "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 28, USEPA Region 6 (Mar. 23, 2000). PDC's petition states that "[b]ased on knowledge of the process generating the EAF dust and PDC's knowledge of the chemicals used to treat the waste, the EAFDSR has been determined not to exhibit the hazardous characteristics of ignitability, corrosivity, or reactivity." Pet. at 25. The TSD provides further explanation:

> Specifically, the EAFDSR is not a liquid so it is excluded from the definition for ignitable and corrosive wastes. Regarding the characteristic of reactivity, PDC presently analyzes a sample collected from each load of EAF dust received at the WSF for reactivity, and the characteristic of reactivity has never been observed. Further, the treatment reagents have no reactive components, and so cannot react violently with water or spontaneously ignite. TSD at 4-9.

A solid waste exhibits the characteristic of toxicity if, using the TCLP, the extract from a representative sample contains any of the contaminants listed in the table below at a concentration equal to or greater than the respective value given in the table. 35 Ill. Adm. Code 721.124(a).

Contaminant	Regulatory Level (mg/L)
Arsenic	5.0
Barium	100.0
Benzene	0.5
Cadmium	1.0
Carbon tetrachloride	0.5
Chlordane	0.03
Chlorobenzene	100.0
Chloroform	6.0
Chromium	5.0
o-Cresol	200.0
m-Cresol	200.0
p-Cresol	200.0
Cresol	200.0
2,4-D	10.0
1,4-Dichlorobenzene	7.5
1,2-Dichloroethane	0.5
1,1-Dichloroethylene	0.7
2,4-Dinitrotoluene	0.13
Endrin	0.02
Heptachlor (and its epoxide)	0.008
Hexachlorobenzene	0.13
Hexachlorobutadiene	0.5
Hexachloroethane	3.0
Lead	5.0
Lindane	0.4
Mercury	0.2
Methoxychlor	10.0
Methyl ethyl ketone	200.0
Nitrobenzene	2.0
Pentachlorophenol	100.0
Pyridine	5.0
Selenium	1.0
Silver	5.0
Tetrachloroethylene	0.7
Toxaphene	0.5
Trichloroethylene	0.5
2,4,5-Trichlorophenol	400.0
2,4,6-Trichlorophenol	2.0
2,4,5-TP (Silvex)	1.0
Vinyl chloride	0.2

35 Ill. Adm. Code 721.124(b).

The TSD documents that "none of the analytical results from the demonstration sampling events exceeded their toxicity characteristic (hazardous) levels specified in 35 IAC 721.124." TSD at 4-2; *see* TSD, App. L.

Based on all of the foregoing, the Board finds that PDC has its burden of proof under the RCRA regulations for receipt of a delisting. *See* 35 Ill. Adm. Code 720.122(a), (b), (d), (h), (i), (p).

Conditions of the Delisting

Specified Stabilization Technology

Condition 2 of PDC's originally-proposed adjusted standard language stated that "[t]his adjusted standard is provided only for K061 waste treated using PDC's mechanical mixer" and that "PDC's treated K061 residues generated by the PDC K061 stabilization process described in its Petition . . . are non-hazardous." Pet. at 13. Board staff pointed out that these references do not limit the delisting to treatment residue resulting from PDC's "new proprietary stabilization technology" and could be confused with PDC's existing chemical stabilization regimen, which is also referred to in the petition. In response, PDC proposed the following language, which the Board incorporates with minor amendments:

> This adjusted standard is provided only for K061 wastes treated using PDC's new proprietary stabilization technology described in the RCRA Delisting Adjusted Standard Petition for PDC EAF Dust Stabilized Residue ("EAFDSR") filed by PDC on April 25, 2008 (the "Petition") . . . . Br. at 78.

Additional K061 Waste Streams

Offutt expresses concern over the provision of PDC's proposal allowing PDC to accept wastes for treatment from additional K061 sources (*i.e.*, mills not among the ten listed in the petition) without approval from a regulatory agency. PC 20 at 2. Offutt believes the wide variability of materials contributing to the steelmaking process would lead to wide variability in constituents of concern in the EAF dust. *Id*. Tracy Meints Fox questions whether PDC's sampling protocol represents the current and future variability of EAF waste. Ms. Fox quotes a passage from S. Ramachandra Rao in *Resource Recovery and Recycling from Metallurgical Waste*, 2006: "The composition of EAF dust varies widely depending on the scrap used, the type of steel being made, the operating conditions and procedures . . . . [S]ince the ratio of galvanized scrap used has been increasing, the composition of zinc and lead in the dusts has also been increasing." PC 313 at 1. Rick Fox comments that PDC's proposal lacks provisions for oversight by a State agency. PC 314 at 1. Mr. Fox observes that PDC has requested flexibility to add additional generators without re-petitioning the Board. PC 311 at 2. Rosson expresses concern that PDC's proposal would allow "self-approval of any future EAFD intake from any number of mills." Tr. at 115, 119; PC 16 at 2.

As to the variability of the waste, PDC points to Tables 1a and 1b in the TSD, which provide a "summary of the variability, by final COC, in each mill's K061 waste stream for the

years 2001 through 2007." Br. at 44. PDC used this data along with each mill's generation rates to develop a representative sampling process that was reviewed by and discussed with IEPA and USEPA prior to implementation. Br. at 44-45. PDC explains that as proposed, the company:

> can only accept a new EAF dust for treatment and disposal under the Adjusted Standard after conducting a separate study and analysis demonstrating that the EAFDSR generated from treatment of the new EAF dust meets the same delisting levels as the EAFDSR in the trials described in the Petition and TSD. Br. at 42.

PDC adds that "[t]o do otherwise would be to jeopardize the success of an entire day's batch of EAFDSR because of one contributing mill." *Id*.

PDC reiterates that its pre-acceptance treatability testing, combined with post-treatment testing of every daily batch, will ensure that any prospective K061 waste stream is as amenable to PDC's treatment technology as those represented in the in-plant trials conducted for the petition. Br. at 68. PDC notes that under the USEPA Guidance Manual, "[m]ultiple waste treatment facilities (MWTFs) typically receive large numbers of individual waste shipments having a wide variety of compositions." Br. at 41, quoting "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 24, USEPA Region 6 (Mar. 23, 2000). PDC adds that the Guidance Manual requires a "procedure for prescreening clients and wastes," which PDC has. *Id*.

Rosson argues that PDC's delisting is different than other delistings of EAF dust nationally. Tr. at 111. She notes that while all delistings she reviewed were specific to a steel mill or a foundry where the EAF dust is generated, PDC is proposing to take EAF dust from a number of steel mills for treatment at its facility. Tr. at 111-112; PC 16 at 1. Rosson explains that in USEPA's CSI delisting involving the Super Detox™ treatment process, a treatment plant is installed at each mill. Rosson believes this approach lends consistency to the components of the EAF dust waste stream. Tr. at 112; PC 16 at 1. Rosson suggests the variation in EAF dust from different mills could be significant. *Id.* Rosson requests that each new source of EAF dust be approved by IEPA. Tr. at 120 and PC 16 at 5.

Comparing the delisting levels proposed by PDC to those used by USEPA in the Super Detox™ CSI delisting, Tracy Meints Fox observes that the TCLP delisting levels are lower (*i.e.*, more stringent) for the Super Detox™ delisting. PC 313 at 4. Rosson also states that other delistings of EAF dust do not involve disposal in municipal landfills, but rather disposal on-site at the steel mill itself. PC 16 at 4. Rosson suggests that if the treated EAF dust is the only waste being disposed of at the site, "this seems to me a much safer situation" than co-disposal with municipal waste that may be corrosive, acidic, or flammable. PC at 4. David Wentworth notes that EAF dust delistings are very site-specific, but with PDC, it is just the opposite with waste coming from multiple mills to one location for treatment and then treated material being disposed in multiple landfills. Tr. 128-129. Blumenshine asserts that PDC should provide site-specific information for all landfill sites where PDC intends to send its treatment residue. Tr. at 124; *see also* Postcard 1. Norris, PG, observes that "there is no other municipal landfill that accepts these wastes, let alone in this quantity or form." PC 312 at 9.

PDC responds that the delisting of K061 wastes has been sought by numerous companies other than PDC. Br. at 29. Regarding Rosson's statement that other delistings only allowed on-site disposal, PDC clarifies that none of the K061 delistings approved by USEPA have mandated on-site disposal. Br. 43, citing 40 C.F.R. 261.Appendix IX, "Wastes Excluded Under §§260.20 and 260.22." PDC points out that USEPA's Heritage delisting is an example of a delisted K061 disposed of in a Subtitle D municipal waste landfill. In addition, at the public hearing, Curtis of RMT testified that she is familiar with ten K061 delistings, seven of which were for commercial waste treatment facilities rather than steel mills and seven of which contemplated disposal in a municipal solid waste landfill rather than on-site. Br. at 43; Tr. at 16-17.

In response to Fox's observation that the delisting levels in USEPA's CSI delisting (1995) are lower than those proposed here, PDC notes that delisting levels in general are:

> set at waste- and situation-specific, risk-based concentrations, capped at the constituent-specific LDR standards. Therefore, each risk assessment is apt to yield different allowable concentrations. Br. at 48.

In addition, LDR standards change over time. *Id*. PDC compares its proposed delisting levels to the more recent USEPA Heritage delisting (2002), noting that 9 of the 14 proposed levels here are lower (*i.e.*, more stringent) and 5 are equal to those imposed in Heritage. *Id*. Curtis, Project Manager with RMT, rendered her opinion in testimony at hearing:

> Q Is it RMT's conclusion that PDC's treatment of the electric arc furnace dust, the K061 waste, renders the waste nonhazardous and subject to delisting?
> A Yes, it is.
> Q And is it RMT's position that the proposed delisting is entirely protective of the environment and public health and safety?
> A Yes. This is our belief. Tr. at 28.

The Board emphasizes that PDC is petitioning for an "upfront" and "conditional" delisting. Pet. at 2; Br. at 41. USEPA defined upfront delistings:

> exclusions for wastes and/or waste residues that have not yet been generated, but will be generated in the future, based on available information (e.g., pilot-scale system data) that demonstrates that the petitioned waste will most likely meet the delisting criteria. "U.S. EPA RCRA Delisting Program Guidance Manual for the Petitioner" at 8 (Mar. 23, 2000); *see also id*. at 23 ("upfront exclusion for a waste that is not currently generated, yet will be in the future").

USEPA described the nature of a conditional delisting:

> In [USEPA's] view, a conditionally delisted waste would exit the hazardous waste management system at the point it meets the established delisting levels, and would remain outside of the hazardous waste management system so long as the delisted waste generator complies with the conditions placed on the disposal

> of the delisted waste. "National Policy for Hazardous Waste Delistings" at 2, Memorandum from Elizabeth A. Cotsworth, Acting Director, Office of Solid Waste, to Regional RCRA Senior Policy Advisors, RO 14282 (July 1, 1998) http://www.epa.gov/region6/6pd/rcra_c/pd-o/dlistpol.pdf.

USEPA has stated that it grants conditional exclusions "when the petitioned waste meets the criteria for delisting, yet we believe the waste may exhibit future variability that may be of concern." "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 7, USEPA Region 6 (Mar. 23, 2000). Accordingly, USEPA imposes "post-exclusion testing requirements that the petitioner must meet prior to waste disposal." *Id*.

PDC's TSD explains that the composition of EAF dust "varies depending upon the types of scrap (e.g., galvanized, high carbon, etc.) and the types/quantities of flux and other additives that are used in the melting process." TSD at 2-1. As noted, Tables 1a and 1b of the TSD provide a comparison the of the metals content of EAF dust from the ten steel mills in the demonstration study. The TSD describes PDC's chemical treatment regimen as "robust enough that all K061 wastes currently received are readily treated to meet the LDR standards using the same reagent 'recipe.'" TSD at 3-15. Whether variability is attributed to "differing compositions in the waste from the mills or to operating conditions, such as variations in chemical composition or reaction time," PDC is proposing to sample every batch of treated EAF dust to verify that delisting levels are met before disposal. *Id*.

Both the Heritage and CSI delistings by USEPA require disposal of the non-hazardous waste treatment residue in a Subtitle D landfill. As mentioned above, USEPA's CSI decision is a multiple-site delisting. That is, USEPA's delisting approved CSI's modified SuperDetox™ technology for use at the Sterling, Illinois Northwestern Steel site, and in turn that technology could be used at additional steel mills, *i.e.*, on additional K061 waste streams, if sampling and analysis of the new waste stream show that the SuperDetox™ technology can consistently meet the delisting levels. At the time, CSI contemplated constructing a number of other facilities nationwide. 60 Fed. Reg. 31107, 31108, 31114 (June 13, 1995). USEPA made provision for this addition of facilities "based on the analytical data obtained from both CSI's full-scale Sterling, Illinois facility, and CSI's laboratory-scale processing of EAF dust from 12 other steel mills at its laboratory located in Horsham, Pennsylvania." 58 Fed. Reg. 58521, 58529 (Nov. 2, 1993).

By comparison, the Board's delisting approves PDC's new proprietary stabilization technology for use at the Peoria PDC site, and in turn that technology could be used on additional K061 waste streams if sampling and analysis of the new waste stream show that PDC's new proprietary stabilization technology can meet the delisting levels. Based on analytical data obtained from PDC's full-scale testing of waste streams from 10 steel mills, the Board makes provision for the possibility of adding K061 waste streams.

The Board acknowledges that under the CSI delisting, after USEPA receives the test results for treatment of an additional K061 waste stream, the new steel mill would not be added to the delisting without USEPA pre-approval. USEPA makes clear, however, that such an

approval process is not a new delisting demonstration, despite the fact that different steel mill K061 waste streams would be added:

> [US] EPA is not requiring the company to submit a separate delisting petition for each new facility. It would make no sense to require a company to submit multiple individual petitions for similar wastes generated from similar process and feed materials when the only difference between petitions is the name and location of the specific facility; to do so would be an unnecessary administrative burden and waste of resources for both [US]EPA and the petitioner. 60 Fed. Reg. 31107, 31110 (June 13, 1995).

Tellingly, before the addition of a new mill to the delisting, USEPA requires that the new K061 waste stream be TCLP tested only for compliance with the delisting levels set forth in USEPA's original decision (*i.e.*, no new CoCs or different concentrations for original CoCs), despite the prospect of EAF dust waste-stream variability across different mills nationally. The Board likewise requires PDC to TCLP test any potential new K061 waste stream for the condition 4 delisting levels. Those are the same 14 metals imposed in the CSI delisting, except the Board adds dioxins/furans.

The Board requires PDC to submit the treatability results to IEPA within seven days of completion of testing. IEPA does not have a right of pre-approval in the sense of USEPA's power under the CSI delisting. The Board's approach is in part a function of how in Illinois, USEPA's duties are split between IEPA and the Board, with day-to-day RCRA program implementation allocated to IEPA and delisting authority vested in the Board. This does not make PDC's submittal to IEPA meaningless. The Board also notes that besides assessing an additional K061 waste stream, the testing required by USEPA serves the function of ensuring that the newly-constructed Super Detox™ system is operating properly once brought on-line at the new location, which is not an issue for PDC. 58 Fed. Reg. 58521, 58523, 58529 (Nov. 2, 1993). Nevertheless, should IEPA be concerned with any such submittal by PDC, IEPA could, for example, make the necessary filing with the Board to amend this delisting. *See* Petition of Peoria Disposal Co. for Adjusted Standard from 35 Ill. Adm. Code 721 Subpart D, AS 91-3, slip op. at 10-11 (Mar. 11, 1993) ("The Board is not unmindful that if the Agency later finds cause for concern because these constituents appear at levels of significance, it can then deal with the situation by filing an appropriate petition for modification of the adjusted standard before the Board.").

Using language from CSI, the Board modifies PDC's proposal and require that the bench-scale treatability testing show that a new K061 waste stream treated with PDC's new proprietary stabilization technology can "consistently" meet the delisting levels. As PDC suggests, however, it is not in PDC's economic self-interest to accept K061 waste streams that PDC cannot consistently treat to delisting levels without the cost of re-treatment. Further, PDC proposes, and the Board requires, testing of a composite sample from every single treated batch for delisting level compliance. The Board finds that PDC's sampling of every batch of treated EAF dust assures compliance with all delisting levels. USEPA requires CSI to test a composite sample each month, composed of samples collected from all batches treated over the course of that month. USEPA found this monthly testing would address the fact that "the concentration of

the constituents of concern may vary somewhat depending upon the type and quality of scrap metal charged in the steel-making process." 58 Fed. Reg. 58521, 58528 (Nov. 2, 1993).

Of critical importance here is that the Board is not delisting the waste streams of the ten steel mills in the petition or any future waste streams:

> [T]his adjusted standard does not delist the waste stream. Rather, the adjusted standard granted applies only to those treated batches that meet the delisting criteria. Peoria Disposal Co., AS 91-3, slip op. at 9 (Mar. 11, 1993).

The Board finds the conditions proposed by PDC and revised by the Board for qualifying additional waste streams and for post-treatment testing are adequate to ensure that each batch of treated EAFDSR meets the delisting levels of condition 4.

The Board agrees with PDC that PDC should not be required by the adjusted standard to conduct bench-scale treatability testing for any K061 waste streams from the steel mills already represented in the full-scale, in-plant trials. However, the Board adds language providing that if there is a "significant change" in the treatment process or chemicals pursuant to condition 3(b) (discussed below), PDC must conduct the bench-scale treatability testing prior to operation of full-scale treatment of any of those original waste streams.

Curing and Re-Treatment

For the reasons discussed below, the Board finds that that allowing for additional curing time and re-treatment under the delisting, consistent with PDC's RCRA Part B permit, is necessary and appropriate. Curing time can be affected by a variety of factors, especially ambient air temperature. Colder temperatures can retard reaction time. TSD at 3-17. "Curing" in this instance refers to "the chemical reaction working to completion, which is itself additional treatment." *Id*. PDC maintains that disallowing additional curing time of treated waste would:

> short-circuit the reaction process prematurely and unnecessarily require the re-treatment of a batch that simply had not cured to the extent necessary to achieve the proposed delisting levels. TSD at 3-17, 3-18.

PDC's RCRA Part B permit recognizes additional curing time as treatment. The permit's Special Condition H (E)(15)(e)(iii)(1) states:

> Treated waste which fails to meet the requirements shall receive additional treatment (this may consist of additional curing time and/or reintroduction into the treatment facility for further stabilization). Wastes which receive additional treatment may only be disposed in the landfill after it has been demonstrated that the residue meets the proper treatment standards. TSD at 3-18 (emphasis in permit).

PDC's RCRA Part B permit also limits the amount of time treated waste may be stored before re-treatment. Specifically, PDC notes that the storage limit was increased from 15 to 60 days in

the recent permit renewal, in recognition of the importance of allowing additional curing time. At 60 days, the treated waste must be reprocessed with additional chemical reagents or disposed of as RCRA hazardous waste. TSD at 3-18.

RMT explains that additional treatment through curing time is an especially appropriate option when considering that PDC begins bench-scale treatment with "reagent proportions that are known through experience to be at the lower end of the effective range." TSD at 3-18. This approach is designed to meet the applicable concentration-based treatment standards while both (1) minimizing the volume and weight increase attributable to the chemicals and water and (2) avoiding "over-treatment." *Id*. Generally, chemical stabilization technologies:

> involve chemicals that microencapsulate waste particles, as well as provide pH buffering. The PDC technology stabilizes metals through a series of complex chemical reactions while providing buffers to resist changes in pH upon exposure to extraction fluids of varying pHs. This technology feature is particularly important when both acidic and alkaline extraction fluids are to be used as they were for the treatment demonstration completed for this Petition. The minimum solubility of most metals treated by PDC occurs within the pH range of 8.5 to 11.0. Many metals that are regulated by LDR standards and the proposed delisting levels are amphoteric, i.e., they exhibit increased solubility at both high and low pHs (EPA, 1986). Examples of amphoteric metals that would be regulated by the proposed delisting levels for the EAFDSR are chromium, lead, and zinc. Because the solubility of these metals will increase both below and above a known pH range, over-treatment, or "overkill" (EPA, 1993) is possible. Treatment complexity is also increased as the number of regulated metals increases. The proposed delisting levels for the EAFDSR would regulate 14 different metals, not all of which have overlapping solubility minima. As such, simply adding an extra quantity of chemicals, or even selecting an average target pH, will not consistently meet the proposed delisting levels and may even cause over-treatment. Therefore, a designed and sophisticated approach is required for the necessary balance to be achieved. TSD at 3-18, 3-19.

Because of these chemistry factors and variables, using reagent proportions known to be at the "lower end of the effective range" and allowing the chemical reaction to work toward completion helps avoid over-treatment:

> Put simply, it is always possible to add additional chemicals when necessary, but it is not possible to remove treatment chemicals once over-treatment has occurred. Therefore, the treatment that occurs through additional curing time is a critical component of the PDC treatment technology, one that can only be represented and verified through re-samples during the period required for curing to approach completion, and as limited by the IEPA-regulated storage time limit in the facility RCRA Part B Permit. TSD at 3-19.

When analytical results following additional curing time do not demonstrate compliance with the delisting levels before storage time expires, or the "trend in re-sample analytical results

makes evident to PDC that reduced concentrations with additional curing time are unlikely," PDC would re-process the "failed" batch in the WSF: "The re-treatment recipe would be determined based on the metals concentrations and final extraction pH of the most recent resample." TSD at 3-20.

Initial and Subsequent Verification Testing

PDC describes the adjusted standard as a "conditional exclusion requiring testing of each batch prior to managing the treated waste as non-hazardous." Pet. at 16. PDC defines a "batch" as "the quantity of EAF dust treated during one calendar day." Pet. at 16-17; TSD at 1-4. As proposed then, until testing demonstrates that a given batch of treated K061 EAF dust (*i.e.*, EAFDSR) meets the delisting levels of condition 4, PDC would have to manage that batch as hazardous waste. Pet. at 4, 17; Br. at 80-81. PDC maintains that analyzing each treated batch for all of the CoCs is "a virtually fail-safe system" and an "extremely rigorous quality control measure that will verify the satisfactory control of all contributing process variables, including weather conditions." Pet. at 5; Resp. to HOO, Exh. A at 1. PDC maintains that this is to "ensure that the qualitative nature of the EAFDSR disposed of by PDC will never exceed the approved delisting levels." Pet. at 5.

The Board finds this approach appropriate. USEPA explains that conditional exclusions may be granted when:

> the waste may exhibit future variability that may be of concern. Under a conditional exclusion, we [USEPA] set up post-exclusion testing requirements that the petitioner must meet prior to waste disposal. *** Only those batches that meet the conditions provided in the final exclusion could be managed as non-hazardous waste; the remainder must either be re-treated or managed as hazardous. "EPA RCRA Delisting Program--Guidance Manual for the Petitioner" at 7-8, USEPA Region 6 (Mar. 23, 2000).

The Board requires that PDC collect representative grab samples from each treated mixer load to produce a daily composite "batch" sample of the EAF dust stabilized residue. Before disposal, the daily composite sample must be analyzed for all CoCs. Only when an individual treated batch meets the delisting levels is PDC authorized to manage that batch as non-hazardous waste.

Under the USEPA Guidance Manual, after the initial round of testing to establish the final list of CoCs, "[a]ll subsequent samples should be analyzed for totals concentrations and by the TCLP methodology for all constituents on the final COC list." "EPA RCRA Delisting Program--Guidance Manual for the Petitioner," App. H, Att. 2, USEPA Region 6 (Mar. 23, 2000). PDC is only proposing TCLP analysis. Pet. at 15. The TCLP analysis produces results from a leachate of the waste, and concentration is reported in mg/L for a liquid. The totals analysis detects the total amount of the constituent in the sample, and concentration is reported in mg/kg for a solid. DRAS produces delisting levels in both mg/L and mg/kg depending on the limiting pathway — the pathway with the lowest acceptable exposure limit (*e.g.*, groundwater ingestion versus soil ingestion).

Although PDC's proposed monitoring does not include totals analysis, neither does the USEPA delisting of Heritage for 13 of the 14 metals monitored in the treated EAF dust waste. 54 Fed. Reg. 75905 (Dec. 5, 2002). As Tracy Meints Fox notes, USEPA imposed a delisting level for total mercury in Heritage. PC 313 at 4. USEPA explained, however, that the Heritage delisting requires totals analysis for mercury (mg/kg) because mercury was the majority component in the aggregated hazard index:

> The aggregated hazard index for this waste is estimated to be 0.965, which does not exceed the EPA Region 5 Delisting Program's target of 1.0. The majority of this aggregate hazard index, 0.774, occurs as a result of migration of mercury to surface water followed by ingestion of fish by humans. For this reason, a delisting level for total mercury in the waste will also be imposed. 65 Fed. Reg. 75897, 75902 (Dec. 5, 2000).

The maximum observed mercury concentration in PDC's EAFDSR contributes 0.16 to the overall aggregate hazard index of 0.52. Resp. to HOO, Exh. A at 12, citing TSD, App. H. The contribution of mercury here therefore does not make up the majority of the aggregate hazard index as it did in the Heritage delisting. The hazard quotient of 0.16 for mercury was calculated using DRAS provisional v.3 outputs provided by USEPA Region 5 to avoid errors in the earlier DRAS v. 2. *Id.* The aggregate hazard of 0.52 is well below the maximum aggregate hazard of 1.0. *Id.* Under these circumstances, the Board finds that totals analysis for mercury is not necessary and that analysis by the TCLP methodology is sufficient.

The Board finds that if the TCLP test results show an exceedence of any delisting level concentration, the treatment residue batch must be:

- Cured further as the chemical reagents complete their reactions, followed by verification composite sampling and analysis again;
- Reprocessed (*i.e.*, re-treated) in the WSF, followed by verification composite sampling and analysis again; or
- Managed as a K061 hazardous waste at a properly permitted RCRA Subtitle C facility. Pet. at 4-5, 14.

For the demonstration trial involving additional curing time (round 10) and re-treatment (round 11), the TSD states that "it was not necessary to analyze for all COCs during these last two rounds, just those that exceeded proposed delisting concentrations." TSD at 4-4. PDC originally proposed to limit the constituents analyzed after additional curing or re-treatment to only those that exceeded the delisting level in the prior sampling round. Resp. to HOO, Exh. A at 14.

As discussed above, however, the TSD explains that over-treatment is possible where the solubility of amphoteric metals increases above a known pH range. TSD at 3-19. The TSD also mentions that PDC conferred with the consultant who developed the new stabilization technology to "establish the appropriate reagent recipe for re-treatment that would provide sufficient additional treatment without over-treatment." TSD at 6-3. Board staff inquired about

how PDC would verify that over-treatment does not occur when a batch is re-treated. In response, PDC states:

> PDC proposed limiting the constituents analyzed after further treatment to only those that exceeded the delisting level in the prior round because of the low probability of overtreatment given the knowledge gained from the initial analysis, i.e., once batch-specific constituent concentrations and extraction pH data are known, optimizing reagent proportions for effective re-treatment is relatively simple and yields a very high initial success rate. However, PDC would not object to analyzing all 14 metals in each round of testing. Resp. to HOO, Exh. A at 14; *see also* PC 33-1-2 (Baker & McKenzie, LLP suggesting that re-treated EAFDSR be analyzed for all 14 metals).
>
> To this end, PDC proposed that the following language be added to condition 3(c):
>
> All verification analyses shall be conducted on a composite sample that effectively represents the entire batch as did the initial sample, and include analysis of all 14 constituents identified in condition 4. *Id*.

The Board adopts this approach but deletes the reference to "14" constituents as condition 4 now also includes dioxins and furans.

Finally, as noted above, a number of public commenters express concern over the perceived lack of "independent" testing in PDC's demonstration analyses. *See* Postcard 1; Postcard 2; Tr. at 78, 85; PC 222 at 1; PC 305; PC 86 at 1. PDC states that for the verification testing under the adjusted standard, it will use "a testing laboratory with all required certifications." Br. at 39. PDC notes that it "does not own 'its own testing laboratory,'" but does "have an affiliate company that performs the required testing, namely, PDC Laboratories, Inc." *Id*. PDC explains that PDC Laboratories, Inc. is a "commercial environmental laboratory and provides analytical testing to more than 2,000 companies and governmental bodies, including the State of Illinois." *Id*. According to PDC, PDC Laboratories, Inc. is National Environmental Laboratory Accreditation Program-accredited and "as such, routinely undergoes extensive independent audits to ensure data integrity." *Id*. PDC currently uses PDC Laboratories, Inc. to perform verification testing on the delisted F006 treatment residues being shipped to Indian Creek Landfill No. 2. *Id*.

As the Board described, the State of Illinois has laboratory accreditation standards. Those standards, among other things, require NELAC compliance. 35 Ill. Adm. Code 186.110(a), 186.180(b)(3). The Board would expect all testing under the adjusted standard, whether for bench-scale treatability, treatment modification, or verification testing, to be performed by a laboratory accredited pursuant to IEPA's standards at 35 Ill. Adm. Code 186. All analyses must be performed according to USEPA SW-846 methodologies. Further, besides requiring PDC to submit annually to IEPA the verification sampling data, the Board requires PDC to compile and maintain on site for a minimum of three years all analytical data. These on-site records must be furnished by PDC upon the request of, and made available for inspection by, any employee or representative of the State of Illinois.

Disposal of Delisted EAFDSR

USEPA has "generally not restricted how a delisted waste could subsequently be managed, provided it was managed in accordance with the applicable state's nonhazardous waste management requirements." "National Policy for Hazardous Waste Delistings" at 2, Memorandum from Elizabeth A. Cotsworth, Acting Director, Office of Solid Waste, to Regional RCRA Senior Policy Advisors, RO 14282 (July 1, 1998). A conditional delisting "reduce[s] the uncertainty caused by the potential unrestricted use or management to delisted waste." *Id*.

PDC states that it intends to dispose of the delisted material at its affiliated Subtitle D Indian Creek Landfill No. 2 in Tazewell County, Illinois or two other PDC Subtitle D landfills in Illinois (Clinton Landfill in Clinton and Pike County Landfill in Baylis), but "primarily at Indian Creek Landfill #2." Br. at 4; Pet. at 3. However, PDC originally proposed as a condition of the delisting that the EAFDSR be disposed of "in a lined landfill with leachate collection and all necessary authorizations to receive the non-hazardous EAF dust stabilized residues." Pet. at 14. PDC further characterized such landfills as those that are "licensed, permitted, or otherwise authorized to accept the delisted waste in accordance with all applicable RCRA Subtitle D requirements." *Id*. at 19. Further, the landfill must be located within the State of Illinois. *Id*.

Responding to the questioning of Board staff as to what types of landfills could be used other than permitted landfills, PDC explained:

> While it may be possible under federal rules for a state(s) to authorize landfills to accept industrial process wastes other than by permit, it is not possible in Illinois and PDC does not object to modifying the Petition accordingly. While the narrative discussion of the proposed adjusted standard conditions includes the subject language, proposed condition 2 itself effectively excludes non-permitted landfills in its existing form. Resp. to HOO, Exh. A at 14-15.

To "better reflect Illinois regulatory requirements," PDC suggested the Board could consider revising the condition as follows:

> The EAF dust stabilized residue shall be disposed of pursuant to the Board's non-hazardous landfill regulations found at 35 Ill. Adm. Code 810-815, and disposed of in a lined landfill with leachate collection and all necessary ~~authorizations~~ IEPA-issued permits to receive the non-hazardous EAF dust stabilized residues. Resp. to HOO, Exh. A at 15.

PDC's final submission contains language that would permit PDC to dispose of delisted EAFDSR at any "lined landfill with leachate collection" in Illinois that has "all necessary permits issued by [IEPA] to receive the non-hazardous EAFDSR." Br. at 78.

The Board appreciates PDC's attempted clarifications. The Board finds, however, that PDC's reference to "all necessary IEPA-issued permits" or "all necessary permits issued by [IEPA]" still begs the question of whether an IEPA permit is "necessary" for a given facility.

PDC couples this language with a reference to Part 815, under which disposal in a permit-exempt, on-site facility may be permissible. Such a disposal scenario, of course, is contrary to PDC's intent, as evidenced by PDC's repeated representations that the EAFDSR would be disposed of in a Subtitle D landfill (*i.e.* municipal solid waste landfill). *See*, *e.g.*, Br. at 2 (proposing that the treatment residue be "deemed a delisted waste subject to disposal in a RCRA Subtitle D landfill"), 38 ("RCRA Subtitle D IEPA-permitted landfills in Illinois").

The Board amends condition 2 accordingly. For EAFDSR to come within the scope of the delisting, the treatment residue must be disposed of off-site in a Subtitle D landfill meeting all of the requirements set forth in condition 2(c). *See* BFI Waste Systems, AS 08-5, slip op. at 44 ("the leachate will not be considered delisted unless disposed of in a waste water treatment facility in Illinois with a pretreatment program approved by USEPA."). The Board's addition of an explicit reference to "Subtitle D landfills" in the order is consistent with USEPA's CSI delisting, where USEPA stated:

> Although the CSEAFD wastes covered by this petition are excluded from regulation as listed hazardous wastes under Subtitle C upon today's final exclusion, this exclusion applies only where these wastes are disposed of in Subtitle D landfills. 60 Fed. Reg. 31107, 31113 (June 13, 1995).

As noted, PDC proposes language for the adjusted standard requiring that the material be disposed of in a "lined landfill with leachate collection." Br. at 78. PDC's TSD further states:

> PDC intends to dispose of the EAFDSR in one of its affiliated Subtitle D landfills located in Illinois, which landfill will have an IEPA-mandated groundwater monitoring program. TSD at 7-1.

Consistent with PDC's representations and USEPA's Heritage delisting, the Board adds to the adjusted standard conditions that the landfill must also have a groundwater monitoring system. *See* 67 Fed. Reg. 1888, 1895 ("disposed of in a Subtitle D landfill which has groundwater monitoring"). While groundwater monitoring is required of RCRA Subtitle D landfills in Illinois (35 Ill. Adm. Code 811, 814), this Board amendment to the condition avoids any potential ambiguity.

Change in Treatment Chemicals or Treatment Process

PDC states that its proposed adjusted standard language "allows conditioned flexibility regarding the chemical technology employed." Pet. at 18. As condition 3(b), PDC proposes "procedures for qualifying any significant change in the chemical treatment regimen." *Id*. PDC represents that in pre-petition conversations, USEPA "generally consented to a procedure that would allow for some flexibility" and IEPA suggested that PDC "formalize" the procedure in adjusted standard language. *Id*.

PDC explains that its experience shows that over time, the availability of specific chemicals from specific sources is subject to change, and "even like chemicals from different sources can vary markedly in their specific chemical make-up." Pet. at 18. PDC proposes a

qualifying procedure that would allow it to change chemicals without "re-petitioning" the Board as "technologies evolve and improve, and the availability of chemicals and sources inevitably change." *Id*. PDC argues that its qualifying procedure ensures that:

> any change in chemicals from the technology employed in the in-plant trials will result in a treatment regimen that is equally robust and undergo the testing necessary to demonstrate that the EAFDSR will be non-hazardous with respect to the original listing criteria. *Id*.

PDC elaborates that for purposes of condition 3(b), "significant change" would mean "the utilization of a chemical treatment regimen containing different active ingredients." Pet. at 18. By way of example, PDC states that:

> purchasing the same chemical from a different source would not be a significant change; nor would transitioning from one lime-based chemical to another. However, changing from a lime-based chemical to a phosphate-based chemical, for instance, would be a significant change and the proposed qualification procedure would be required. *Id*. at 19.

Before implementing any "significant change in treatment chemicals" as part of the full-scale treatment process, PDC proposes to undertake a multi-step review process, beginning with the "evaluat[ion of] each new chemical or chemical treatment regimen for the presence of potential constituents of concern (COC's)." Br. at 79. This evaluation would be designed to "identify any potential COC's reasonably expected to be present at concentrations of concern" in the stabilized residue resulting from the new chemical treatment regimen. *Id*. PDC asserts that the chemicals it purchases are of documented chemical composition. PDC states that it would evaluate each chemical for its potential to contribute to CoCs using Material Safety Data Sheets (MSDS), product specification sheets, supplier process knowledge, and laboratory data provided by the chemical supplier. Resp. to HOO, Exh. A at 3. Further, PDC states that if the absence of CoCs cannot be verified by those means, PDC would arrange for laboratory analysis of a representative sample for "any constituents reasonably expected to be present at a concentration of concern" in the EAFDSR resulting from a new chemical treatment regimen. *Id.*

PDC compares this initial evaluation step to existing regulations that allow generator knowledge to be used in evaluating the presence of hazardous constituents in a decharacterized hazardous waste. Resp. to HOO, Exh. A at 3, citing 35 Ill. Adm. Code 728.102. PDC's RCRA Part B permit also contains a similar condition allowing use of an MSDS in lieu of analytical results to determine hazardous constituents in off-specification, unused, or discarded commercial chemical products. Resp. to HOO, Exh. A at 3, Att. 3, Special Condition X(G)(6)(e)(5).

PDC would then "eliminate a constituent from further evaluation" based on the TSD screening concentrations. Next, PDC would conduct further evaluations "which may include running the then-approved version" of DRAS. Ultimately, PDC would proceed with the change in chemicals if PDC's evaluation "demonstrates that the treated EAF dust stabilized residue does not exceed the target human health and environment risk factors upon which the approved Petition is based." Br. at 79-80.

At least 15 days before adopting any significant change in the full-scale treatment process, PDC proposes to "submit a report of the technology modification demonstration and bench-scale treatability testing to the IEPA." Br. at 80. PDC presumes that this condition would not require IEPA review and approval of the demonstration. Resp. to HOO, Exh. A at 3. PDC also proposes that the Board's order set forth the following statement: "The Illinois Pollution Control Board recognizes that insofar as the submittal contains non-disclosable information regarding a specific proprietary chemical or chemical treatment regimen, PDC may redact such information from its submittal to the IEPA."

Rick Fox opposes PDC's proposed language "to extend the scope of the delisting whenever it decides to change the underlying chemistry of its treatment process." PC 314 at 2. Fox asks the Board to deny PDC "free license to vary its secret process with no justification whatsoever just the bland assertion that things change over time." *Id*.

The Board notes that in the Heritage and CSI delistings, USEPA addressed the prospect of significant changes in the K061 treatment processes at issue. 67 Fed. Reg. 1888, 1893, 1895 (Jan. 15, 2002); 60 Fed. Reg. 31107, 31112-31114 (June 13, 1995). USEPA's language on "changes in operating conditions" in the 2002 Heritage delisting requires Heritage to provide USEPA with written notification of any significant change to the treatment process or the chemicals used in the treatment process. USEPA stated "[a] change either to the treatment process or in the chemicals used is significant if it results in a change in composition of the waste." 67 Fed. Reg. at 1893. Heritage must handle wastes generated after the significant change as hazardous until:

- Heritage demonstrates that the waste continues to meet delisting levels;
- Heritage demonstrates that no new hazardous constituents listed in Appendix VIII of Part 261 have been introduced; and
- Heritage receives written approval from USEPA. 67 Fed. Reg. at 1895 (¶3).

The corresponding condition in the 1995 CSI delisting reads:

> (4) *Changes in Operating Conditions:* After initiating subsequent testing as described in Condition (1)(C), if CSI significantly changes the stabilization process established under Condition (1) (e.g., use of new stabilization reagents), CSI must notify the Agency in writing. After written approval by EPA, CSI may handle CSEAFD wastes generated from the new process as non-hazardous, if the wastes meet the delisting levels set in Condition (3). 60 Fed. Reg. at 31114.

USEPA elaborated on this condition:

> CSI will require a new exclusion if the treatment process specified for any Super Detox™ treatment facility is significantly altered beyond the changes in operating conditions described in Condition (4). Accordingly, the facility would need to file a new petition for a changed process. The facility must manage wastes generated

from a changed process as hazardous until a new exclusion is granted. 60 Fed. Reg. at 31113.

The Board finds that PDC's proposed condition 3(b) is substantively different from the conditions in USEPA's Heritage and CSI delistings. A fundamental feature of USEPA's approach in both cases is that the company could not handle waste generated by the new treatment process as non-hazardous unless and until the company received USEPA's written approval. PDC's proposal, on the other hand, would allow the company to unilaterally amend the delisting.

As PDC proposes, before adopting the significant change in the full-scale treatment process, PDC would have to "submit a report" of its risk analysis to IEPA, but not for review and approval. PDC itself would be left to determine whether PDC made the necessary demonstration. Conceivably, PDC could arrive at CoCs and delisting levels not in condition 4. Further, as is evident from this record, questioning from IEPA and Board staff has led PDC to amend its proposed adjusted standard a number of times. Further, the Board's order below makes several amendments to PDC's proposal, including adding a CoC, all based on this well-developed record. In short, government scrutiny, aided by public input, has resulted in meaningful changes to the proposed delisting.

The Board also finds that PDC's concept of "significant change" is not consistent with USEPA's Heritage and CSI delistings. PDC would define "significant change" as "the utilization of any new chemical or chemical treatment regimen containing active ingredients different from those utilized in the full-scale, in-plant trials represented in the Petition." Br. at 80. PDC therefore limits significant chemical changes to differing "active ingredients," which may not encompass new hazardous constituents. PDC also addresses only changes in treatment chemicals, to the exclusion of changes in the treatment process. Of course, without a "significant change," as PDC defines it, PDC's multi-step review process would never be triggered.

The delisting issued today is based upon the demonstration PDC made in this record. PDC has established that the treatment process and chemicals used in the full-scale, in-plant trials are effective. That is the demonstration on which the Board held a public hearing and on which the public commented. The Board appreciates PDC's desire for flexibility in its operations. Consistent with the RCRA Part B permit, condition 3(a) of the adjusted standard allows PDC to add K061 waste streams after bench-scale treatability testing shows the material can be treated to consistently meet the delisting levels of condition 4. The Board finds it inappropriate, however, to allow a company to make, in effect, a new delisting demonstration, largely in a vacuum. By USEPA delegation, the Board is the delisting authority in Illinois. *See* 55 Fed. Reg. 7320 (Mar. 1, 1990). Moreover, the Board "will not grant any petition that would render the Illinois RCRA program less stringent than if the decision were made by USEPA." 35 Ill. Adm. Code 720.122(q).

For all of these reasons, the Board declines to adopt PDC's proposed condition 3(b). The Board instead adopts a substantially different condition 3(b), providing limited flexibility to PDC without relinquishing the delisting determination to the company. As described more fully

below, if a change to PDC's treatment process or chemicals results in, for example, the introduction of a new hazardous constituent to the resulting residue, PDC may seek to bring the new treatment residue within this delisting's scope by filing a petition with the Board for an amendment to the adjusted standard. That petition for amendment would require public notice in a newspaper of general circulation, allowing interested persons the opportunity to request a public hearing.

The Board's condition 3(b) is consistent with USEPA's Heritage and CSI delistings. The Heritage condition on changes in operating conditions reads:

> (3) *Changes in Operating Conditions:* If Nucor significantly changes the manufacturing process or chemicals used in the manufacturing process or Heritage significantly changes the treatment process or the chemicals used in the treatment process, Heritage or Nucor must notify the EPA of the changes in writing. Heritage and Nucor must handle wastes generated after the process change as hazardous until Heritage or Nucor has demonstrated that the wastes continue to meet the delisting levels set forth in Paragraph (1) and that no new hazardous constituents listed in Appendix VIII of Part 261 have been introduced and Heritage and Nucor have received written approval from EPA. 67 Fed. Reg. 1888, 1895 (Jan. 15, 2002).

The Board finds that any change by PDC in the treatment chemicals from those used in the full-scale, in-plant trials is significant and necessitates analytical testing by PDC. As PDC concedes, "even like chemicals from different sources can vary markedly in their specific chemical make-up." Pet. at 18. Specifically, the Board defines a "significant change" in the treatment chemicals as a difference in the treatment chemicals from those used in the petition's full-scale, in-plant trials, including different chemicals and different ratios, dosages, or sources of the same chemicals. The "significant change" provision, however, does not apply to using different ratios or dosages of the same chemicals from the same sources when re-treating a batch following non-compliance with a delisting level, unless the different ratios or dosages could introduce a new hazardous constituent to the new treatment residue. The Board intends "ratios or dosages" to include the proportions of reagent chemicals to each other and to the make-up water and EAF dust. The Board further finds that any lessening by PDC of the mixing effort from that used in the full-scale, in-plant trials is a significant change to the treatment process and necessitates analytical testing by PDC. Specifically, the Board defines a "significant change" in the treatment process as mixing effort less than that used in the Petition's full-scale, in-plant trials.

Before implementing any significant change in the full-scale treatment process or the chemicals used in the full-scale treatment process, PDC must have representative samples of the new treatment residue laboratory-tested for the following:

- Compliance with the delisting levels of condition 4;
- The constituents of 35 Ill. Adm. Code 724.Appendix I, less pesticides and herbicides;
- Oil and grease, pH, total cyanide, total sulfide; and
- The RCRA toxicity characteristic constituents of 35 Ill. Adm. Code 721.124.

PDC seeks condition 3(b) so that the delisting would cover waste residues resulting from treatment with chemicals different from those on which the delisting is based. Requiring analytical testing consistent with 35 Ill. Adm. Code 720.122(h) is therefore warranted. PDC acknowledges that "under current operations PDC routinely performs some bench-scale testing prior to implementing even minor changes to ensure that the efficacy of the treatment is not jeopardized, which could result in expensive and unnecessary re-treatment." Pet. at 19. Further, the specific analytical testing required is consistent with PDC's proposal: "the universe of potential COC's that must be considered is the same as that considered for the Petition." Br. at 79; *see also* TSD. The Board will require PDC to submit the test results to IEPA.

If the test results show (1) no exceedence of any delisting level of condition 4 and (2) no detection of any "new hazardous constituent," then the "new treatment residue" would come within the delisting, subject to bench-scale treatability compliance. In that instance, PDC would not have to "re-petition" the Board. This approach provides not only a measure of operational flexibility, but also laboratory results confirming that the change in chemicals or process presents no regulatory concern. The Board defines a "new hazardous constituent" as a chemical listed in 35 Ill. Adm. Code 724.Appendix I that was (1) not detected as part of the petition or (2) detected as part of the petition and excluded from the delisting levels, but which is detected during this "significant change" testing (described above) at a concentration exceeding the highest concentration detected as part of the petition. "New treatment residue" is defined as the waste resulting from treatment after a significant change in the treatment process or chemicals.

However, if the testing reveals that after the significant change in the treatment chemicals or process, there is (1) an exceedence of one or more delisting levels of condition 4 or (2) a detection of one or more new hazardous constituents, then PDC would have to file a petition with the Board if it wishes to bring the new treatment residue within the scope of the delisting. PDC would have to handle any wastes generated using the altered chemicals or process (*i.e.*, "new treatment residue") as hazardous unless and until the Board issues a written decision granting the petition under 35 Ill. Adm. Code 720.122. If the petition to amend were granted by the Board, any amendments to the CoCs and associated delisting levels would appear in a modified condition 4.

Through modified condition 3(a), bench-scale treatability testing would be required, *i.e.*, showing that the significantly-changed chemicals or process can treat *all* K061 waste streams to delisting levels. Finally, the Board finds PDC's suggested language about redaction unnecessary. The Board's condition 3(b) requires the submission of analytical data to IEPA, not the delisting demonstration PDC had proposed. Nor has PDC raised confidentiality concerns over having to submit bench-scale treatability reports to IEPA under condition 3(a).

Delisting is Specific to PDC's Peoria Facility

PDC's proposal refers simply to an adjusted standard grant to PDC for K061 treatment using the technology described in the petition. There is no mention of the delisting being limited to the operation of that technology at the PDC facility located at 4349 W. Southport Road in Peoria, Peoria County.

As stated in Section 720.122(b), "[t]his exclusion may only be granted for a particular generating, storage, treatment, or disposal facility." 35 Ill. Adm. Code 720.122(b); *see also* 35 Ill. Adm. Code 720.122(a) ("seeking to exclude a waste from a particular generating facility"). Section 720.122(k) similarly provides that "[a]n exclusion will only apply to the waste generated at the individual facility covered by the demonstration and will not apply to waste from any other facility." 35 Ill. Adm. Code 720.122(k). USEPA has interpreted the "particular facility" language in the corresponding federal regulations. As discussed above, in the federal CSI delisting, USEPA granted a "multiple-site delisting" for chemically stabilized electric arc furnace dust (CSEAFD) generated by CSI using its modified Super Detox™ process at the existing Sterling, Illinois facility of Northwestern Steel and future facilities to be constructed. 60 Fed. Reg. 31107, 31108 (June 13, 1995). USEPA stated:

> The statute and regulations do not limit the availability of delisting decisions to wastes generated at a single facility. *** The term "particular facility"' refers to a specific qualifying facility and there is no bar to a delisting covering more than one particular, and qualifying, facility. The language limits delistings to an identified and qualifying facility or facilities; it does not limit them to a "single" facility. The intent of this language is to indicate that, because delistings are granted only to specific qualifying facilities, a facility may not manage its waste as non-hazardous based solely on a delisting granted to another facility for the same listed waste. 60 Fed. Reg. 31107, 31110 (June 13, 1995).

However, PDC has not suggested in this record that it seeks to use its new stabilization technology elsewhere or that PDC expects the delisting to apply anywhere but at its Southport Road facility in Peoria. The Board clarifies the adjusted standard by limiting it to that facility, as was plainly intended.

Delisting's Duration and Volume Cap

PDC seeks a multi-year delisting for as long as PDC maintains a valid RCRA Part B permit for the WSF. Pet. at 4. PDC proposed language has an effective date for the delisting, but fails to mention the duration of the adjusted standard. The Board addresses this omission in condition 1. Further, consistent with Board precedent, the Board has specified that the date of this order, January 8, 2009, is the effective date of the delisting. *See*, *e.g.*, Keystone Steel and Wire, AS 91-1, slip op. at 18 (Feb. 6, 1992).

PDC estimates the WSF will receive an average of 74,000 TPY of EAF dust, with a maximum of 95,000 TPY. PDC further estimates the maximum amount of EAFDSR generated by the stabilization process will be 142,000 TPY (95,000 cubic yards per year). The delisting has an annual waste disposal volume cap of 95,000 cubic yards, as PDC proposes. *See* 67 Fed. Reg. 1888, 1893, 1895 (Jan. 15, 2002) (annual limit of 30,000 cubic yards of treated waste; "Any treated K061 in excess of 30,000 yds is not delisted.").

K061 Hazardous Waste Until Delisting Levels Met

The Board adds language to make explicit in the order PDC's obligation to handle treatment residue as K061 RCRA listed hazardous waste unless and until it meets the delisting levels of condition 4 after testing pursuant to condition 3. This addition is consistent with USEPA's CSI delisting, which provides:

> CSI must store as hazardous all CSEAFD generated until verification testing as specified in Conditions (1)(A) and (1)(C), as appropriate, is completed and valid analyses demonstrate that Condition (3) [delisting levels] is satisfied. If the levels of constituents measured in the samples of CSEAFD do not exceed the levels set forth in Condition (3), then the CSEAFD is non-hazardous and may be disposed of in Subtitle D landfills. 60 Fed. Reg. 31107, 31114 (June 13, 1995); *see also* Peoria Disposal Co., AS 91-3, slip op. at 9 (Mar. 11, 1993) ("The adjusted standard granted requires PDC to manage all treated F006 batches as RCRA hazardous waste until testing demonstrates that each batch meets the delisting criteria.").

Submittals and Recordkeeping

> USEPA advises its Regions to consider:
>
> including appropriate mechanisms in conditional delistings that would help ensure that the waste was being managed in accordance with the conditions. For example, the Regions may consider adding a condition that the generator keep records, such as those they keep for business purposes, as to where they sent the waste. "National Policy for Hazardous Waste Delistings" at 2, Memorandum from Elizabeth A. Cotsworth, Acting Director, Office of Solid Waste, to Regional RCRA Senior Policy Advisors, RO 14282 (July 1, 1998) http://www.epa.gov/region6/6pd/rcra_c/pd-o/dlistpol.pdf.

In response to Board staff questioning, PDC states that it would not object to a condition in the adjusted standard requiring the company to notify IEPA of each disposal facility to which EAFDSR would be shipped. PDC clarifies that the condition should not be construed as requiring IEPA to review and pre-approve the receiving facilities. Resp. to HOO, Exh. 1 at 2. PDC proposes the following language:

> PDC, at least 15 calendar days before transporting an initial load of delisted EAFDSR to a given disposal facility, shall provide the Illinois Environmental Protection Agency (IEPA) with a one-time, written notification identifying that disposal facility. *Id.*

The Board includes PDC's proposed condition in the final order.

Responding to the questioning of Board staff, PDC indicates that it would also not object to an adjusted standard condition requiring PDC to submit annually to IEPA the data collected pursuant to proposed condition 3(c). Resp. to HOO, Exh. A at 4. Condition 3(c) requires initial verification analytical testing of daily composite samples of the EAFDSR and may entail further

verification analytical testing. PDC estimates the data would fill a minimum of two banker's boxes per year. *Id*. PDC suggests the following addition to proposed condition 3(c):

> PDC shall submit annually to the IEPA the data (and/or subset or summary thereof to which the IEPA agrees) collected pursuant to this condition. *Id.*

USEPA imposed a similar condition in the Heritage delisting, which applied to verification testing as well as testing required by other conditions of the delisting. *See* 67 Fed. Reg. 1888, 1895 (Jan. 15, 2002) (¶B(4)). The Board includes PDC's proposed addition with minor modifications.

For consistency with Board and USEPA delistings, the Board also adds familiar provisions to the data submittal certification of condition 5. *See*, *e.g.*, BFI Waste Systems, AS 08-5, slip op. at 43, 46; 35 Ill. Adm. Code 721.Appendix I, Table B (CSI Horsham, Pennsylvania (Sterling, Illinois operations)).

"Reopener" Language

The Baker & McKenzie law firm proposes in public comment that the Board's delisting order, "to be consistent with delistings granted by USEPA," should contain "reopener language similar to that found in the Heritage delisting for K06l (40 CFR 261 Appendix IX Table 2)." PC 33 at 4; *see also* PC 314 at 3 (Rick Fox). For context, the Board sets forth the reopener provision from the Heritage delisting:

> (5) *Reopener Language*—(A) If, anytime after disposal of the delisted waste, Heritage or Nucor possesses or is otherwise made aware of any data (including but not limited to leachate data or groundwater monitoring data) relevant to the delisted waste indicating that any constituent identified in Paragraph (1) is at a level in the leachate higher than the delisting level established in Paragraph (1), or is at a level in the groundwater higher than the maximum allowable point of exposure concentration predicted by the CMTP model, then Heritage or Nucor must report such data, in writing, to the Regional Administrator within 10 days of first possessing or being made aware of that data.
> (B) Based on the information described in paragraph (5)(A) and any other information received from any source, the Regional Administrator will make a preliminary determination as to whether the reported information requires Agency action to protect human health or the environment. Further action may include suspending, or revoking the exclusion, or other appropriate response necessary to protect human health and the environment.
> (C) If the Regional Administrator determines that the reported information does require Agency action, the Regional Administrator will notify Heritage and Nucor in writing of the actions the Regional Administrator believes are necessary to protect human health and the environment. The notice shall include a statement of the proposed action and a statement providing Heritage and Nucor with an opportunity to present information as to why the proposed Agency action is not necessary or to suggest an alternative action. Heritage and Nucor shall have 30

> days from the date of the Regional Administrator's notice to present the information.
> (D) If after 30 days Heritage or Nucor presents no further information, the Regional Administrator will issue a final written determination describing the Agency actions that are necessary to protect human health or the environment. Any required action described in the Regional Administrator's determination shall become effective immediately, unless the Regional Administrator provides otherwise. 67 Fed. Reg. at 1888, 1895-96 (Jan. 15, 2002).

PDC counters that the suggested reopener language is "without purpose for any waste delisted in Illinois and disposed in an IEPA-permitted RCRA Subtitle D landfill." Br. at 55. PDC refers to Illinois requirements for leachate and groundwater modeling, monitoring, and reporting, which:

> are designed to ensure that the overall waste disposal operations at the landfills remain protective of human health and the environment. Therefore, the impact on leachate and groundwater quality of the *entire* landfill facility, including *all* managed wastes and constituents is monitored, not merely a subset of each as would be required by the subject reopener language. Br. at 55-56.

PDC further asserts that with some of the Heritage delisting levels set at or above the hazardous characteristic level or the corresponding LDRs, USEPA "may have deemed waste-specific vigilance necessary." Br. at 57. PDC states that its proposed delisting levels are "well below the toxicity characteristic levels" and nine of PDC's proposed delisting levels are more stringent than those set by USEPA in Heritage. PDC adds that Heritage is not required to test every daily batch, as PDC has proposed. *Id*.

The Board agrees with PDC that a reopener provision is unnecessary here to ensure protection of human health and the environment. USEPA explained that the reopener provision in a delisting decision is designed to give USEPA:

> a mechanism to review the delisting when additional data become available indicating the initial delisting decision was inappropriate or wrong. This is particularly important if the additional data shows that the delisted waste is not behaving in the disposal site as was predicted by the delisting risk assessment model. "National Policy for Hazardous Waste Delistings" at 3, Memorandum from Elizabeth A. Cotsworth, Acting Director, Office of Solid Waste, to Regional RCRA Senior Policy Advisors, RO 14282 (July 1, 1998)

USEPA recommends a model reopener provision or similar language, as used in Heritage, "unless there are clear rationales not to." *Id*. The provision would provide a means for USEPA to "review and act expeditiously on information that a previously granted delisting may be causing a threat to human health or the environment that was unknown at the time the Agency acted initially." *Id*. The reopener provides for the ability to "reopen, revoke, or otherwise suspend the delisting in a timely manner." *Id*.

The Board finds that Illinois' comprehensive environmental regulations, supplemented by corrective action and injunctive authorities under the Act, provide the ability to promptly detect and remedy problems of the sort the reopener is designed to address. *See*, *e.g.*, 415 ILCS 5/4(q), 4(s), 42(e), 43(a) (2006); 35 Ill. Adm. Code 811; *see also* Peoria Disposal Co., AS 91-3, slip op. at 10-11 (Mar. 11, 1993) ("[T]he Agency or PDC can petition the Board for modification of the adjusted standard if future information indicates that this is necessary."). In PDC's case, the Board has also tightened the landfill disposal condition, the bench-scale treatability condition, and the technology modification condition, all as described above.

The Board further finds that Illinois' system of environmental governance does not lend itself to the reopener language that Baker & McKenzie proposes for the Board's order. Generally, for federal environmental programs delegated to the State of Illinois, like RCRA, USEPA's duties are divided between IEPA and the Board. IEPA is responsible for permitting, site inspections, and enforcement referral. The Board functions in a quasi-legislative role, adopting regulatory standards, and in a quasi-adjudicative role, hearing permit appeals, variance-type petitions, and enforcement complaints. Once the Board takes final action in an adjudicatory case, such as an adjusted standard proceeding, the Board does not retain jurisdiction over the case. Just as the Board cannot conduct site inspections or initiate enforcement, IEPA cannot render delisting decisions or, through unilateral action, modify, suspend, or revoke the Board's delisting order.

Section 27(a) of the Act

PFATW and HOI Sierra Club filed a joint public comment opposing PDC's delisting petition. PFATW and HOI Sierra Club state that after failed siting and permit appeals, PDC is now "attempting yet again to extend the life of its hazardous waste facility on the doorstep of Peoria." PC 301 at 2; *see also* PC 10 (Van Winkle); Tr. at 71 and PC 13 (Rudy Habben, Vice Chairman, HOI Sierra Club); PC 23 at 1 (Edwards); PC 300 at 3-4 (Stephen Lester); Postcard 1 ("The delisting is a back door expansion of the landfill, an expansion both Peoria County and the IPCB have already denied."). PFATW and HOI Sierra Club argue that the proposed adjusted standard is inconsistent with the "suitability of location factors" contained in Section 27(a) of the Act (415 ILCS 5/27(a) (2006)). PC 301 at 2; *see also* Tr. at 27 (David Wentworth); Postcard 2.

According to PFATW and HOI Sierra Club, the PDC facility is "located adjacent to the only regulated recharge area in Illinois" and has 53,190 persons living within three miles of it. PC 301 at 1. PFATW and HOI Sierra Club state that the Board must "take into account" the factors of Section 27(a) of the Act. This means, the two groups continue, that the Board must "*remember, realize*" and "*appreciate*" the factual record and Board findings regarding the facility's location and operation in the three recent cases[17] involving PDC. *Id*. at 4, quoting Granite City Div. of Nat. Steel Co. v. PCB, 155 Ill. 2d 149, 613 N.E.2d 719, 733-34 (1993) (emphasis by PFATW and HOI Sierra Club).

PFATW and HOI Sierra Club maintain that PDC has brought this delisting petition "in the midst of a perfect storm of recent evidence and findings related to the identical site." PC 301

[17] Board dockets PCB 06-184, PCB 08-25, PCB 08-42. *See* footnotes 5 and 6.

at 5. The groups argue that several Section 27(a) factors are "equivalent to several corresponding local siting review factors" of Section 39.2(a) of the Act (415 ILCS 5/39.2(a) (2006)):

> Section 27(a) requires the Petitioner to justify its proposed adjusted standard consistent with "the existing physical conditions, the *character of the area* involved, including the character of the *surrounding* land uses, zoning classifications . . ." 415 ILCS 5/27(a)(emphasis added). Section 39.2(a) requires the petitioner to demonstrate that the proposed facility "is so designed, *located* and proposed to be *operated* that the public health, safety and welfare will be protected," and "is *located* so as to minimize incompatibility with the *character of the surrounding area* and to minimize the effect of the value of surrounding property." 415 ILCS 5/39.2(a)(ii) and (iii)(emphasis added). Both Sections 27(a) and 39.2(a) require the appropriate governing body, the Peoria County Board and this Board, respectively, to determine whether the petitioner produced sufficient evidence to satisfy these nearly identical criterions. PC 301 at 5 (emphasis by PFATW and HOI Sierra Club).

PFATW and HOI Sierra Club believe that because the Board in the siting appeal affirmed the Peoria County Board's findings that "the site was not so located as to be protective of the public health, and was incompatible with the surrounding area," the delisting petition is inconsistent with Section 27(a). PC 301 at 5-6.

Further, according to PFATW and HOI Sierra Club, PDC "failed to present any evidence" about how its operations under an adjusted standard "will affect the existing physical conditions and surrounding area of the facility." PC 301 at 6. The groups express concern about containers of EAFDSR being stored in the PDC Landfill No. 1 area, the potential for fugitive dust emissions when EAFDSR is removed from those containers for disposal, and increased truck traffic. *Id*. at 6, 9; *see also* Tr. at 62 (Offutt); Tr. at 103, PC 14 (Edwards). PFATW and HOI Sierra Club argue that these activities "will directly and negatively impact the location and the surrounding areas." PC 301 at 6.

The Board notes initially that whatever similarities there may be between certain Section 27(a) factors and Section 39.2(a) criteria, the Board was sitting in a reviewing posture in the siting appeal PCB 06-184. That is not the case with this delisting. The Board in the siting appeal was not the trier of fact and did not determine that PDC's expansion proposal was unprotective of public health or incompatible with the character of the surrounding area, but rather that the Peoria County Board's determinations on those contested criteria were not contrary to the "manifest weight of the evidence." Peoria Disposal Co. v. IPCB & County of Peoria, 896 N.E.2d 460, 324 Ill. Dec. 674, 2008 Ill. App. LEXIS 999, *43 (3rd Dist., Oct. 7, 2008) ("The established standard is for the PCB to review the local siting authority's decision on the statutory criteria to determine if that decision is against the manifest weight of the evidence.").[18] Under that deferential standard of review, the Board may not reweigh the

[18] As described in footnote 5, PDC has filed a petition for leave to appeal with the Illinois Supreme Court.

evidence on the siting criteria to substitute its judgment for that of the local siting authority. *See* Fairview Area Citizens Taskforce v. PCB, 198 Ill. App. 3d 541, 550, 555 N.E.2d 1178, 1184 (3d Dist. 1990); Waste Management of Illinois, Inc. v. PCB, 187 Ill. App. 3d 79, 81-82, 543 N.E.2d 505, 507 (2nd Dist. 1989); Tate v. PCB, 188 Ill. App. 3d 994, 1022, 544 N.E.2d 1176, 1195 (4th Dist. 1989). Instead, the Board must affirm the local siting authority's determination unless "the opposite conclusion is clearly evident, plain or indisputable." Land and Lakes Co. v. PCB, 319 Ill. App. 3d 41, 53, 743 N.E.2d 188, 197 (3rd Dist. 2000). Moreover, the proposed facility in the PCB 06-184 siting appeal was a vertical and horizontal expansion of the landfill. No such expansion is at issue here.

Section 28.1 of the Act addresses adjusted standards and refers to Section 27(a) of the Act, which states in part:

> In promulgating regulations under this Act, the *Board shall take into account* the existing physical conditions, the character of the area involved, including the character of surrounding land uses, zoning classifications, the nature of the existing air quality, or receiving body of water, as the case may be, and the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution. 415 ILCS 5/27(a) (2006) (emphasis added).

PFATW and HOI Sierra Club argue that PDC has not provided sufficient evidence to satisfy the Section 27(a) factors. By its terms, however, Section 27(a) does not state a burden of proof or an evidentiary standard that must be met. Rather, Section 27(a) sets forth factors for the *Board* to "take into account." 415 ILCS 5/27(a) (2006). This construction of Section 27(a) was articulated by the Illinois Supreme Court some 15 years ago:

> Generally, the phrase "'take into account'" means "'allow for, make allowance for, weigh carefully, consider, take into consideration, bear in mind, remember, realize, appreciate, have in one's mind.' [citation omitted]" [citation omitted] Contrary to petitioners' contentions, under the plain meaning of the statutory language, the Board is only required to "consider" or "weigh carefully" the technical feasibility and economic reasonableness of compliance with proposed regulations in the rulemaking process.
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> ***
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> In light of the above, we conclude that section 27(a) does not impose specific evidentiary requirements on the Board, thereby limiting its authority to promulgate only regulations that it has determined to be technically feasible and economically reasonable. Rather, section 27(a) requires only that the Board consider or take into account the factors set forth therein. Granite City Div. of Nat. Steel Co. v. PCB, 155 Ill.2d 149, 181, 183, 613 N.E.2d 719, 733-34 (1993).

In turn, Section 28.1(a) of the Act, which references Section 27(a), specifically states: "After adopting a regulation of general applicability, the Board may grant, in a subsequent adjudicatory determination, an adjusted standard for persons who can justify such an adjustment consistent with subsection (a) of Section 27 of this Act." 415 ILCS 5/28.1(a) (2006). Section 28.1(a) accordingly provides that the Board may grant, consistent with Section 27(a), an adjusted

standard "for persons who can justify such an adjustment." 415 ILCS 5/28.1(a) (2006). The Board therefore must consider the record of the adjusted standard proceeding in light of the Section 27(a) factors, but there is no threshold of evidence that the adjusted standard petitioner must meet with respect to those factors. *See* Krohe v. City of Bloomington, 204 Ill. 2d 392, 395, 789 N.E.2d 1211, 1212 (2003) ("The best indication of legislative intent is the statutory language, given its plain and ordinary meaning."). As noted above, the Board, in accordance with Section 28.1(b) (415 ILCS 5/28.1(b) (2006)), "specif[ied] the level of justification required of a petitioner" for hazardous waste delistings in Section 720.122 of the Board's regulations (35 Ill. Adm. Code 720.122).

The Board has carefully considered the information in this record in view of the Section 27(a) factors, as required by Section 28.1(a), and finds that the delisting may be granted consistent with those factors. *See* Shell Oil Co. v. IPCB, 37 Ill. App. 3d 264, 274, 346 N.E.2d 212, 221 (5th Dist. 1976) ("The requirement of section 27 is a flexible one and of necessity requires that a great deal of discretion be exercised by the Board.").

Many commenters express concern over protecting the San Koty and Mahomet aquifers, which are "the source of drinking water and household water for all of Central Illinois." Tr. at 120, PC 16 at 5 (Rosson); *see also*, *e.g.*, PC 88 (William Parr); Postcard 1; Postcard 2; PC 3 (Blumenshine); Tr. at 62 and PC 20 at 1 (Offutt); Tr. at 99-100 (Susan Gerard); PC 23 at 2, PC 323 (Edwards); PC 87 (Phyllis Pryde); PC 288 at 2 (Vern and Rosemary Guthrie); PC 302 at 4 (Dr. deFur); PC 312 at 9 (Norris, PG); Tr. at 77 (Bucklar).

These concerns stem from the delisting's effect on Subtitle D landfills receiving the material; prolonging the life of PDC No. 1 Landfill; and storing treated EAFDSR within the PDC No. 1 Landfill boundaries. For example, Offutt worries about "repeated compaction and wear and tear to the [PDC No. 1 Landfill] landfill cells of driving these heavy machines and heavy loads back and forth over them on a daily basis." Tr. at 62-63; PC 20 at 1; PC 315 at 2. She believes the liner system in cell C-1 has already been compromised and is concerned "about the amount of weight that can be placed over this type of waste." Tr. at 63; PC 20 at 1; PC 315 at 3. Tracy Meints Fox asserts that PDC's proposed curing operations "atop older parts of the PDC #1 facility could potentially damage the liner/leachate collection systems safeguarding the San Koty aquifer." PC 313 at 2. Dennis Ford expresses concern over the potential impacts of disposing EAFDSR in Indian Creek Landfill on Indian Creek and the Mackinaw River, which flows into the Illinois River. Tr. at 57-58.

PDC responds that no "IEPA-permitted municipal solid waste landfill in Illinois could receive and maintain an IEPA permit if it were not fully protective of human health and the environment, including any underlying aquifer." Br. at 25. PDC provides the groundwater monitoring information for Indian Creek Landfill No. 2 (TSD, App. E) to demonstrate that it has not impacted groundwater beneath the facility. *Id.* PDC adds that its facility groundwater monitoring program, which monitors the WSF as well as the landfill units, remains in a detection monitoring program due to the "absence of statistically significant increases attributable to the facility operating units." Br. at 53.

As for the impact on PDC's No. 1 Landfill from moving and storing heavy loads associated with the waste treatment operation, PDC points out that its container storage is regulated by PDC's RCRA Part B permit. PDC assures the public that "the proposed delisting is not expected to increase the amount of storage or the normal operations of the WSF relating to storage in any significant way," adding that "[t]he facility roads and landfill liner system were designed to withstand all loading from traffic and container storage." Br. at 45. Under the proposed adjusted standard, PDC's total annual waste disposal volume of EAFDSR is capped at 95,000 cubic yards, which will limit truck traffic. Br. at 53. PDC states that it:

> does not anticipate any significant increase in the number of shipments of EAF dust received at the WSF if the proposed Adjusted Standard is granted. In the event that there is an increase in shipments to the WSF, such increase will be nominal and unrelated to the delisting. *Id*.

As to Offutt's assertion that the liner system in one of the PDC No. 1 Landfill cells may have already been compromised, PDC states that the assertion is not correct and provides information on the facility's lack of groundwater impact. Br. at 70.

The Board notes that PDC has managed K061 EAF dust treatment residue from the existing chemical treatment regimen for more than 19 years at the PDC No. 1 Landfill. Based on review of groundwater monitoring data, IEPA has stated: "Groundwater parameters monitored in the uppermost aquifer below the facility indicate that, at the present time, no groundwater impacts have occurred." TSD at 2-4. Today's order requires PDC to dispose EAFDSR only in a permitted Subtitle D landfill that complies with the Board's landfill standards set forth at 35 Ill. Adm. Code 810 through 814. These standards specify stringent design, performance, and operation standards to protect against groundwater and surface water contamination, including composite liners, leachate collection systems, groundwater monitoring, and runoff and run-on controls. The Board's Subtitle D regulations also specify detailed design and operational requirements that address maintaining the integrity of the landfill, including any stresses caused by operation of heavy equipment.

Similar concerns arose in USEPA's Heritage delisting:

> *Comment:* An independent engineering expert has warned that the massive weight of stabilized K061 on the liner could produce hundreds of high pressure points which will burst and result in leakage of the liner . . . .
>
> *Response:* Currently a liner is the best available technology for landfills, regardless of whether it is a hazardous waste landfill (Subtitle C) or a solid waste landfill (Subtitle D). However, the model used to assess the risk of a delisted waste assumes that no liner is present. 67 Fed. Reg. 1888, 1894 (Jan. 15, 2002).

Such is the case with PDC's modeling here. Further, requirements pertaining to the logistics of the waste treatment operation in terms of storage and movement of heavy loads are contemplated in the landfill design and the provisions of PDC's RCRA Part B permit.

A number of commenters express concern over potential air emissions of contaminants during the proposed additional curing time (volatilization) and loading operations at PDC's facility in Peoria. Tr. at 116-117, PC 16 at 3 (Rosson); PC 302 at 1, 4 (Dr. deFur); PC 20 at 1, PC 315 at 1-2 (Offutt); PC 23, PC 307 (Edwards). Rosson refers to a middle school one-quarter of a mile away and approximately 52,000 people living within a 3-mile radius, adding that she is unaware of any air monitoring being done outside the baghouse facility where treatment occurs. Tr. at 117, PC 16 at 3.

PDC responds that metals such as iron, zinc, and lead would require extremely high temperatures to vaporize. Br. at 38. PDC also refers to its IEPA-issued air emission control permit for the WSF and information "demonstrating that PDC's actual emissions were well below" those permit limits for particulate matter and volatile organic materials. *Id*. at 70.

The Board notes that in USEPA's CSI delisting, one commenter raised the issue of airborne emissions of stabilized EAF dust if it were to deteriorate over time once disposed. USEPA responded by stating that:

> [US]EPA also conservatively assumed that the total constituents in the waste would be readily available for release into air (ignoring that they are contained in the solidified waste matrix). Therefore, this evaluation also addressed the potential deterioration and airborne transmission of the waste. 60 Fed. Reg. 31107, 31111 (June 13, 1995).

DRAS models the fate and transport of EAFDSR via several exposure pathways, including air, and then bases the delisting level on the most sensitive pathway. For PDC's petition, DRAS did not identify inhalation (air) as the most sensitive pathway for any of the constituents of concern. Besides air emissions at PDC's WSF being subject to PDC's air emissions control permit, the Act prohibits air pollution (415 ILCS 5/9(a) (2006)) and the Board's RCRA regulations impose extensive air emission control requirements on hazardous waste treatment, storage, and disposal facilities (35 Ill. Adm. Code 724, 725). The Board further notes that the water in PDC's new treatment process is expected to "eliminate the potential for fugitive dust emissions when [the EAFDSR is] offloaded at the active landfill face." TSD at 3-16.

The Board has taken into account the technical feasibility of treating the EAF dust with PDC's new proprietary stabilization technology, as described in detail above. The Board has also weighed the economic reasonableness of PDC's treatment proposal. PDC currently disposes of the EAF dust treatment residue as hazardous waste in PDC No. 1 Landfill, the company's Subtitle C landfill. Pet. at 2. That landfill is projected to reach capacity in 2009. *Id*. The next nearest Subtitle C hazardous waste landfill is approximately 220 miles away in Roachdale, Indiana. *Id*. PDC emphasizes that transporting K061 treatment residues that distance "unnecessarily consumes a substantial amount of diesel fuel contributing to air pollution." TSD at 1-4. Delisting would save PDC an estimated $12.5 million per year that PDC would otherwise incur in off-site hazardous waste disposal and transportation fees. *Id*.

According to PDC, the delisting will enable the company to continue providing "a cost-effective method of treating EAF dust for steel mills in the Midwest, particularly ones in

Illinois." Pet. at 3. PDC asserts that many of its customers, Midwestern steel mills that generate the EAF dust, have no feasible or economically viable alternative. *Id*. at 12-13. The petition notes that these steel manufacturers are vital to the economy and subject to foreign competition that does not necessarily face as large a cost burden for environmental regulatory compliance. TSD at 1-4, 1-5.

PDC maintains that post-treatment transportation and disposal costs are so much higher if the delisting is not granted that "the viability of continued operations is questionable." Pet. at 12. The estimated difference in costs for hazardous waste versus non-hazardous waste hauling and disposal is $112.90 per ton or $12,531,900 per year, assuming 111,000 TPY of EAFDSR shipped. The costs differential, according to PDC, would be:

> an unbearable hardship for PDC that would result in the loss of most of its K061 accounts (which comprise the majority of the WSF receipts), as well as a dramatically increased and perhaps equally unbearable cost burden for its K061-generating customers in the Midwest, many of which . . . have no feasible or economically viable alternative. *Id*. at 13.

As discussed above, besides the ten K061 waste streams represented in the full-scale, in-plant trials, PDC could in the future treat additional K061 waste streams with its new stabilization technology and bring the resulting treatment residue within the scope of the delisting. Before operation of full-scale treatment of a new K061 waste stream, PDC must verify through bench-scale treatability testing that the waste stream can be treated to meet the delisting levels. PDC must submit a report of treatability testing to IEPA within seven days of completing the testing. PDC explains that it is "important to PDC's viability as an ongoing business enterprise to have flexibility to add additional generators as market conditions change and future opportunities arise without re-petitioning the Board." Pet. at 17.

Rick Fox believes PDC's economic justification oversimplifies the situation. PC 314 at 1. Fox states that PDC assumes the municipal landfill target is Hopedale, which is only 29 miles away, rather than Baylis, which is 117 miles away. *Id*. As to PDC's assertion that the cost of hazardous waste disposal would be unbearable to customers in the Midwest, Fox believes this to be outdated based on the "booming" steel industry described in the August 2008 edition of the *Illinois Business Journal*. *Id*. at 2. PDC responds to Fox's claims by clarifying that its economic comparison recognizes the Indian Creek Landfill No. 2 in Hopedale as the most likely receiving facility. Br. at 66. As to the impact on the steel industry, PDC cites the comments made at hearing by five of its steel mill customers to demonstrate the importance of the WSF to their respective companies. *Id*. at 67.

Chad Erdmann, Environmental Engineering Manager at Keystone Steel & Wire Co., states that if PDC were no longer able to treat and landfill K061 waste, Keystone's cost for waste disposal would increase significantly because of high transportation costs to the next nearest facility. Tr. at 86-87; PC 11. Keystone, located in Bartonville, Illinois, employs over 900 people. Erdmann states that for many years, treatment and disposal by PDC has been convenient and cost effective, and that "PDC is a valuable supplier in Keystone's business plan moving forward." Tr. 86; PC 11.

Illinois State Senator Bill Brady of the 44th District offered his perspective:

> It is my understanding that if PDC does not receive this K061 delisting authorization, it may be forced to lay off most of its 70 union employee workforce in Peoria, which accounts for an approximate $3,500,000 payroll, as this is the largest waste stream that PDC currently processes at its facility in Peoria County. In addition, PDC's steel mill customers would have to transport their K061 waste to more distant outlets, which would have a multi-million dollar cost impact on their facilities. Finally, Tazewell County and Hopedale Township could stand to collectively lose hundreds of thousands of dollars in new host fees for beneficial programs like municipal recycling grants, environmental enforcement activities and road improvement programs. PC 24 at 2.

Again, the Board takes into account these economic matters under Section 27(a) but emphasizes that they "bear no nexus to the issue of whether the stabilized K061 wastes remain hazardous." 60 Fed. Reg. 31107, 31112 (June 13, 1995).

ISSUES RAISED IN PUBLIC COMMENT NOT ADDRESSED ABOVE

Below the Board discusses additional issues raised in public comment. Requests for more hearings are not addressed below because the Board previously ruled on that matter, as described above in the procedural background of this opinion.

Permitting

PFATW and HOI Sierra Club note that PDC's petition mentions that a permit modification will be needed should the adjusted standard be granted. PC 301 at 10. The groups express concern that PDC has not addressed "exactly what permit modifications will be needed." *Id*. According to PFATW and HOI Sierra Club, the Board "should see what permit modifications will be proposed" before granting the delisting. *Id*.

PDC responds that that the groups' position is "clearly not an accurate statement of the law" (Br. at 62), adding that:

> the practical effect of contemporaneous consideration is circular: the permit modification would simply memorialize the delisting, so consideration of the modification prior to or with the delisting would be out of order (*id*. at 63).

PDC concludes by noting that since filing the delisting petition, the company has conferred with IEPA and "confirmed that no permits or permit modifications will be required if the delisting is granted," maintaining that PDC's current RCRA Part B permit is "sufficient to cover PDC's operations in treating the EAFDSR after delisting." Br. at 63.

The Board declines the request of PFATW and HOI Sierra Club. Nor will the Board render a legal opinion on whether a permit modification is required. Such a statement by the Board is not necessary to rule upon this delisting petition.

Siting

PFATW and HOI Sierra Club argue that "PDC needs to go through the local siting approval process before the Petition can be granted" because the proposed delisting "would create a new pollution control facility." PC 301 at 11. According to these groups, PDC is "attempting to turn its PDC No. 1 Landfill waste disposal unit into a transfer station" and would be storing and transferring, for the first time, EAFDSR "special waste." *Id*. at 11-13, citing 415 ILCS 5/3.330(b)(2), (3) (2006). Even "should the Board find that the delisting Petition does not constitute a new pollution control facility, the Board should nonetheless find that EAFDSR is a special waste by virtue of the special handling waste moniker." PC 301 at 13.

PDC responds that "[t]his is a delisting case, not an expansion case requiring siting." Br. at 63. Moreover, PDC continues, none of the categories of the Act's "new pollution control facility" definition apply. *Id*. at 63-64, quoting 415 ILCS 5/3.330(b) (2006). PDC adds that the delisting would not somehow create a "transfer station" under the Act . Br. at 64, citing 415 ILCD 3.500 (2006). PDC also maintains that it currently manages special waste for treatment and subsequent disposal in Subtitle D facilities, so PDC would not be managing such a waste "for the first time," within the meaning of Section 3.330(b)(3) of the Act. Br. at 65. Moreover, PDC has taken the position that the delisted EAFDSR can be managed as a "non-special waste," not subject to the manifesting requirements. PFT at 1-2. PDC states, however, that it:

> maintains an extensive electronic database of all non-special wastes shipped and received by its facilities, and requires bills of lading as hard-copy tracking documents for each shipment. These documents become part of the facility operating record and are available for and subject to IEPA inspection. PFT at 2.

The Board finds that Section 39.2 siting is not a prerequisite to the Board granting this delisting petition. In contrast, the Act does require proof of local siting approval before IEPA may grant a permit for the development or construction of a new pollution control facility. 415 ILCS 5/39(c) (2006). To rule upon this delisting request, however, the Board need not and therefore will not offer legal opinions on the disputed interpretations of "new pollution control facility," "transfer station," and "special waste." Finally, the Board disagrees with Varble's assertion that the K061 delisting would effectively convert Subtitle D landfills into hazardous waste landfills without local siting approval. Tr. at 47; *see also* Tr. at 64 (Offutt). By definition, a conditional delisting excludes the petitioned waste from the category of listed hazardous waste as long as the conditions of the delisting are met, and PDC has demonstrated that the waste does not exhibit any of the hazardous waste characteristics.[19]

Statewide Change in Regulations

[19] *See also* footnote 3.

Diane Jorgensen states that the proposed delisting will create a statewide rule change, allowing PDC to send its EAF dust to any Subtitle D landfill in Illinois. Tr. at 78. Gerard voices similar concern. Tr. at 100. As the Board explained in its September 4, 2008 order, an adjusted standard proceeding, like this delisting case, is not a rulemaking and cannot amend a statewide regulation. 415 ILCS 5/28(a) (2006); *see also* 35 Ill. Adm. Code 102.412(a). This is made clear in the Act, which explicitly exempts adjusted standard proceedings from the rulemaking provisions of the Act and the Illinois Administrative Procedure Act (5 ILCS 100 (2006)). *See* 415 ILCS 5/28.1(a) (2006). Rather, an adjusted standard request is an adjudicatory proceeding, by which the petitioner seeks an alternative standard that would apply to the petitioner in lieu of the regulation of general applicability. *See* 415 ILCS 5/28.1(a) (2006).

Non-Disclosable Information

A number of commenters maintain that they could not assess the risks and effectiveness of PDC's proprietary stabilization technology due to the lack of public access to PDC's claimed non-disclosable information concerning treatment chemical reagents and their constituents. *See* PC 300 at 1, 3 (Stephen Lester, Science Director for the Center for Health, Environment & Justice); PC 302 at 1 (Dr. deFur); Tr. at 74-75 and PC 306 at 1 (Bucklar); Tr. at 101 and PC 307 (Edwards); PC 313 at 2 (Tracy Fox); Postcard 1. Lester suggests that because he found no details on PDC's proprietary process in the TSD, PDC's petition fails to meet USEPA requirements for providing a detailed description of the treatment process generating the petitioned waste. PC 300 at 1.

PDC states that the claimed non-disclosable information contains documents pertaining to the specific chemicals comprising the proprietary chemical treatment regimen and a general description of the reactions that occur in PDC's treatment process. Br. at 31-32. Further, PDC explains that it is contractually prohibited from providing details on the complete reaction mechanism because the chemical treatment technology is owned by Dr. Chowdhury. Br. at 32. PDC emphasizes that the Board has had the opportunity to review this information. *Id*.

The Board notes that similar concerns were raised in the USEPA Heritage delisting, where a participant commented that "[m]uch of the relevant information was confidential business information, such as what treatment reagents were used or specifications of a mixing device." 67 Fed. Reg. 1888, 1893 (Jan. 15, 2002). USEPA responded that "Heritage has claimed information which it submitted on equipment, reagents, and process as confidential. Heritage believes that such information in the public domain could be injurious." *Id*. Similar information was kept confidential in the CSI delisting, where USEPA stated:

> CSI has claimed some treatment process descriptions, including information on how they improved the original Super Detox™ treatment process, as confidential business information (CBI). This information, therefore, is not available in the RCRA public docket for today's notice. 60 Fed. Reg. 31107, 31108 (June 13, 1995), 58 Fed. Reg. 58521, 58524 (Nov. 2, 1993).

As with confidential business information at the federal level, the Illinois General Assembly has made provision in the Act to protect from public disclosure trade secrets and other

non-disclosable information submitted to the State agencies. Those same provisions exclude certain submissions that are not to be kept confidential, balancing the public's right to know with other policy interests, such as protecting secret processes that have competitive business value. 415 ILCS 5/7, 7.1 (2006). The Board's procedural rules (35 Ill. Adm. Code 130) implement these statutory provisions, and allow a petitioner to claim that all or part of a filing constitutes non-disclosable information.

PDC filed along with its petition an application to treat as non-disclosable information certain portions of Appendices B and F to the TSD. PDC filed two versions of these appendices, one with the claimed information redacted and the other un-redacted. The Board received no formal requests for public disclosure of the claimed information and for purposes of today's delisting decision, the Board need not render a determination on PDC's application for non-disclosure. The Board has thoroughly reviewed PDC's claimed information in issuing today's delisting, just as USEPA did with the claimed information of Heritage and CSI. PDC's claimed information will remain protected from public disclosure in accordance with 35 Ill. Adm. Code 130.

Cancer Rate

James L. McGee, M.D., wrote in as the Chairman of the Cancer Committee at OSF Saint Francis Medical Center in Peoria. Through data obtained from the American Cancer Society through the Illinois Department of Public Health, Dr. McGee provides information on cancer rates in Illinois, indicating that Peoria County has "an elevated cancer incidence." PC 220 at 1. Dr. McGee states that "[t]his is not to say that PDC is responsible for the elevated cancer rate in Peoria County, since as scientists, we recognize that carcinogenesis is a multi-factorial problem." *Id*. Dr. McGee expresses concern particularly over health risks from the "*importation and accumulation* of toxic and/or *known carcinogenic chemicals* into Peoria County, by PDC or anyone else." *Id*. at 2 (emphasis in original).

PDC describes Dr. McGee's "perceived risk" as unsubstantiated and undefined. Br. at 58. PDC adds that Peoria County's cancer incidence rate is slightly above the State average and that Peoria County's cancer mortality rate is lower than the State average, citing the data of the Illinois Department of Public Health, Illinois State Cancer Registry (public data as of November 2005), and the Surveillance, Epidemiology and End Results (SEER) Program, SEER*Stat Database": Mortality—All COD Public-Use with State, Total U.S. (1969-2003), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2006 (underlying mortality data provided by NCHS). Br. at 57-58, Exh. G.

Recycling EAF Dust

Blumenshine opposes delistings generally because they result in "perpetuation of an archaic process of producing toxic wastes and burying them rather than processing the wastes for recycling." PC 3. Blumenshine states that the Steel Dust Recycling Center in Millport, Alabama processes over 110,000 tons of EAF dust annually to recycle lead and zinc. PC 3. Bill Spencer notes that major steel mills in other parts of the world are recycling 100% of their EAF dust. Tr.

at 97. Commenters urge governments to oppose delistings that do not lead to recycling (PC 3) and to offer financial support for recycling (Tr. at 98).

Chad Erdmann, environmental manager at Keystone Steel and Wire, states that although the Keystone steel mill is one of the largest recyclers in the area, certain byproducts need to be managed as hazardous waste. Such wastes, he adds, have been for many years treated and disposed of by PDC in an environmentally friendly manner. Tr. at 86; PC 11. Jeannine Kelly, Alton Steel's Director of Regulatory Compliance, also states that PDC's operation is crucial for managing Alton Steel's EAF dust in an environmentally responsive manner. Tr. at 89. John Skelley, Corporate Environmental Affairs Manager for Gerdau Ameristeel, states that while his steel mill prefers to recycle:

> in the case of EAF dust, there is not enough capacity to recycle the annual North American production of 800,000 – 1,100,000 tons. *** There are a number of recycling projects being conducted worldwide to solve the EAF dust recycling challenge, however, it will be a number of years before enough commercial recycling capacity is available." Tr. at 83-84; PC 12.

Gerdau Ameristeel sees PDC's K061 delisting petition as crucial to meet the EAF dust capacity requirements in the interim. Tom Barnett, Solid and Hazardous Waste Manager at Arcelor Mittal, states that in addition to the capacity limitation, the low zinc content of Arcelor Mittal's EAF dust limits its recycling potential. Tr. 90-91. Dave Long, Environmental Manager at Sterling Steel, explains that recyclers do not take EAF dust with low zinc content because there is no monetary incentive to recycle such material. Tr. at 136.

PDC echoes that not all K061 wastes are viable recycling candidates:

> It has been PDC's experience that, as a general rule, the waste market is efficient enough that K061 wastes with higher zinc concentrations are being recycled while PDC's K061 receipts are those with lower zinc concentrations. Perhaps the single greatest determinant of a K061 waste's recycling value is the market price for zinc, which can fluctuate dramatically. Br. at 23-24.

PDC states that until more recycling becomes available as recyclers improve efficiency, steel mills "have to have safe, well run landfills in order to operate." Pet. Br. at 25, quoting Tr. at 91 (Tom Barnett, Arcelor Mittal Steel).

The Board notes that in USEPA's Heritage delisting, a number of commenters claimed that the delisting "would inappropriately and illegally allow for the landfilling of chemically stabilized K061 that is currently being recycled by high-temperature metals recovery ('HTMR') facilities." 60 Fed. Reg. 31107, 31109 (June 13, 1995). USEPA responded that it:

> has no authority to retain this waste as a listed hazardous waste simply because doing so would effectively promote HTMR recycling . . . and reclamation of K061 wastes over treatment and disposal of CSI's chemically stabilized, non-hazardous waste. *** [T]he effect of this delisting on K061 recycling practices is

> speculative in any event. *** [T]he extent to which steelmakers may stop using recycling technologies upon today's delisting in favor of managing EAFD through CSI's Super Detox^{TM} process is unclear. 60 Fed. Reg. at 31109-10.

The Board finds that it would be impermissible under the delisting regulations to deny PDC's petition in an effort to promote recycling.

On-Site Treatment

Edwards suggests that PDC's proprietary treatment process should be employed on-site at the steel plants, where the EAF dust is generated. Then, he continues, the residue could be disposed of in a landfill local to the steel mill. PC 307. Edwards states that this approach would reduce the potential for traffic hazards and the pollution from motor vehicle exhaust. *Id*. PDC responds that "neither PDC nor the Board has the authority to require that steel mills perform on-site treatment." Br. at 31.

The Board notes that an adjusted standard petition must address the efforts needed to comply with the rule of general applicability from which it seeks relief. 35 Ill. Adm. Code 104.406(e). Accordingly, the delisting petitioner is required to present information on alternatives for complying with the RCRA hazardous waste regulations, not on alternative locations for the proposed delisting's treatment process. The Board has no authority to deny a delisting request simply in an effort to promote the development of treatment and disposal of delisted wastes at different sites.

CONCLUSION

After carefully analyzing the entire record, the Board finds that the residue generated from treating K061 EAF dust with PDC's new stabilization technology, upon meeting delisting levels though verification testing, is not RCRA hazardous waste. In accordance with federal and Illinois delisting regulations and precedent, the Board grants PDC's petition for a delisting adjusted standard, subject to the conditions set forth in the order below. However, the Board must deny PDC's request that the company be allowed to substantially modify its chemical treatment process, and thereby this delisting, without first returning to the Board to make the required demonstration.

Based on this record, the treatment residue does not meet any of the criteria under which K061 EAF dust was listed as RCRA hazardous waste. Nor is there any reasonable basis to believe that factors other than those for which the K061 waste was listed warrant retaining the treatment residue as a hazardous waste. Further, the treatment residue does not exhibit any of the characteristics of hazardous waste, *i.e.*, ignitability, corrosivity, reactivity, and toxicity.

Only if the conditions of the adjusted standard are met can PDC dispose of the treatment residue as non-hazardous waste. For example, to qualify for delisting, the treatment residue must not exceed any of the delisting level concentrations for the chemicals set forth in condition 4 of the order. The Board has added dioxins and furans as a constituent of concern. Dioxins and furans accordingly must be monitored for compliance with a delisting level, along with the other

14 chemicals PDC had proposed. Every batch of treatment residue must be representatively sampled and laboratory-analyzed to demonstrate compliance with the delisting levels, *i.e.*, no batch of treatment residue may be disposed of as non-hazardous waste unless and until analytical results for that batch show that every delisting level has been met. Treatment residue meeting the delisting levels must be disposed of off-site in a RCRA Subtitle D landfill that (1) has a liner, a leachate collection system, and a groundwater monitoring system; (2) is permitted by IEPA; (3) meets the requirements of the Board's non-hazardous solid waste landfill regulations at 35 Ill. Adm. Code 810-814; and (4) has all necessary IEPA-issued permits to receive the treatment residue.

The Board wishes to acknowledge the exceptional public participation in this proceeding. The Board received hundreds of public comments, more than in any other delisting case in the Board's history. The Board greatly appreciates the thoughtful contributions made to this record by individual citizens, environmental groups, technical experts, elected officials, and industry representatives. A delisting case, however, is neither a landfill siting appeal nor a permit appeal, the legal standards of which, under the law, cannot be applied here. Nevertheless, every concern expressed in public comment has been thoroughly considered by the Board, and many of those concerns are reflected in the highly protective conditions being imposed today on this delisting.

In addition to those changes to PDC's proposed adjusted standard language discussed in this opinion, the Board made numerous clarifying and organizational amendments. If PDC or IEPA disagrees with any language change made by the Board, either party may file a motion to reconsider or modify. *See* 35 Ill. Adm. Code 101.520(a). A timely-filed motion for reconsideration or modification would stay the effect of today's order until the Board disposes of the motion. *See* 35 Ill. Adm. Code 101.520(c). This delisting will be added to 35 Ill. Adm. Code 721.Appendix I, Table D. *See* 35 Ill. Adm. Code 720.122(n)(3).

ORDER

The Illinois Pollution Control Board (Board) grants to Peoria Disposal Company (PDC) a delisting adjusted standard from 35 Ill. Adm. Code 721.Subpart D, subject to the following conditions:

1. This adjusted standard applies only with respect to PDC's facility located at 4349 W. Southport Road in Peoria, Peoria County, Illinois. This adjusted standard becomes effective on January 8, 2009, and remains in effect for as long as PDC maintains a valid Resource Conservation and Recovery Act (RCRA) Part B permit for the Waste Stabilization Facility (WSF).

2. a. This adjusted standard is provided only for the residue resulting from the treatment of K061 RCRA listed hazardous waste using PDC's new proprietary stabilization technology described in the RCRA Delisting Adjusted Standard Petition for PDC's EAF Dust Stabilized Residue (EAFDSR), including the Technical Support Document, filed by PDC with the Board on April 25, 2008 (Petition); provided, however, that the treatment process and chemicals may be modified pursuant to condition

3(b). The K061 waste streams must be from among the steel mills represented in the Petition's full-scale, in-plant trials; provided, however, that other K061 waste streams may be added pursuant to condition 3(a). This adjusted standard is provided for up to a total annual waste disposal volume of EAFDSR of 95,000 cubic yards.

b. PDC's EAFDSR meeting the delisting levels of condition 4 is non-hazardous as defined in 35 Ill. Adm. Code 721 and no longer subject to regulation under 35 Ill. Adm. Code 722-728 or the permitting standards of 35 Ill. Adm. Code 703; provided, however, that PDC remains obligated to determine whether the EAFDSR is characteristically hazardous waste by operation of Subpart C of 35 Ill. Adm. Code 721. The EAFDSR must meet the verification testing requirements of condition 3 to ensure that hazardous constituents are not present in the EAFDSR at levels of regulatory concern. The EAFDSR must be handled as K061 RCRA listed hazardous waste unless and until it meets the delisting levels of condition 4 as verified by testing pursuant to condition 3.

c. PDC's non-hazardous EAFDSR must be disposed of off-site in a RCRA Subtitle D landfill that:

i. Has a liner, a leachate collection system, and a groundwater monitoring system;

ii. Is located in the State of Illinois and permitted by the Illinois Environmental Protection Agency (IEPA);

iii. Meets the requirements of the Board's non-hazardous solid waste landfill regulations at 35 Ill. Adm. Code 810-814; and

iv. Has all necessary IEPA-issued permits to receive the non-hazardous EAFDSR.

3. Verification Testing.

a. Bench-Scale Treatability Testing.

i. Except as provided in condition 3(a)(ii), PDC must verify through bench-scale treatability testing that each K061 waste stream received by PDC for chemical stabilization can be treated to consistently meet the delisting levels of condition 4 prior to the operation of full-scale treatment of that waste stream.

ii. PDC is not required to conduct bench-scale treatability testing under condition 3(a)(i) for any K061 waste streams from the steel mills already represented in the Petition's full-scale, in-plant trials;

provided, however, that if there is a significant change in the treatment process or chemicals pursuant to condition 3(b), PDC must conduct such bench-scale treatability testing prior to the operation of full-scale treatment of any of those waste streams.

iii. PDC must submit a report of the treatability testing to IEPA within seven days after completing such testing.

b. Modification in Treatment Process or Chemicals.

i. Before implementing any significant change in the full-scale treatment process or chemicals, PDC must, in accordance with 35 Ill. Adm. Code 720.122(h), analyze the new treatment residue for:

A. Compliance with the delisting levels of condition 4;

B. The constituents of 35 Ill. Adm. Code 724.Appendix I, less pesticides and herbicides;

C. Oil and grease, pH, total cyanide, total sulfide; and

D. The RCRA toxicity characteristic constituents of 35 Ill. Adm. Code 721.124.

ii. At least 15 days before implementing any significant change in the full-scale treatment process or chemicals, PDC must submit to IEPA the results of the testing described in condition 3(b)(i) and the bench-scale treatability testing described in condition 3(a).

iii. If no delisting level in condition 4 is exceeded and no new hazardous constituent is detected during the testing described in condition 3(b)(i), then the new treatment residue shall be considered to be within the scope of this adjusted standard, subject to compliance with bench-scale treatability testing requirements under condition 3(a).

iv. If any delisting level of condition 4 is exceeded or if any new hazardous constituent is detected during the testing described in condition 3(b)(i), and PDC wishes to have the new treatment residue considered to be within the scope of this adjusted standard, PDC may file a petition with the Board to amend this adjusted standard. Such petition must comply with 35 Ill. Adm. Code 720.122. New treatment residue must be handled as K061 RCRA listed hazardous waste unless and until the Board issues a written decision granting the petition to amend the adjusted standard under 35 Ill. Adm. Code 720.122.

v. For purposes of condition 3(b):

A. A "significant change" in the treatment process means mixing effort less than that used in the Petition's full-scale, in-plant trials.

B. A "significant change" in the treatment chemicals means a difference in the treatment chemicals from those used in the Petition's full-scale, in-plant trials, including different chemicals and different ratios, dosages, or sources of the same chemicals; provided, however, that this provision does not apply to different ratios or dosages of the same chemicals from the same sources used pursuant to condition 3(c)(ii)(B) unless such different ratios or dosages could introduce a new hazardous constituent to the new treatment residue.

C. A "new hazardous constituent" means a chemical listed in 35 Ill. Adm. Code 724.Appendix I that:

I. Was not detected as part of the Petition; or

II. Was detected as part of the Petition and excluded from condition 4, but which is detected during the testing described in condition 3(b)(i) at a concentration greater than the highest concentration detected as part of the Petition.

D. "New treatment residue" means the waste resulting from treatment after a significant change in the treatment process or chemicals.

c. Testing of Treatment Residue.

i. PDC must collect representative grab samples of each treated mixer load of the EAFDSR and composite the grab samples to produce a daily composite batch sample. This sample must be analyzed for TCLP leachate concentrations for all the constituents listed in condition 4 prior to disposal of the treated daily batch.

ii. If a verification sample does not indicate compliance with all delisting levels, the treatment residue must be:

A. Treated further using additional curing time as the chemical reagents complete their reactions with the waste, followed by another round of verification sampling and analysis;

B. Re-processed through the WSF for re-treatment, followed by another round of verification sampling and analysis; or

C. Managed as K061 RCRA listed hazardous waste at a properly permitted RCRA Subtitle C facility.

iii. All subsequent verification analyses must:

A. Be conducted on a composite sample that represents the entire daily batch as did the preceding sample that contained any concentration of a constituent exceeding the constituent's value in condition 4; and

B. Include analysis for all constituents listed in condition 4.

iv. If all delisting levels are not achieved within the maximum storage time allowed PDC by its RCRA Part B permit, the entire daily batch must undergo re-treatment in the WSF or be managed as K061 RCRA listed hazardous waste as required by 35 Ill. Adm. Code 728 and the WSF RCRA Part B permit.

v. PDC must submit annually to IEPA the data collected pursuant to condition 3(c) and a summary of the data. Alternatively, IEPA may consent to receipt of only the summary or a subset of the data or both.

d. All analyses must be performed according to SW-846 methodologies incorporated by reference in 35 Ill. Adm. Code 720. The analytical data must be compiled and maintained for a minimum of three years on site. These data must be furnished upon request of and made available for inspection by any employee or representative of the State of Illinois.

4. Delisting Levels. Based on testing pursuant to condition 3, the constituent concentration in TCLP leachate from the EAFDSR must not exceed any of the values shown below, otherwise such wastes must be managed and disposed of as K061 RCRA listed hazardous waste in accordance with 35 Ill. Adm. Code 703 and 722-728.

Constituent	**TCLP Delisting Level (mg/L)**
Antimony	0.206
Arsenic	0.0936
Barium	21.0

Beryllium	0.416
Cadmium	0.11
Chromium (Total)	0.6
Lead	0.75
Mercury	0.025
Nickel	11.0
Selenium	0.58
Silver	0.14
Thallium	0.088
Vanadium	3.02
Zinc	4.3
Dioxins/Furans expressed as Total 2,3,7,8-TCDD (Total Tetrachlorodibenzo-p-dioxin) Equivalence	2.05×10^{-10}

5. Data Submittal. All data must be submitted to the Manager of the Permit Section, Bureau of Land, Illinois Environmental Protection Agency, 1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 within the time period specified. At IEPA's request, PDC must submit any other analytical data obtained pursuant to condition 3(c) within the time period specified by IEPA. All data must be accompanied with the following certification statement:

> Under civil and criminal penalty of law for the making or submission of false or fraudulent statements or representations, I certify that the information contained in or accompanying this document is true, accurate, and complete.
>
> As to any identified section of this document for which I cannot personally verify its truth, accuracy, or completeness, I certify, as Peoria Disposal Company's official having supervisory responsibility for the person(s) who, acting under my direct instructions, made the verification, that this information is true, accurate, and complete.
>
> In the event that any of this information is determined by the Board or a court of law to be false, inaccurate, or incomplete, I recognize and agree that this exclusion of waste will be void as if it never had effect or to the extent directed by the Board or court and that Peoria Disposal Company will be liable for any actions taken in contravention of its obligations under RCRA (including its RCRA Part B permit) or the Comprehensive Environmental Response, Compensation and Liability Act or corresponding provisions of the Environmental Protection Act premised upon Peoria Disposal Company's reliance on the void exclusion.

_____
(Name of certifying person)

_____
(Title of certifying person)

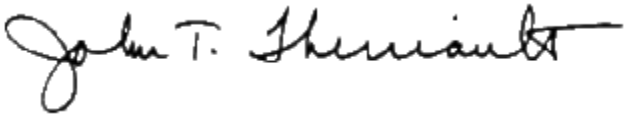
_____
(Date)

6. PDC, at least 15 calendar days before transporting an initial load of delisted EAFDSR to a given disposal facility, must provide IEPA with a one-time, written notification identifying that disposal facility. The notification submittal must be addressed as specified in condition 5.

IT IS SO ORDERED.

Section 41(a) of the Environmental Protection Act provides that final Board orders may be appealed directly to the Illinois Appellate Court within 35 days after the Board serves the order. 415 ILCS 5/41(a) (2006); *see also* 35 Ill. Adm. Code 101.300(d)(2), 101.906, 102.706. Illinois Supreme Court Rule 335 establishes filing requirements that apply when the Illinois Appellate Court, by statute, directly reviews administrative orders. 172 Ill. 2d R. 335. The Board's procedural rules provide that motions for the Board to reconsider or modify its final orders may be filed with the Board within 35 days after the order is received. 35 Ill. Adm. Code 101.520; *see also* 35 Ill. Adm. Code 101.902, 102.700, 102.702.

I, John Therriault, Assistant Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on January 8, 2009, by a vote of 5-0.



_____
John Therriault, Assistant Clerk
Illinois Pollution Control Board

ATTACHMENT A

Oral Public Comments Made at Hearing on August 18, 2008

1.	Tr. 38-41	Jess Slager
2.	Tr. 41-45	Ila Minson
3.	Tr. 45-55	Matt Varble
4.	Tr. 55-61	Dennis Ford
5.	Tr. 61-70	Lisa Offutt
6.	Tr. 70-73	Rudy Habben
7.	Tr. 73-77	Tessie Bucklar
8.	Tr. 78	Diane Jorgensen
9.	Tr. 78	Julie Luner
10.	Tr. 79-81	Don Maurer
11.	Tr. 81-83	Bob Jorgensen
12.	Tr. 83-84	Jack Skelley
13.	Tr. 85	Dan Pioletti
14.	Tr. 85-86	David Taylor
15.	Tr. 86-87	Chad Erdmann
16.	Tr. 87-90	Jeannine Kelly
17.	Tr. 90-91	Tom Barnett
18.	Tr. 91-96	Bill Cook
19.	Tr. 96-99	Bill Spencer
20.	Tr. 99-100	Suzanne Gerard
21.	Tr. 100-104	Tom Edwards
22.	Tr. 104-110	Tracy Fox
23.	Tr. 110-120	Cara Rosson
24.	Tr. 121-126	Joyce Blumenshine
25.	Tr. 126-131	David Wentworth
26.	Tr. 131-138	David Long
27.	Tr. 138	Rick Fox

ATTACHMENT B

Written Public Comments Filed in AS 08-10

Shaded names indicate the comment was a form postcard: * for Postcard 1; ** for Postcard 2.

1 Lisa Offutt
2 Tom Edwards
3 Joyce Blumenshine
4 Kim McLean Converse
5 IL State Rep. Bill Mitchell
6 Matt Varble
7 Matt Varble
8 Matt Varble
9 Hopedale Township Resolution
10 Carol VanWinkle
11 Chad Erdmann
12 John R. Skelley
13 Rudy Habben
14 Tom Edwards
15 Joyce Blumenshine
16 Cara Rosson
17 Matt Varble
18 Matt Varble
19 Matt Varble
20 Lisa Offutt
21 Matt Varble
22 Matt Varble
23 Tom Edwards
24 IL State Senator Bill Brady
25 Matt Varble
26 Matt Varble
27 Julia Luner **
28 R. S. Dooin **
29 Judy G. Bradford **
30 Kerri Blicharz **
31 Merrill and Marie Johnson **
32 Ann Kunchisky **
33 Baker & McKenzie LLP
34 Chris Meerdam **
35 Jim Runyan & Mary Peifer*
36 Mary K. Besler*
37 Joan Schmidt*
38 Marianne Campbell*
39 Charles C. Chen *
40 Rick Fox **
41 Jennifer Jones Hartter **
42 Holli Cook *
43 Shirley Armand*
44 Jean Slonneger *
45 Michael Brown & Beverly Beier*
46 John & Beth Giberron*
47 Florence Kreephauser*
48 Loyal D. Miller **
49 Nora E. Leman *
50 Brad Nimrick*
51 James R. Templos *
52 Illegible signature **
53 Richard K. Jonet *
54 Jeanette Parsons *
55 Myrna Kele*
56 Kathleen S. Krupp *
57 Mary M. Mazzola & Jean J. Mezzola*
58 Brendan Liddell **
59 Janet LeMaster *
60 Anne Kirchgrimen *
61 Dornino John Ciabottom*
62 Thomas Beacham **
63 Richard L. Steipp*
64 Jeffrey T. Sims **
65 Dennis Endicott **

66 Mary J. Boyer **
67 L. Brinkman Mosiman, MD **
68 Josh Naven *
69 Rhonda J. Schnules **
70 Ron Slomeger **
71 A. Souscek **
72 John Mullen *
73 Charles & Jeanie Bukowski *
74 Carlos Razo *
75 John R. Ring*
76 Earl & Dorothy J. Urish **
77 Mary D. Mossner **
78 Douglas Elbin *
79 Steve Dayton **
80 Marjorie Klise *
80A Julie Carl*
81 Norman P. Meyn, MD *
82 Amber Ealey **
83 Florence C. Beltz*
83A Sonya Durand*
84 Edward J. Willi*
85 Joseph C. Merkle
86 Lisa Sandell
87 Phyllis Pryde
88 William Parr and Family
89 Frank & Dorothy Stenger *
90 William Seelye and LaVonne P. Seelye*
91 Susan Plott *
92 Jason & Erin Lewis*
93 Randal Shagren*
94 James & Phyllis Clase*
95 Ameel G. Rashid*
96 Glenn Belsley *
97 Janet MacLean*
98 Mary Noel Cline *
99 Bruce A. Knoll **
100 John Wosik **
101 Valerie Park *
102 Nancy & Martin Siebrasse*
103 Imelda F. Kelch *
104 Mayvis Young *
105 Mrs. Harry Miller (Eleanor E.) *
106 Marge Willadsen *
107 Carol Johnson *
108 Richard H. Lee, MD *
109 Nancy C. Taylor *
110 Janet Aupperle *
111 S. Gilbert **
112 Harry Miller **
113 Darlene B. Hixon *
114 Shirley L. O'Connell **
115 Clare T. Waibel *
116 Tina Christ *
117 Shirley L. and John O'Connell *
118 Joy Rennich *
119 Rita Schwerer *
120 Darryl & Chanda Irons *
121 Joann Murphy *
122 James & Elaine Murphy *
123 Mr. & Mrs. Sean Leuba *
124 Bonnie & Edward Meints *
125 Virginia E. Schlisksup *
126 Nancy J. Lawless *
127 Robert H. Jorgensen **
128 Pennie Schachtrup & Stephen Schachtrup *
129 Harold and Debra Beeney *
130 Connie Disney **
131 Stephen D. Grobe **
132 Phyllis M. Lutz **
133 Charlene Cravens *
134 Ed Klein *
135 Jane Johnson *
136 David Hultgren *
137 Carlotte Cordett *
138 Mark Kruger *
139 Kathleen McVey *

140 Donald C. Oltman Sr. *
141 Susan J. Clark *
142 Dane Heather Hopkins *
143 Kathy Johnson *
144 Mark Golden *
145 Edward C. Levine *
146 Angela Swearingian *
147 Matt Becker *
148 Carolyn Bushig *
149 RaJean A. Smith *
150 Kandace & James Berual *
151 James & Sandra Hattermann *
152 William F. Mahl *
153 Rudolph J & Joanne N. Kern *
154 Douglas G. Franks *
155 Roger R. Cunningham *
156 Patricia Abuwens *
157 Anne Bartolo *
158 Mike & Amy Breitbach *
159 Rebecca A Liefer *
160 Judith E. Stalling *
161 Marcia S. Willson **
162 Pam & Eric Elwood *
163 Rebecca J. Qiltz **
164 J. W. Fleming **
165 An Dloy **
166 Sheila B. Gibble **
167 Wayne E. Caho *
168 Richard Winesh **
169 Jeanne Daykin *
170 Dr. Craig S. Mitchell **
171 Jennifer Class-Mitchell *
172 Marion P. Bohner *
173 Cathie Crawford *
174 JoAnne Richardson *
175 Marcia Lee-Ball *
176 Cathy Stevenson *
177 Lois A. Pronger **
178 Wiley A. Shuawget **
179 Donald D. Shover *
180 Merrill W. Foster **
181 Bill Berton **
182 Bill & Mary Voorhees *
183 Joanne Fought *
184 Michael F. Shichting **
185 Madeline Dilley **
186 Elizabeth Yost **
187 Don J. Elway **
188 W. Jo Anne Love **
189 Edgar L. Chapman **
190 Donald J. Frederick **
191 Ellen A. Dickerson **
192 Brian Bern **
193 Diane Wahl **
194 Judith C. Stahling **
195 Janet R. Scribner **
196 A. Fontayn **
196A Debra Wagstaff **
197 Mike Foster **
198 Margaret N. Giltner *
199 Donald J. Crane *
200 Susan A. Schearer *
201 Kathie Wasden *
202 Frederick Dintzos *
203 Bill & Margie Trent *
204 Mary D. Mossner *
205 Lynn Blair *
206 Anna May Dufek *
207 Julia E. Kirchgessner *
208 Nerio & Sandra Culgara *
209 Tom E. Bucklar
210 Bruce W. Maerb **
211 Henry Rakofl **
212 Helen L. Emanuels *
213 Nancy C. Long *
214 Bob & Sandy Lowenstein *
215 Don Sit *
216 David J. Crolius **

217 Mary Ellen & Blane Taylor *
218 Jill M. Johnston *
219 Michael Brown & Diane F. Brown *
220 James L. McGee, M.D., OSF
221 Barbara J. Davidson
222 Ila Minson
223 John M. McLean *
224 John Schweitzer *
225 Elaine Matheny *
226 Robert O. Means **
227 Meredith Blain *
228 Lauralee P. Randolph *
229 Michael C. Vidas *
230 Mr. & Mrs. Harvey R. Young *
231 Therese M. Taylor *
232 Alexandra M. Sinacori *
233 Ronald E. Roberts *
234 Mr. & Mrs. Robert Reading *
235 Frank Zainuto *
236 Kathleen C. Vreed *
237 Dan Pioletti *
238 Gerald D. Davis **
239 L. Snyder *
240 Lisa & Burt Raabe *
241 Sharon & Richard Green *
242 Beverly A. Matheny *
243 Barbara J. Davidson *
244 David Block **
245 Donna Hettiner *
246 Thomas C. Lucas *
247 Chris Rybak *
248 Douglas & Paula Donath *
249 Nancy A. Hoover **
250 Jerry Hosler *
251 Dianne L. Turner **
252 W. Gene Girds **
253 Bliss & Marilyn Phillips *
254 Christina Kiefer *
255 Rick Fox *
256 Rose Ramos Pasquel *
257 W. C. Heimann *
258 Vernon & Rosemary Guthrie *
259 Sharon Klein *
260 Tom Breje **
261 Christopher Maushard *
262 Judith Roth **
263 Jack Rhodes *
264 Mrs. John Van House **
265 Thomas & Sandra Crow *
266 Marjorie Hogeboom *
267 Janet Kelley *
268 J. Brady **
269 Janet Green *
270 James & Carol Shaver *
271 Roger Williams *
272 Esther R. Roper **
273 Judy Cheng *
274 Margaret Schmitt **
275 Tom M. Grissom **
276 Rick Cibelli *
277 Forest O. Murray *
278 Nelda M. Waddell **
279 R. J. Pirkinson *
280 Julie Anne Jones **
281 Esther J. Perschniick *
282 Jerry L. Hawksworth *
283 Helen J. Gosdon *
284 Jean Gardner **
285 Annette E. Doughty *
286 Frances E. Bumgardner **
287 Dr. & Mrs. Jeremy L. Krol *
288 Vern & Rosemary Guthrie
289 Becky J. Glavash *
290 Anthony Richards *
291 Teresa & William Bucklar *

292 Richard Aldredge **
293 Elizabeth N. Piene **
294 Nancy L. Spooner *
295 Beverly Kitel **
296 Joyce Harant **
297 M. Varble
298 William D. Spencer
299 Richard J. Flasker **
300 Stephen Lester
301 PFATW and HOI Sierra Club
302 Peter L. deFur, Ph.D.
303 Ann Johnson **
304 John LaPayne
305 Kim McLean Converse
306 Tessie Bucklar
307 Tom Edwards
308 Joyce Blumenshine
309 Sandra Tripp *
310 Jean Palomares *
311 Jackie D. Hunt **
312 Charles H. Norris, PG
313 Tracy Meints Fox
314 Rick Fox
315 Lisa K. Offutt
316 Ann X. Grawey **
317 Robert O. Wright and Marilyn E. Wright **
318 S. F. Williams **
319 Lawrence A. Steiner **
320 Harold Begolis *
321 Joy A. Reiter *
322 Mark E. Kowalske **
323 Tom Edwards
324 Tom McCullough
325 Tom McCullough
326 Joyce Blumenshine
327 Tom Edwards

EXHIBIT B

Technical Support Document

Technical Support Document in Support of Petition for Modification of the Adjusted Standard Order for PDC Electric Arc Furnace Dust Stabilized Residue

Peoria Disposal Company

Peoria, Illinois

September 2017

Prepared for: Peoria Disposal Company
4349 W. Southport Road
Peoria, Illinois 61615

Prepared by: PDC Technical Services, Inc.
4349 W. Southport Road
Peoria, Illinois 61615

PDC Project No. 91-0143.55

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Peoria Disposal Company
Peoria, Illinois

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APPENDIX 2 DRAS 3.0 Runs to Evaluate Incremental Risk

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1.0 ADMINISTRATIVE INFORMATION

1.1 Introduction

Peoria Disposal Company (PDC) is an environmental services company based in Peoria, Illinois that provides transportation and treatment of hazardous and non-hazardous industrial and remediation wastes. The PDC Waste Stabilization Facility (WSF) is permitted under Subtitle C of the Resource Conservation and Recovery Act (RCRA). The WSF occupies part of an approximately ninety (90) acre permitted facility located in unincorporated Peoria County. The WSF is located at 43 degrees, 30 minutes (north) latitude and 89 degrees, 20 minutes longitude in Kickapoo Township. PDC's operations at the WSF are classified as North American Industry Classification System (NAICS) code 562211, hazardous waste treatment and disposal.

A substantial portion of the listed hazardous waste currently being treated at the WSF is K061 electric arc furnace (EAF) dust generated by steel mills that produce steel using electric arc furnaces. The K061 EAF dust is a listed hazardous waste designated as hazardous waste code K061, specified by 35 Ill. Adm. Code 721.132 for "emission control dust/sludge from the primary production of steel in electric furnaces."

In 2008, PDC petitioned the Illinois Pollution Control Board (Board) for an upfront and conditional delisting for the stabilized residue generated by PDC at the WSF from the treatment of K061 EAF dust utilizing certain proprietary stabilization technology (EAFDSR). The Board entered its Opinion and Order granting PDC's Petition on January 8, 2009 (the Adjusted Standard Order). Under the Adjusted Standard Order, PDC's proprietary stabilization technology is used to stabilize the Constituents of Concern (COCs) in the EAF dust to achieve the delisting levels. This renders the EAFDSR eligible for the hazardous waste exclusion in 35 Ill. Adm. Code 720.122. Analytical testing of each batch of EAFDSR treated in the WSF ensures that the process has resulted in a material that meets the delisting requirements.

Upon satisfactory completion of the testing required in the Adjusted Standard Order, the EAFDSR is transported to a RCRA-permitted Subtitle D landfill facility, the PDC-affiliated Indian Creek Landfill No. 2 in Tazewell County, Illinois, for disposal as a non-hazardous waste. PDC has been operating under the Adjusted Standard Order for over eight years.

In the Petition for Modification to which this Technical Support Document is an attachment, PDC petitions the Board to remove organic compounds, specifically the dioxin and furan congeners, from the list of COCs for which the EAFDSR is required to be tested pursuant to the Adjusted Standard Order.

1.2 Petitioner

The Modification to the Adjusted Standard Petition is submitted by:

Peoria Disposal Company
4700 N. Sterling Avenue
Peoria, IL 61615

The mailing address for the facility contact is:

Mr. Ron Welk
PDC Vice President
Peoria Disposal Company
4700 North Sterling Avenue
Peoria, IL 61615

The facility that generates the petitioned waste and the location of the petitioned waste, once generated, is:

Peoria Disposal Company
4349 West Southport Road
Peoria, IL 61615
USEPA RCRA ID No. ILD000805812
IEPA RCRA ID No. 1438120003

For technical information related to this document, the contact information is:

Dr. Charles Hostetler
PDC Technical Services, Inc.
PO Box 9071
Peoria, IL 61612-9071
(309) 495-1568 (office)
(309) 218-3343 (mobile)
chostetler@pdcarea.com

1.3 Proposed Modification of Delisting Action

In the Petition for Modification to which this Technical Support Document is an attachment, PDC proposes to remove the organic compounds, specifically the dioxin and furan congeners, from the COC list in the Adjusted Standard Order. The existing Standard Order requires that every batch of EAFDSR be sampled and analyzed using the Toxicity Characteristic Leaching Procedure (TCLP, EPA Method 1311). Fourteen metals and a number of dioxin/furan congeners are analyzed in the TCLP extract. The TCLP concentrations of the dioxins and furans (together

with their established toxic equivalency factors, or TEFs) are used to calculate the toxic equivalencies for dioxins and furans (TEQ), which are then compared to the risk-based standard that was established in the Adjusted Standard Order. In eight years of conducting this process, with more than 1280 samples analyzed for TEQ according to the approved Sampling and Analysis Plan (SAP), there has not been a single instance of a confirmed TEQ exceedance that would have prevented a batch of EAFDSR from being delisted. Consequently, PDC proposes that the Adjusted Standard Order be modified, (1) to remove dioxin and furan testing from the analytical protocol for conditional exclusion, and (2) to remove the TEQ risk-based limit from the delisting levels.

1.4 Statement of Need and Justification for the Modification

In June 2002, the United States Environmental Protection Agency (USEPA) distributed a program evaluation entitled RCRA Hazardous Waste Delisting: The First 20 Years (USEPA, 2002). In this document, the USEPA concluded that waste delisting is cost effective and protective of the environment. PDC has been, and continues to be, implementing an environmentally sound waste management practice under the Adjusted Standard Order. PDC's treatment and verification process demonstrably reduces the leachability of the fourteen (14) inorganic COCs so that EAFDSR properly disposed of in a RCRA Subtitle D landfill does not pose a threat to human health and the environment.

With the proposed modification, PDC intends to demonstrate that the K061 EAF dust delisting program could be made even more cost effective without posing any increased threat to human health or the environment. The dioxin and furan testing analyses are technically complex, time consuming, and costly. PDC's test results shows that there has not been a single confirmed exceedance of the TEQ risk-based limit. By removing the requirement to test for compounds that are not present in significant quantities in the EAFDSR, PDC can lower its operating costs and remain cost-effective in providing services to its steel manufacturing customers. These steel manufacturers are vital to the economy in Illinois and strategic for the security of the United States of America. The domestic steel industry is subject to intense international competition. Granting the proposed modification to the Adjusted Standard Order will help steel manufacturers in Illinois and throughout the Midwest to control the cost of their waste management operations, without posing any increased threat to human health or the environment.

2.0 Dioxin and Furan Congeners and the TEQ Calculation

2.1 Introduction

Dioxins and furans are a large group of naturally-occurring and synthetic organic chlorinated compounds. Dioxins and furans are present in the untreated EAF dust as unintentional by-products of incomplete combustion in the presence of various offgases.

Dioxins and furans are very refractory and immobile. They have very low solubilities in water, very low volatility, and a high affinity for fine-grained particulate matter. These properties are associated with extremely low leachability, which is one of the key characteristics that are tested for in the TCLP method.

PDC stipulates that dioxins and furans are present in the EAF dust it receives at the WSF for treatment. This was demonstrated in 2008 in the Technical Support Document submitted with PDC's RCRA Delisting Adjusted Standard Petition for PDC EAF Dust Stabilized Residue (RMT, 2008). However, the chemical and physical properties of the dioxins and furans, and in particular, their high affinity for fine-grained particulate matter, render them virtually immobile in a properly managed RCRA Subtitle D landfill. This is demonstrated by the complete absence of confirmed dioxin or furan exceedances in the EAFDSR that has been tested over the eight-year period that PDC has been operating under the Adjusted Standard Order.

In the remainder of this section, the analytical methodology used in the approved SAP and the manner in which the data are reported are described. In the following section (Section 3.0), the results of eight years of analytical testing are discussed.

2.2 Analytical Methodology

EPA Method 1311 is used to analyze the EAF dust treatment residue. This is the Toxicity Characteristic Leaching Procedure, or TCLP. In the TCLP process, a representative grab sample of a batch of EAF dust treatment residue is prepared by crushing and sieving. A known weight of the material is placed into an extraction vessel with a chemical mixture that is designed to aggressively leach hazardous constituents from the solid matrix. The material and chemicals are tumbled for a fixed period of time at a fixed temperature to control the conditions under which the material and chemical mixtures are in contact. Finally, the resulting slurry is passed through a filter which produces an extraction fluid that is analyzed for the COCs.

The extraction fluid is analyzed for (among other COCs) dioxin and furan congeners using EPA Method 8290A (Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High Resolution Mass Spectrometry

(HRGC/HRMS), Part of Test Methods for Evaluating Solid Waste; EPA SW-846, 2008). This method provides for the quantitative measurement of the dioxin and furan congeners with concentrations down to tenths of picogram of congener per liter of fluid (a picogram is one trillionth of a gram). Results are typically reported for 17 different compounds in the dioxin/furan family of related compounds.

2.3 Calculating and Reporting Toxicity Equivalence

The Toxicity Equivalence (TEQ) is calculated from the analytical results reported from EPA Method 8290A. The concentration of each congener in the TCLP extract, typically reported in picograms per liter, is multiplied by its corresponding toxic equivalence factor (TEF). TEFs for this calculation are provided by the USEPA. The results are them summed into the TEQ, which is also reported in picograms per liter.

If all of the congeners are present below the method reporting limit, the TEQ is reported as zero (0) picograms per liter. There is no Universal Treatment Standard for dioxin TEQ in TCLP extracts of non-wastewater materials. The delisting level established by the Adjusted Standard Order is 0.205 picograms per liter. For purposes of comparison, the Universal Treatment Standard for all dioxins and all furans in wastewaters is 63,000 picograms per liter (0.000063 milligrams per liter).

If a batch of EAF dust treatment residue satisfies the delisting levels set in the Adjusted Standard Order, the material is thereafter, as a matter of law, delisted EAFDSR.

3.0 Characteristics of the Analytical Data Obtained in K061 Delisting

3.1 Population Statistics of the Dataset

PDC Technical Services, Inc. (Tech Services) conducted a statistical analysis of all TEQ data that were generated by analyses of EAFDSR performed pursuant to the Adjusted Standard Order from January 2009 through December 2016. The data were analyzed using Sanitas™ v.9.5.24 (a commercially available statistical data processing application). The data were sorted by the date the sample was collected; a time-series plot of the data is attached for reference (Figure 1). Copies of the laboratory sheets for these data are provided in Appendix 1. The dataset contains 1285 observations of TEQ. The data distribution was found to be non-normal, and no outlier test could be conducted as the upper and lower quartiles are equal. A Sen's Slope trend test was conducted and demonstrated a decreasing trend significant at a 98% confidence level (Figure 2).

3.2 Characteristics of the Apparent Exceedances

As above, the dataset contained 1285 observations of TEQ. Of these, 1257 (98%) were reported as 0. Of the 28 apparent detections, 23 were lower than the delisting level (0.205 picograms per liter). Because these 23 apparent detections were all below the delisting level, none were confirmed by resample. The remaining 5 instances, comprising 0.4% of the observations, had an initial TEQ result greater than 0.205 picograms per liter. None of these 5 results was confirmed by resample (a resample is an independent sample of the material taken after the original sample as described in the SAP and established by the Adjusted Standard Order).

A summary of these results broken down by year is provided in Table 1. 89% (25 of 28) of the detections and 80% (4 of 5) of the apparent exceedances occurred in samples that were analyzed prior to 2012. The analytical laboratories involved in the dioxin/furan analyses had difficulties implementing the high-resolution/ultra-low detection methods used to analyze dioxins and furans in the early years of the program. At times, the results had to be confirmed by numerous reanalyses. Those laboratories worked together for several years to remove ubiquitous sources of low-level laboratory contamination and to implement ultra-clean laboratory protocols.

3.3 Conclusions

Based on the population statistics of the dioxin/furan testing that has been performed under the Adjusted Standard Order, the vast majority (i.e., more than 97%) of the data are reported with a value of zero (0) picograms per liter for TEQ. Less than 3% of the data are reported with a detection of any sort. These minimal detections of dioxin/furan in EAFDSR are consistent with laboratory artifacts, which were nearly eliminated through a robust quality assurance program undertaken by several commercial analytical laboratories. There has never been a detection of dioxin/furan in EAFDSR confirmed by resample. Moreover there has never been an apparent

exceedance of the TCLP TEQ delisting limit for dioxins and furans in EAFDSR confirmed by resample.

4.0 Analysis of Incremental Risk

4.1 The Risk Analysis in the Modified Standard Petition

As described in Appendix H.4 of the Technical Support Document for the Adjusted Standard Petition presented to the Board in 2008, the risk assessment for dioxins and furans relied on modeling the erosion of hazardous materials from the surface of a solid waste landfill, transportation of those constituents to nearby bodies of water, incorporation into fish tissue, and ingestion of fish tissue by receptors. This calculation was performed in a spreadsheet calculation model developed by U.S. EPA Region 5 to address a known error in the then-current Delisting Risk Assessment Software (DRAS), Version 2. A maximum TEQ concentration of 1.60 x 10^{-4} milligrams per kilogram (observed in the EAF dust treatment residue samples analyzed in the initial study) led to a corresponding concentration of 2.23 x 10^{-11} milligrams per liter (which is equivalent to 0.0223 picograms per liter) in a nearby second order stream. The corresponding estimated carcinogenic risk posed through a conservative fish ingestion scenario was 2 x 10^{-6}. The final delisting standard for TEQ (i.e., for dioxins/furans) was set at 0.205 picograms per liter (or 2.05 x 10^{-10} mg/L as expressed in the Adjusted Standard Order).

4.2 Analysis of Incremental Risk Using DRAS 3.0

No EAFDSR with TEQ greater than the delisting limit has ever left the PDC facility. No apparent exceedances in TEQ values have been confirmed upon resample. Nevertheless PDC Technical Services, Inc. investigated the (entirely hypothetical) impacts on human health and the environment of the five (5) apparent TEQ exceedances, assuming that all of the EAFDSR that could have been disposed under the Adjusted Standard Order (i.e., 95,000 cubic yards per year), to date and in the future (for the 20-year anticipated life of Indian Creek Landfill #2 under these conditions), actually contained dioxins/furans at the levels found in the five apparent (unconfirmed) exceedances. This investigation was performed with the current version of DRAS (Version 3.0). These DRAS results are provided in Appendix 2. The results for the groundwater pathway aggregate risk are shown in the table on the next page. In summary, the TCLP TEQ results, which drive the groundwater pathway risk, are negligible.

Run	TCLP TEQ Apparent Exceedance	DRAS Groundwater Pathway Aggregate Risk
1	0.21 picogram/Liter	5.34×10^{-17}*
2	0.21 picogram/Liter	5.34×10^{-17}*
3	0.22 picogram/Liter	5.59×10^{-17}*
4	0.42 picogram/Liter	1.07×10^{-16}*
5	0.46 picogram/Liter	1.17×10^{-16}*
N/A	0.00 picogram/Liter	0.00

* Within the uncertainties of the calculation; therefore equivalent to zero (0.00).

As discussed above, the original delisting limit for TEQ was based on a spreadsheet calculation performed by U.S. EPA Region 5 because of known errors in an earlier version of DRAS. Therefore, there was no original DRAS calculation to reproduce or update. Instead, PDC Technical Services, Inc. ran a baseline case with the highest total concentration of dioxins/furans observed in the EAFDSR that were analyzed in the initial study, but with TCLP TEQ concentrations of zero (0). Then Tech Services ran five cases where the zero (0) TCLP TEQ values were substituted with the TEQ value of each of the five apparent exceedances. The DRAS runs for all of the apparent exceedance cases were ***identical*** to the baseline case; in other words, there was no increase in the risk whether the TEQ was zero or was the highest reported TEQ generated in eight years of analyzing EAFDSR. Therefore, these results showed ***no incremental risk increase*** for the hypothetical case where a batch of EAF dust treatment residue with a relatively elevated TEQ was released for shipment to a Subtitle D landfill.

4.3 Conclusions

PDC has a eight-year history of operating under the Adjusted Standard, generating more than 1280 observations of TEQ values associated with EAFDSR. There has never been a confirmed detection or an exceedance of the delisting standard for dioxins and furans that was confirmed upon resample. Because of the physical and chemical properties of the dioxins and furans, they are expected to show a high affinity for fine-grained particulate matter and not to be leachable. Taken as a whole, the TCLP data show that the leaching solution is not mobilizing dioxins and furans from the treated EAFDSR. Therefore, even EAFDSR with the maximum hypothetical TEQ value did not pose any incremental threat to human health or the environment. From an

incremental risk analysis viewpoint, there is no value in continuing to analyze EAFDSR for TCLP TEQ for dioxins and furans.

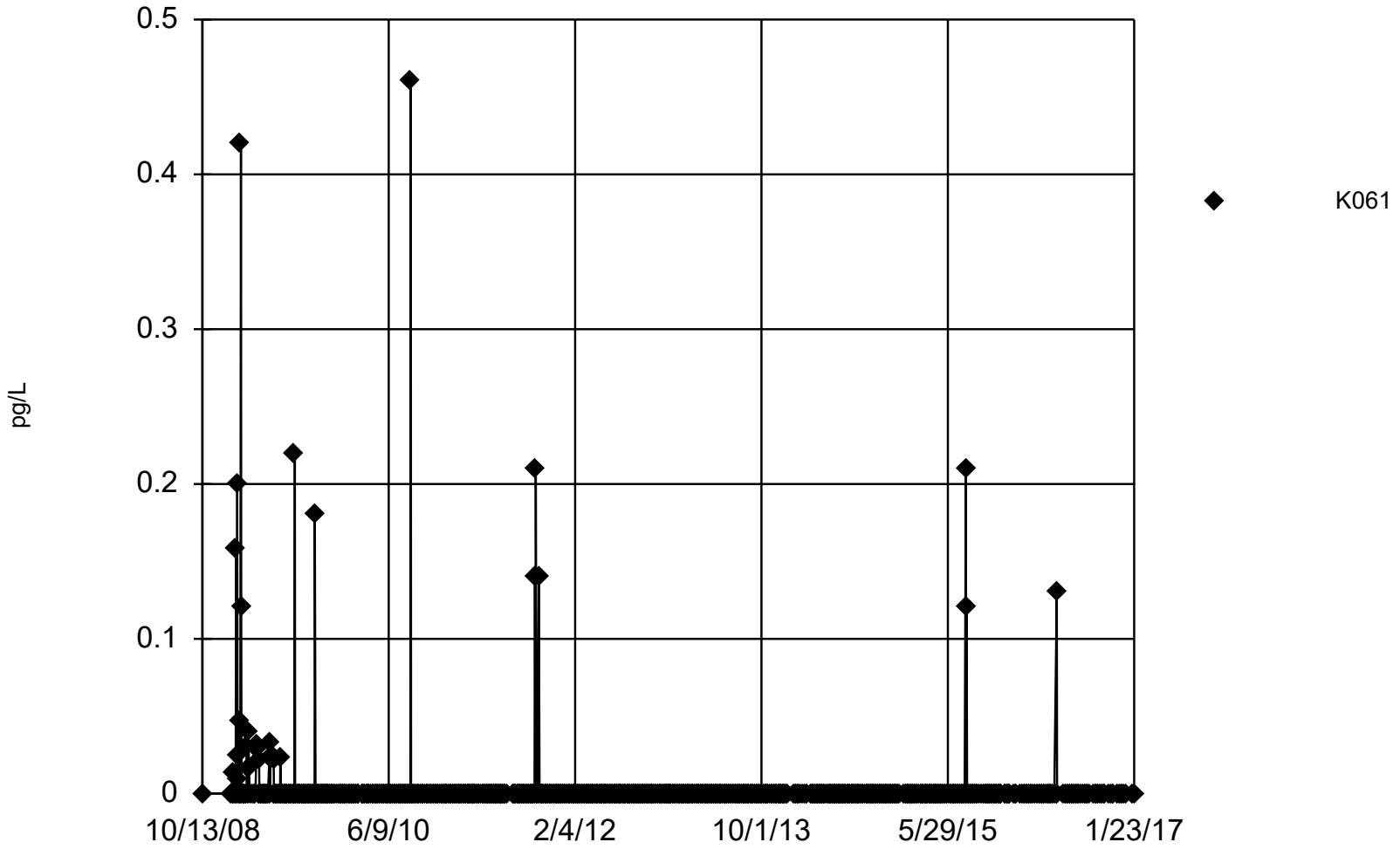
5.0 Summary and Conclusions

In the Petition for Modification to which this Technical Support Document is an attachment, PDC petitions the Board to remove organic compounds, specifically the dioxin and furan congeners, from the list of COCs for which the EAFDSR is required to be tested pursuant to the Adjusted Standard Order.

At present, every batch of EAFDSR is sampled and analyzed for TCLP dioxins and furans, and the resulting TEQs are then compared to the risk-based standard that was established in the Adjusted Standard Order. In eight years of conducting this process according to the approved SAP, there has not been a single instance of a confirmed TEQ exceedance that would have prevented a batch of EAFDSR from being delisted. In addition, even the largest of the apparent detections would have posed no significant incremental risk to human health or the environment. The testing for TCLP dioxins and furans is technically complex, time consuming, and costly, and has been shown to ***add no information*** to inform the decision on whether any particular batch of EAFDSR can be safely placed in a properly managed Subtitle D landfill. Consequently, PDC proposes that the Adjusted Standard Order be modified, (1) to remove TCLP dioxin and furan testing from the analytical protocol for conditional exclusion, and (2) to remove the TEQ risk-based limit from the delisting levels.

FIGURES

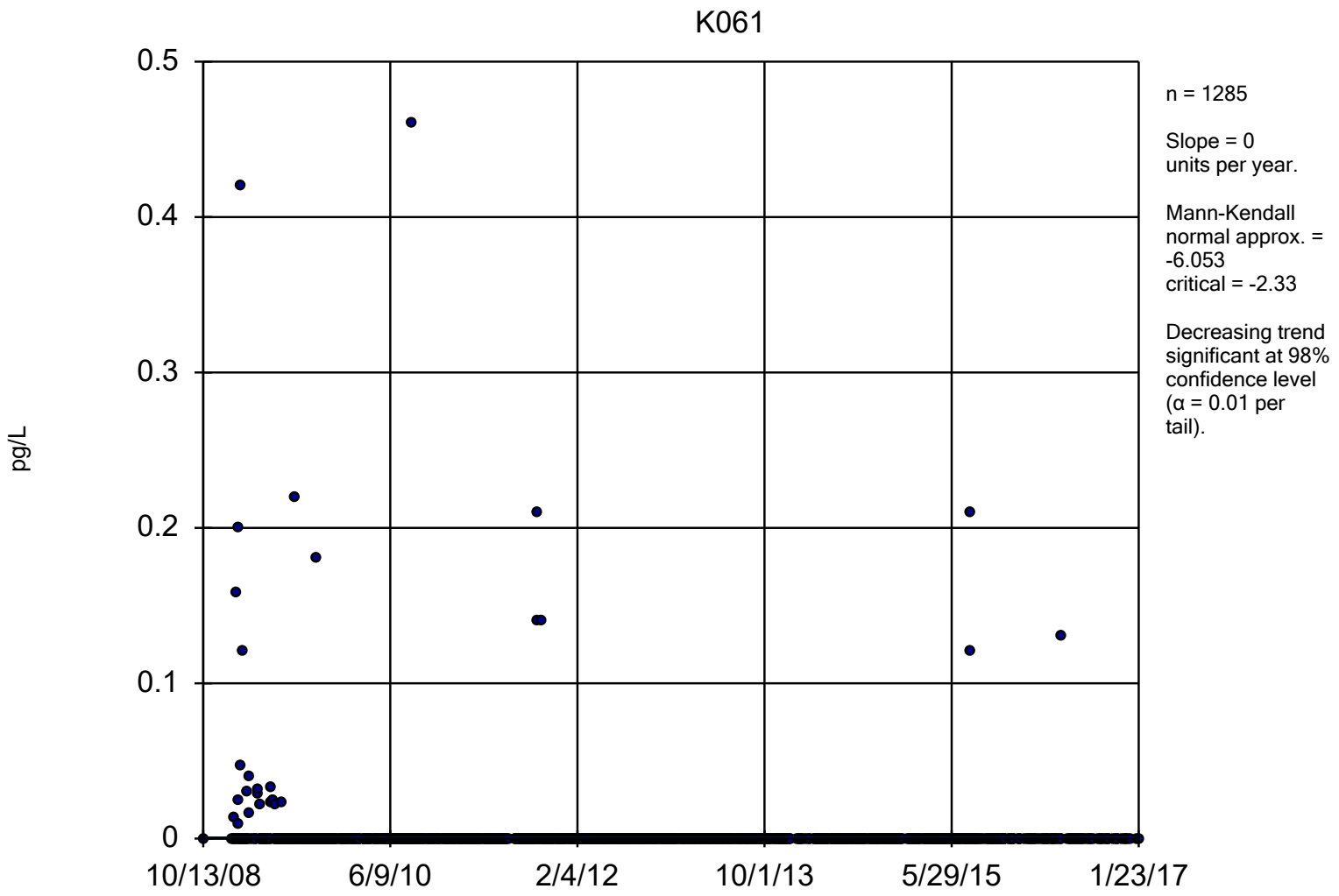
Figure 1. Time Series



Constituent: Dioxin/Furans TEQ Analysis Run 9/11/2017 2:30 PM

Facility: PDC #1 Client: Peoria Disposal Company Data File: D-F Statistics

Figure 2. Sen's Slope Estimator



Constituent: Dioxin/Furans TEQ Analysis Run 9/11/2017 2:32 PM

Facility: PDC #1 Client: Peoria Disposal Company Data File: D-F Statistics

TABLES

Table 1. Summary of Dioxin/Furan TEQ Data

Year	Total Number of TEQ Results	Number TEQ = 0 pg/L	Number 0 < TEQ < 0.205 pg/L	Initial TEQ > 0.205 pg/L	Apparent Exceedance Confirmed by Resample
2009	180	159	19	2	0
2010	143	142	0	1	0
2011	174	171	2	1	0
2012	187	187	0	0	0
2013	158	158	0	0	0
2014	142	142	0	0	0
2015	136	134	1	1	0
2016	165	164	1	0	0
Total	1285	1257	23	5	0

Appendix 1

Analytical Laboratory Data Sheets for Dioxins and Furans in Treated K061 EAF Residues

Note: Shaded data indicates results from sub-contracted analytical laboratory; all other results from PDC Laboratories, Inc.

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	9014	1/14/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9019	1/19/2009	0.0132	0.0001	Dioxin/Furans TEQ	pg/L
K061	9020	1/20/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9021	1/21/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9022	1/22/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9028	1/28/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9029	1/29/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9030	1/30/2009	0.158	0.0001	Dioxin/Furans TEQ	pg/L
K061	9033	2/2/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9034	2/3/2009	0.2	0.0001	Dioxin/Furans TEQ	pg/L
K061	9035	2/4/2009	0.00963	0.0001	Dioxin/Furans TEQ	pg/L
K061	9036	2/5/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9037	2/6/2009	0.024	0.0001	Dioxin/Furans TEQ	pg/L
K061	9040	2/9/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9042	2/11/2009	0.046	0.0001	Dioxin/Furans TEQ	pg/L
K061	9043	2/12/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9044	2/13/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9047	2/15/2009	0.42	0.0001	Dioxin/Furans TEQ	pg/L
K061	9047	2/16/2009	0.12	0.0001	Dioxin/Furans TEQ	pg/L
K061	9048	2/17/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9049	2/18/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9051	2/20/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9055	2/24/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9056	2/25/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9057	2/26/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9061	3/2/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9064	3/5/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9065	3/6/2009	0.03	0.0001	Dioxin/Furans TEQ	pg/L
K061	9068	3/8/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9068	3/9/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9071	3/12/2009	0.04	0.0001	Dioxin/Furans TEQ	pg/L
K061	9072	3/13/2009	0.0165	0.0001	Dioxin/Furans TEQ	pg/L
K061	9075	3/16/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9085	3/26/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9089	3/30/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9091	4/1/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9093	4/3/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9096	4/6/2009	0.028	0.0001	Dioxin/Furans TEQ	pg/L
K061	9099	4/9/2009	0.031	0.0001	Dioxin/Furans TEQ	pg/L
K061	9105	4/15/2009	0.022	0.0001	Dioxin/Furans TEQ	pg/L
K061	9106	4/16/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9107	4/17/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9110	4/20/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9111	4/21/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9112	4/22/2009	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	9119	4/29/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9120	4/30/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9121	5/1/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9124	5/4/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9125	5/5/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9126	5/6/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9127	5/7/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9128	5/8/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9127	5/9/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9133	5/13/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9134	5/14/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9138	5/18/2009	0.023	0.0001	Dioxin/Furans TEQ	pg/L
K061	9139	5/19/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9141	5/21/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9142	5/22/2009	0.033	0.0001	Dioxin/Furans TEQ	pg/L
K061	9146	5/26/2009	0.025	0.0001	Dioxin/Furans TEQ	pg/L
K061	9152	6/1/2009	0.022	0.0001	Dioxin/Furans TEQ	pg/L
K061	9153	6/2/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9154	6/3/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9155	6/4/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9159	6/8/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9161	6/10/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9163	6/12/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9166	6/15/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9167	6/16/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9169	6/18/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9170	6/19/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9173	6/22/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9174	6/23/2009	0.023	0.0001	Dioxin/Furans TEQ	pg/L
K061	9176	6/25/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9177	6/26/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9180	6/29/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9181	6/30/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9184	7/3/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9187	7/6/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9188	7/7/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9189	7/8/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9191	7/10/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9194	7/13/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9195	7/14/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9196	7/15/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9197	7/16/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9198	7/17/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9201	7/20/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9202	7/21/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9204	7/23/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9205	7/24/2009	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	9208	7/27/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9209	7/28/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9215	8/3/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9216	8/4/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9217	8/5/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9218	8/6/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9219	8/7/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9222	8/9/2009	0.22	0.0001	Dioxin/Furans TEQ	pg/L
K061	9222	8/10/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9224	8/12/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9225	8/13/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9229	8/17/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9231	8/19/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9232	8/20/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9237	8/25/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9239	8/27/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9240	8/28/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9243	8/31/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9244	9/1/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9246	9/3/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9247	9/4/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9251	9/8/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9252	9/9/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9253	9/10/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9254	9/11/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9257	9/14/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9258	9/15/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9259	9/16/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9260	9/17/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9261	9/18/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9265	9/21/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9265	9/22/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9266	9/23/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9267	9/24/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9268	9/25/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9271	9/28/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9272	9/29/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9274	10/1/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9275	10/2/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9278	10/5/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9280	10/7/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9281	10/8/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9282	10/9/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9285	10/12/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9287	10/13/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9286	10/13/2009	0.18	0.0001	Dioxin/Furans TEQ	pg/L
K061	9288	10/15/2009	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	9289	10/16/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9292	10/19/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9293	10/20/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9294	10/21/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9295	10/22/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9299	10/26/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9300	10/27/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9302	10/29/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9303	10/30/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9306	11/2/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9308	11/4/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9309	11/5/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9310	11/6/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9313	11/9/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9314	11/10/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9315	11/11/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9316	11/12/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9317	11/13/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9320	11/16/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9321	11/17/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9322	11/18/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9324	11/19/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9324	11/20/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9327	11/23/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9328	11/24/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9329	11/25/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9331	11/27/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9334	11/30/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9336	12/2/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9337	12/3/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9338	12/4/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9341	12/7/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9343	12/9/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9344	12/10/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9345	12/11/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9348	12/14/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9350	12/16/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9351	12/17/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9352	12/18/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9355	12/21/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	9364	12/30/2009	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10103	1/3/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10004	1/4/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10105	1/5/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10006	1/6/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10008	1/8/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10111	1/11/2010	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	10015	1/14/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10015	1/15/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10018	1/18/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10019	1/19/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10020	1/20/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10025	1/25/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10028	1/28/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10032	2/1/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10034	2/3/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10040	2/9/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10041	2/10/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10042	2/11/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10043	2/12/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10046	2/15/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10048	2/17/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10049	2/18/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10055	2/24/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10056	2/25/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10060	3/1/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10062	3/3/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10063	3/4/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10064	3/5/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10074	3/15/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10075	3/16/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10076	3/17/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10078	3/19/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10081	3/22/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10083	3/24/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10088	3/29/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10090	3/31/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10091	4/1/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10095	4/5/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10098	4/8/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10099	4/9/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10104	4/14/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10109	4/19/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10112	4/22/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10113	4/23/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10117	4/27/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10119	4/29/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10120	4/30/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10125	5/5/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10127	5/7/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10131	5/11/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10134	5/14/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10139	5/19/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10141	5/21/2010	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	10145	5/25/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10147	5/27/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10148	5/28/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10153	6/2/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10155	6/4/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10158	6/7/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10160	6/9/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10161	6/10/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10162	6/11/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10165	6/14/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10167	6/16/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10169	6/18/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10173	6/22/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10175	6/24/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10180	6/29/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10182	7/1/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10183	7/2/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10187	7/6/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10190	7/9/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10194	7/13/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10195	7/14/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10197	7/16/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10200	7/19/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10201	7/20/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10202	7/21/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10204	7/23/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10207	7/26/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10209	7/28/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10211	7/30/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10215	8/3/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10216	8/4/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10217	8/5/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10218	8/6/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10222	8/10/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10223	8/11/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10225	8/13/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10229	8/17/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10231	8/19/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10232	8/20/2010	0.46	0.0001	Dioxin/Furans TEQ	pg/L
K061	10232	8/21/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10235	8/23/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10237	8/25/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10238	8/26/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10239	8/27/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10242	8/30/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10244	9/1/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10245	9/2/2010	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	10250	9/7/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10253	9/10/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10257	9/14/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10259	9/16/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10260	9/17/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10264	9/21/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10266	9/23/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10270	9/27/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10272	9/29/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10274	10/1/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10280	10/7/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10284	10/11/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10285	10/12/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10286	10/13/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10288	10/15/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10291	10/18/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10294	10/21/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10298	10/25/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10299	10/26/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10300	10/27/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10305	11/1/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10309	11/5/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10312	11/8/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10314	11/10/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10319	11/15/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10322	11/18/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10323	11/19/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10327	11/23/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10333	11/29/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10335	12/1/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10337	12/3/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10342	12/8/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10343	12/9/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10344	12/10/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10348	12/14/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10349	12/15/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10350	12/16/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10351	12/17/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10355	12/21/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10357	12/23/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10361	12/27/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10363	12/29/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	10365	12/31/2010	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11003	1/3/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11005	1/5/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11007	1/7/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11011	1/11/2011	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	11013	1/13/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11017	1/17/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11019	1/19/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11021	1/21/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11024	1/24/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11026	1/26/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11027	1/27/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11028	1/28/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11031	1/31/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11032	2/1/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11035	2/4/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11038	2/7/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11041	2/10/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11045	2/14/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11047	2/16/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11048	2/17/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11052	2/21/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11053	2/22/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11055	2/24/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11056	2/25/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11060	3/1/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11061	3/2/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11062	3/3/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11063	3/4/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11066	3/7/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11068	3/9/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11069	3/10/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11070	3/11/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11074	3/13/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11073	3/14/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11074	3/15/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11075	3/16/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11076	3/17/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11080	3/21/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11081	3/22/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11082	3/23/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11089	3/30/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11090	3/31/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11091	4/1/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11094	4/4/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11101	4/11/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11102	4/12/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11104	4/14/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11105	4/15/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11108	4/18/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11109	4/19/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11112	4/22/2011	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	11115	4/25/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11117	4/27/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11118	4/28/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11119	4/29/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11122	5/2/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11123	5/3/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11124	5/4/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11125	5/5/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11126	5/6/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11129	5/9/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11131	5/11/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11132	5/12/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11136	5/16/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11137	5/17/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11138	5/18/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11139	5/19/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11143	5/23/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11144	5/24/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11145	5/25/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11146	5/26/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11147	5/27/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11151	5/31/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11152	6/1/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11153	6/2/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11154	6/3/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11157	6/6/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11158	6/7/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11159	6/8/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11160	6/9/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11161	6/10/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11164	6/13/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11165	6/14/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11166	6/15/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11167	6/16/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11168	6/17/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11172	6/21/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11173	6/22/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11174	6/23/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11175	6/24/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11178	6/27/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11199	7/18/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11201	7/20/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11203	7/22/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11206	7/25/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11207	7/26/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11209	7/28/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11213	8/1/2011	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	11215	8/3/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11216	8/4/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11221	8/9/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11222	8/10/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11223	8/11/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11224	8/12/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11227	8/15/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11228	8/16/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11229	8/17/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11230	8/18/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11234	8/22/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11236	8/24/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11238	8/26/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11241	8/29/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11243	8/31/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11244	9/1/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11245	9/2/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11249	9/6/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11251	9/8/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11252	9/9/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11255	9/12/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11256	9/13/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11257	9/14/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11258	9/15/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11259	9/16/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11262	9/19/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11265	9/22/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11266	9/23/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11269	9/26/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11270	9/27/2011	0.14	0.0001	Dioxin/Furans TEQ	pg/L
K061	11272	9/29/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11273	9/30/2011	0.21	0.0001	Dioxin/Furans TEQ	pg/L
K061	11276	10/3/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11277	10/4/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11279	10/6/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11283	10/10/2011	0.14	0.0001	Dioxin/Furans TEQ	pg/L
K061	11285	10/12/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11286	10/13/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11290	10/17/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11292	10/19/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11293	10/20/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11294	10/21/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11297	10/24/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11298	10/25/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11299	10/26/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11301	10/28/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11305	11/1/2011	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	11306	11/2/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11308	11/4/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11312	11/8/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11313	11/9/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11314	11/10/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11318	11/14/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11319	11/15/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11321	11/17/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11322	11/18/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11326	11/22/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11327	11/23/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11332	11/28/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11334	11/30/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11339	12/5/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11340	12/6/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11341	12/7/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11342	12/8/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11343	12/9/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11346	12/12/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11347	12/13/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11348	12/14/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11349	12/15/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11350	12/16/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11353	12/19/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11354	12/20/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11357	12/23/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11360	12/26/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11361	12/27/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	11363	12/29/2011	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12004	1/4/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12006	1/6/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12009	1/9/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12011	1/11/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12012	1/12/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12016	1/16/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12017	1/17/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12018	1/18/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12020	1/20/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12024	1/24/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12025	1/25/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12030	1/30/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12031	1/31/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12033	2/2/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12034	2/3/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12037	2/6/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12038	2/7/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12040	2/9/2012	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	12041	2/10/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12044	2/13/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12045	2/14/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12047	2/16/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12048	2/17/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12051	2/20/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12053	2/22/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12055	2/24/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12059	2/28/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12061	3/1/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12062	3/2/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12066	3/6/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12067	3/7/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12069	3/9/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12072	3/12/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12073	3/13/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12075	3/15/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12076	3/16/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12079	3/19/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12080	3/20/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12082	3/22/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12083	3/23/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12086	3/25/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12086	3/26/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12087	3/27/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12088	3/28/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12090	3/30/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12093	4/2/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12094	4/3/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12095	4/4/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12097	4/6/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12100	4/9/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12102	4/11/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12104	4/13/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12107	4/16/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12109	4/18/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12110	4/19/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12111	4/20/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12114	4/23/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12115	4/24/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12117	4/26/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12118	4/27/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12121	4/30/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12122	5/1/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12124	5/3/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12125	5/4/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12129	5/6/2012	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	12128	5/7/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12129	5/8/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12130	5/9/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12132	5/10/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12132	5/11/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12137	5/16/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12138	5/17/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12139	5/18/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12142	5/21/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12143	5/22/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12145	5/24/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12150	5/29/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12152	5/31/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12153	6/1/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12156	6/4/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12159	6/7/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12160	6/8/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12163	6/11/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12165	6/13/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12166	6/14/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12167	6/15/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12170	6/18/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12172	6/20/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12173	6/21/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12174	6/22/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12177	6/25/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12178	6/26/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12179	6/27/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12180	6/28/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12181	6/29/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12184	7/2/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12185	7/3/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12187	7/5/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12191	7/9/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12193	7/11/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12195	7/13/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12198	7/16/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12199	7/17/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12200	7/18/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12202	7/20/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12205	7/23/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12206	7/24/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12208	7/26/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12209	7/27/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12212	7/30/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12214	8/1/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12215	8/2/2012	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	12216	8/3/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12220	8/7/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12222	8/9/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12223	8/10/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12226	8/13/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12227	8/14/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12229	8/16/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12233	8/20/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12235	8/22/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12236	8/23/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12237	8/24/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12240	8/27/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12242	8/29/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12243	8/30/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12244	8/31/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12248	9/4/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12249	9/5/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12250	9/6/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12251	9/7/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12254	9/10/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12256	9/12/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12257	9/13/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12258	9/14/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12261	9/17/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12263	9/19/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12265	9/21/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12269	9/25/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12271	9/27/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12272	9/28/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12275	10/1/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12277	10/3/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12278	10/4/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12282	10/8/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12283	10/9/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12284	10/10/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12285	10/11/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12286	10/12/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12289	10/15/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12291	10/17/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12293	10/18/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12293	10/19/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12299	10/25/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12300	10/26/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12304	10/30/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12306	11/1/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12310	11/5/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12312	11/7/2012	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	12313	11/8/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12314	11/9/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12317	11/12/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12319	11/14/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12320	11/15/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12321	11/16/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12324	11/19/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12325	11/20/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12328	11/23/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12331	11/26/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12333	11/28/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12334	11/29/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12335	11/30/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12338	12/3/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12339	12/4/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12340	12/5/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12341	12/6/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12342	12/7/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12341	12/8/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12346	12/11/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12347	12/12/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12348	12/13/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12349	12/14/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12352	12/17/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12353	12/18/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12355	12/20/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12362	12/27/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	12364	12/29/2012	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13003	1/3/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13005	1/5/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13008	1/8/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13010	1/10/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13012	1/12/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13015	1/15/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13017	1/17/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13018	1/18/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13019	1/19/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13023	1/23/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13024	1/24/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13026	1/26/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13029	1/29/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13030	1/30/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13033	2/2/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13035	2/4/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13036	2/5/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13038	2/7/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13040	2/9/2013	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	13043	2/12/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13045	2/14/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13046	2/15/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13049	2/18/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13051	2/20/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13052	2/21/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13053	2/22/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13058	2/27/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13060	3/1/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13063	3/4/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13065	3/6/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13067	3/8/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13071	3/12/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13073	3/14/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13074	3/15/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13077	3/18/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13080	3/21/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13081	3/22/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13086	3/27/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13088	3/29/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13092	4/2/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13093	4/3/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13095	4/5/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13098	4/8/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13099	4/9/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13100	4/10/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13101	4/11/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13105	4/15/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13106	4/16/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13108	4/18/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13112	4/22/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13114	4/24/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13115	4/25/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13119	4/29/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13121	5/1/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13123	5/3/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13127	5/7/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13128	5/8/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13129	5/9/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13133	5/13/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13135	5/15/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13136	5/16/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13137	5/17/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13140	5/20/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13142	5/22/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13143	5/23/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13144	5/24/2013	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	13149	5/29/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13150	5/30/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13154	6/3/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13156	6/5/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13157	6/6/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13161	6/10/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13163	6/12/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13165	6/14/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13168	6/17/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13170	6/19/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13172	6/21/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13175	6/24/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13179	6/28/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13182	7/1/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13186	7/5/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13189	7/8/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13190	7/9/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13193	7/12/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13196	7/15/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13198	7/17/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13199	7/18/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13200	7/19/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13204	7/23/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13206	7/25/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13207	7/26/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13211	7/30/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13213	8/1/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13218	8/5/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13218	8/6/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13220	8/7/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13220	8/8/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13221	8/9/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13221	8/10/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13225	8/13/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13226	8/14/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13227	8/15/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13228	8/16/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13231	8/19/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13232	8/20/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13235	8/23/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13239	8/27/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13240	8/28/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13241	8/29/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13246	9/3/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13247	9/4/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13249	9/6/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13253	9/10/2013	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	13255	9/12/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13260	9/17/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13262	9/19/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13263	9/20/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13266	9/23/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13268	9/25/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13269	9/26/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13270	9/27/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13274	10/1/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13275	10/2/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13277	10/4/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13281	10/8/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13283	10/10/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13287	10/14/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13290	10/17/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13291	10/18/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13292	10/19/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13294	10/21/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13297	10/24/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13298	10/25/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13304	10/31/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13308	11/4/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13310	11/6/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13312	11/8/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13316	11/12/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13319	11/15/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13322	11/18/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13324	11/20/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13325	11/21/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13326	11/22/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13329	11/25/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13331	11/27/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13333	11/29/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13336	12/2/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13338	12/4/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13339	12/5/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13340	12/6/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13343	12/9/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13344	12/10/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13346	12/12/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13347	12/13/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13351	12/17/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13352	12/18/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13357	12/23/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	13361	12/27/2013	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14017	1/17/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14020	1/20/2014	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	14022	1/22/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14023	1/23/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14027	1/27/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14028	1/28/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14030	1/30/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14034	2/3/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14045	2/14/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14052	2/21/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14055	2/24/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14057	2/26/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14071	3/12/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14072	3/13/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14076	3/17/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14077	3/18/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14078	3/19/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14079	3/20/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14083	3/24/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14085	3/26/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14087	3/28/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14090	3/31/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14091	4/1/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14092	4/2/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14094	4/4/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14097	4/7/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14099	4/9/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14100	4/10/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14104	4/14/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14106	4/16/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14107	4/17/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14108	4/18/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14112	4/22/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14113	4/23/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14114	4/24/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14115	4/25/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14121	5/1/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14125	5/5/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14127	5/7/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14129	5/9/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14133	5/13/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14135	5/15/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14136	5/16/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14140	5/20/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14141	5/21/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14142	5/22/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14143	5/23/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14147	5/27/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14148	5/28/2014	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	14149	5/29/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14150	5/30/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14153	6/2/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14154	6/3/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14156	6/5/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14160	6/9/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14161	6/10/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14162	6/11/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14164	6/13/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14167	6/16/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14168	6/17/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14169	6/18/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14170	6/19/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14174	6/23/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14176	6/25/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14177	6/26/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14179	6/28/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14181	6/30/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14183	7/2/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14188	7/7/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14191	7/10/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14192	7/11/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14196	7/15/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14198	7/17/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14199	7/18/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14202	7/21/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14203	7/22/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14204	7/23/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14210	7/29/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14212	7/31/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14214	8/2/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14216	8/4/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14218	8/6/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14221	8/9/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14223	8/11/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14224	8/12/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14225	8/13/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14227	8/15/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14231	8/19/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14232	8/20/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14234	8/22/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14238	8/26/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14240	8/28/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14245	9/2/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14251	9/8/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14253	9/10/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14254	9/11/2014	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	14256	9/13/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14259	9/16/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14261	9/18/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14263	9/20/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14265	9/22/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14267	9/24/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14269	9/26/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14272	9/29/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14274	10/1/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14275	10/2/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14276	10/3/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14280	10/7/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14281	10/8/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14283	10/10/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14287	10/14/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14288	10/15/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14293	10/20/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14295	10/22/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14296	10/23/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14300	10/27/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14301	10/28/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14304	10/31/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14308	11/4/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14309	11/5/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14311	11/7/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14314	11/10/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14315	11/11/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14316	11/12/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14318	11/14/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14322	11/18/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14323	11/19/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14325	11/21/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14328	11/24/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14329	11/25/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14330	11/26/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14335	12/1/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14338	12/4/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14339	12/5/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14343	12/9/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14344	12/10/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14346	12/12/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14350	12/16/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14351	12/17/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14352	12/18/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14353	12/19/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	14357	12/23/2014	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15008	1/8/2015	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	15013	1/13/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15015	1/15/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15016	1/16/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15019	1/19/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15021	1/21/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15022	1/22/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15026	1/26/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15027	1/27/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15028	1/28/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15030	1/30/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15034	2/3/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15035	2/4/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15036	2/5/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15040	2/9/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15042	2/11/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15043	2/12/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15047	2/16/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15049	2/18/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15054	2/23/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15061	3/2/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15064	3/5/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15065	3/6/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15069	3/10/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15070	3/11/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15071	3/12/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15075	3/16/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15077	3/18/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15078	3/19/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15079	3/20/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15083	3/24/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15085	3/26/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15086	3/27/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15090	3/31/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15091	4/1/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15092	4/2/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15096	4/6/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15098	4/8/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15100	4/10/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15103	4/13/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15104	4/14/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15106	4/16/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15107	4/17/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15110	4/20/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15112	4/22/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15113	4/23/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15117	4/26/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15117	4/27/2015	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	15119	4/28/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15119	4/29/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15120	4/30/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15125	5/5/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15126	5/6/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15128	5/8/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15133	5/13/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15134	5/14/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15135	5/15/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15138	5/18/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15141	5/21/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15147	5/27/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15148	5/28/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15153	6/2/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15159	6/8/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15162	6/11/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15163	6/12/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15166	6/15/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15167	6/16/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15169	6/18/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15173	6/22/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15174	6/23/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15176	6/25/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15177	6/26/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15181	6/30/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15183	7/2/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15188	7/7/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15190	7/9/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15194	7/13/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15196	7/15/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15197	7/16/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15198	7/17/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15201	7/20/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15202	7/21/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15204	7/23/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15208	7/27/2015	0.21	0.0001	Dioxin/Furans TEQ	pg/L
K061	15208	7/28/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15210	7/29/2015	0.12	0.0001	Dioxin/Furans TEQ	pg/L
K061	15212	7/31/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15215	8/3/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15217	8/5/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15218	8/6/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15222	8/10/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15224	8/12/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15225	8/13/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15229	8/17/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15231	8/19/2015	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	15232	8/20/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15239	8/27/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15240	8/28/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15245	9/2/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15247	9/4/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15252	9/9/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15259	9/16/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15264	9/21/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15266	9/23/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15273	9/30/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15275	10/2/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15278	10/5/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15279	10/6/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15280	10/7/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15281	10/8/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15282	10/9/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15286	10/13/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15289	10/16/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15292	10/19/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15294	10/21/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15296	10/23/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15299	10/26/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15301	10/28/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15303	10/30/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15308	11/4/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15310	11/6/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15313	11/9/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15315	11/11/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15316	11/12/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15320	11/16/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15323	11/18/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15323	11/19/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15334	11/30/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15336	12/2/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15342	12/8/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15343	12/9/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15344	12/10/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15348	12/14/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15349	12/15/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15351	12/17/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15365	12/31/2015	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16004	1/4/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16006	1/6/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16007	1/7/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15355	1/18/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	15358	1/18/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16011	1/18/2016	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	16012	2/1/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16018	1/25/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16019	1/25/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16020	1/25/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16025	2/1/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16026	2/1/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16027	2/1/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16028	2/1/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16032	2/3/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16033	2/8/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16034	2/8/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16039	2/10/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16040	2/15/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16041	2/17/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16042	2/17/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16046	2/17/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16048	2/22/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16049	2/24/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16054	2/29/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16055	3/14/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16060	3/14/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16061	3/7/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16062	3/25/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16063	3/14/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16068	3/14/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16069	3/25/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16070	3/25/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16076	3/24/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16077	3/30/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16078	3/30/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16081	3/28/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16082	3/28/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16083	3/30/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16084	4/6/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16088	4/4/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16089	4/4/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16091	4/6/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16095	4/6/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16097	4/21/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16098	4/21/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16102	4/13/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16104	4/18/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16105	4/18/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16109	4/20/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16110	4/21/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16112	5/6/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16117	4/28/2016	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	16118	4/29/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16119	5/4/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16123	5/6/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16124	5/6/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16125	5/6/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16126	5/9/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16131	5/17/2016	0.13	0.0001	Dioxin/Furans TEQ	pg/L
K061	16133	5/18/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16138	5/20/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16139	5/20/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16144	6/8/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16145	6/8/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16147	6/8/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16152	6/15/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16154	6/8/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16158	6/13/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16159	6/13/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16160	6/13/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16161	6/13/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16165	6/15/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16166	6/20/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16167	6/20/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16168	6/20/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16172	6/22/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16173	6/29/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16174	6/29/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16175	6/27/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16179	6/29/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16180	7/5/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16181	7/6/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16182	7/6/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16187	7/11/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16188	7/13/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16189	7/11/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16190	7/13/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16193	7/13/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16194	7/18/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16195	7/20/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16197	7/20/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16201	7/25/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16202	7/25/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16203	7/25/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16204	7/27/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16207	8/4/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16208	8/4/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16209	8/4/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16210	8/4/2016	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	16214	8/8/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16216	8/8/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16221	8/17/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16223	8/15/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16224	8/17/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16228	8/22/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16229	8/24/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16230	8/24/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16231	8/24/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16235	9/2/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16236	9/2/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16237	9/2/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16238	9/2/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16242	9/28/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16243	9/26/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16244	9/12/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16252	9/26/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16253	9/20/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16256	10/3/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16257	10/12/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16259	9/26/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16263	9/22/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16265	9/26/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16267	9/28/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16271	10/3/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16273	10/10/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16277	10/10/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16278	10/12/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16280	10/10/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16281	10/12/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16285	10/17/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16286	10/19/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16287	10/19/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16288	10/19/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16291	10/19/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16293	10/31/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16294	10/31/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16298	10/31/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16299	10/31/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16301	11/7/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16307	11/14/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16308	11/7/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16312	11/14/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16313	11/18/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16315	11/14/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16319	11/16/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16320	11/18/2016	0	0.0001	Dioxin/Furans TEQ	pg/L

Type	Batch Number	Date	Result	MDL	Constituent	Units
K061	16321	11/30/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16323	11/30/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16327	11/30/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16328	11/30/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16333	12/5/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16336	12/12/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16340	12/12/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16342	12/12/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16343	12/14/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16347	12/14/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16348	12/19/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16349	12/28/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16350	12/19/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16355	1/23/2017	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16356	12/28/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16357	1/16/2017	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16361	12/28/2016	0	0.0001	Dioxin/Furans TEQ	pg/L
K061	16363	1/4/2017	0	0.0001	Dioxin/Furans TEQ	pg/L

1. MDL = Method Detection Limit
2. pg/L = picograms per liter

APPENDIX 2

DRAS 3.0 Runs to Evaluate Incremental Risk

Site and WMU Information

Delisting Petition Number:	DL-
File Name:	New Dioxane info
Petitioner's Name:	
Address 1:	
Address 2:	
City, State:	
Zip Code:	
Analysis Performed by:	
Date of Analysis:	
Waste Description:	
Waste Code:	K061
WMU Type:	Landfill
Waste Volume (yd^3):	95000
Active Life (years):	20
Risk Factor:	1.00E-06
HQ Factor:	1.00E+00

Select Chemicals of Concern to be Modeled (Steps 4 5)

Chemical Name	CAS Number	TCLP Concentration (mg/L)	TCLP Detection Limit	Total Concentration (mg/kg)	Total Detection Limit	Maximum Contaminant Level (MCL) (mg/L)	Carcinogenic Slope Factor - Oral (CSFo) (kg-day/mg)	Carcinogenic Slope Factor - Inhalation (CSFi) (kg-day/mg)	Reference Dose - Oral (RFDo) (mg/kg-day)
Tetrachlorodibenzo-p-di((TCDD) 2,3,7,8-	1746-01-6	2.10E-10		1.60E-04		3.00E-08	1.50E+05	1.50E+05	0.00E+00

Select Chemicals of Concern to be Modeled (Steps 4 5)

Reference Dose - Inhalation (RFC) (mg/m^3)	Bio- concentration Factor (BCF) (L/kg)	Soil Saturation Level (SOILSAT) (mg/kg)	Toxicity Characteristic Level (TC) (mg/L)	Henry's Law Coefficient (H) ($atm\text{-}m^3/mol\text{-}K$)	Diffusion Coefficient in Water (Dw) (cm^2/sec)	Diffusion Coefficient in Air (Da) (cm^2/sec)	Solubility (SOL) (mg/L)	Landfill Dilution Attenuation Factor (DAFLF)	Surface Impoundment Dilution Attenuation Factor (DAFSI)
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-05	6.81E-06	1.27E-02	1.93E-05	3.55E+11	9.05E+04

Select Chemicals of Concern to be Modeled (Steps 4 5)

Time to reach steady state (T*) (hrs)	Skin Permeability Coefficient (Kpw) (cm/hr)	Tau (T) (hrs)	Bunge Coefficient (B) (unitless)	Organic/ Inorganic	Bio- accumulation Factor (BAF) (L/kg)	Chronic Ecological Threshhold (Aquatic TRV) (mg/L)	Carcinogen/ Noncarcinogen	Molecular Weight (MW) (gm/mol)	Vapor Pressure (Vp) (atm)	Surface Water Partition Coefficient (Kdsw) (L/kg)
3.80E+01	1.40E+00	8.10E+00	6.30E+02	1.00E+00	1.19E+06	3.00E-08	Carcinogen	3.22E+02	9.74E-13	2.18E+04

Select Chemicals of Concern to be Modeled (Steps 4 5)

LogKow
6.80E+00

Limiting Pathways

		Detection Limit Analysis - Toxicity of Petitioned Waste cannot be confirmed if Detection Limits fall below maximum allowable concentration			
Chemical Name	CAS Number	Maximum Allowable TCLP Concentration (mg/L)	Maximum Allowable TCLP Pathway	Maximum Allowable Total Concentration (mg/Kg)	Maximum Allowable Total Pathway
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1746-01-6	4.03E+00	GW Dermal-Adult	3.54E-08	Fish Ingestion

Groundwater Pathway Hazard Quotient

				Petitioned Waste Non-carcinogenic Hazard Quotient - Groundwater Exposure			
Chemical Name	Waste Stream TCLP Concentration (mg/L)	Dilution Attenuation Factor (DAF)	Waste Volume Adjusted DAF	Groundwater Ingestion Pathway	Groundwater Inhalation Pathway	Groundwater Dermal Absorption Pathway - Adult	Groundwater Dermal Absorption Pathway - Child
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	2.10E-10	---	---	---	---	---	---
All Waste Constituents	---	---	---	---	---	---	---

Results for Analysis: New Dioxane info

Groundwater Pathway Hazard Quotient

Petitioned Waste	Groundwater Pathway Aggregate Hazard Quotient
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Groundwater Pathway Risk

			Petitioned Waste Carcinogenic Risk - Groundwater Exposure Pathways					
Chemical Name	Dilution Attenuation Factor (DAF)	Waste Volume Adjusted DAF	Waste Stream TCLP Concentration (mg/L)	Groundwater Ingestion Pathway	Groundwater Inhalation Pathway	Groundwater Dermal Absorption Pathway - Adult	Groundwater Dermal Absorption Pathway - Child	Groundwater Pathway Aggregate Risk
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	**3.55E+11**	3.55E+11	2.10E-10	1.21E-18	8.55E-20	5.21E-17	2.27E-17	5.34E-17
All Waste Constituents	---	---	---	1.21E-18	8.55E-20	5.21E-17	2.27E-17	5.34E-17

Maximum Allowable TCLP Concentrations - Groundwater Exposure Pathways

Chemical Name Risk Factor = 1.00E-06 HQ Factor = 1.00E+00 * = Detection Limit	Actual Waste Stream TCLP Concentration (mg/L)	Limiting Maximum Allowable Receptor Concentration (mg/L)	Dilution Attenuation Factor (DAF)	Waste Volume Adjusted DAF	Delisting Level (Waste) (mg/L - Leachate)	Max. Allowable Receptor Concentration Based on Groundwater Ingestion	Max. Allowable Receptor Concentration Based on Groundwater Inhalation
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	2.10E-10	1.14E-11	3.55E+11	3.55E+11	**4.03E+00**	4.87E-10	6.92E-09

Maximum Allowable TCLP Concentrations - Groundwater Exposure Pathways

Max. Allowable Receptor Concentration Based on Adult Groundwater Dermal Absorption	Max. Allowable Concentration Based on Child Groundwater Dermal Absorption	Max Allowable Concentration Based on MCL (mg/L)
1.14E-11	2.61E-11	3.00E-08

Surface Pathway Hazard Quotient

		Petitioned Waste Non-carcinogenic Hazard Quotient - Surface Water Exposure Pathways					
Chemical Name	Waste Stream Total Concentration (mg/Kg)	Surface Water Ingestion Pathway	Air Particulate Inhalation Pathway	Fish Ingestion Pathway	Soil Ingestion Pathway	Air Volatile Inhalation Pathway	Surface Pathway Aggregate Hazard Quotient
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1.60E-04	---	---	---	---	---	---
All Waste Constituents	---	---	---	---	---	---	---

Surface Pathway Risk

		Petitioned Waste Carcinogenic Risk - Surface Water Exposure Pathways					
Chemical Name	Waste Stream Total Concentration (mg/Kg)	Surface Water Ingestion Pathway	Air Particulate Inhalation Pathway	Fish Ingestion Pathway	Soil Ingestion Pathway	Air Volatile Inhalation Pathway	Surface Pathway Aggregate Cancer Risk
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1.60E-04	5.95E-09	1.46E-09	4.51E-03	2.14E-09	9.57E-19	4.51E-03
All Waste Constituents	---	5.95E-09	1.46E-09	4.51E-03	2.14E-09	9.57E-19	4.51E-03

Maximum Allowable Total Concentrations - Surface Exposure Pathways

		Maximum Allowable Total Concentration (mg/Kg)						
Chemical Name Risk Factor = 1.00E-06 HQ Factor = 1.00E+00 * = Detection Limit	Waste Stream Total Concentration (mg/Kg)	Maximum Allowable Total Concentration (mg/kg)	Delisting Level (waste) (mg/L)	Surface Water Ingestion	Air Particulate Inhalation	Fish Ingestion	Soil Ingestion	Air Volatile Inhalation
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	*1.60E-04*	*3.54E-08*	*	*2.69E-02*	*1.09E-01*	*3.54E-08*	*7.47E-02*	*1.67E+08*

Aggregate Risk and Hazard Quotient Results

		Petitioned Waste Aggregate Non-carcinogenic Hazard			Petitioned Waste Aggregate Carcinogenic Risk		
Chemical Name	CAS Number	Aggregate HI-Groundwater Pathways	Aggregate HI-Surface Pathways	Total Aggregate Hazard Index	Aggregate Risk-Groundwater Pathways	Aggregate Risk-Surface Pathways	Total Aggregate Risk
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1746-01-6	---	---	---	5.34E-17	4.51E-03	4.51E-03
All Waste Constituents Excluding Non-detect Risk	---	---	---	---	**5.34E-17**	**4.51E-03**	**4.51E-03**
All Waste Constituents Including Non-detect Risk	---	---	---	---	**5.34E-17**	**4.51E-03**	**4.51E-03**

Pathways Exceeding the Delisting Limits

		Exceeding Pathways Analysis - Chemicals that exceed the delisting level listed by exceeding pathway					
Chemical Name	CAS Number	Actual TCLP Concentration (mg/L)	Limiting TCLP Concentration (mg/L)	Limiting TCLP Pathway	Actual Total Concentration (mg/kg)	Limiting Total Concentration (mg/Kg)	Limiting Total Pathway
Tetrachlorodibenzo-p-dioxin (TCDD) 2.3.7.8-	1746-01-6	---	---	---	1.60E-04	3.54E-08	Fish Ingestion

Select Chemicals of Concern to be Modeled (Steps 4 5)

Chemical Name	CAS Number	TCLP Concentration (mg/L)	TCLP Detection Limit	Total Concentration (mg/kg)	Total Detection Limit	Maximum Contaminant Level (MCL) (mg/L)	Carcinogenic Slope Factor - Oral (CSFo) (kg-day/mg)	Carcinogenic Slope Factor - Inhalation (CSFi) (kg-day/mg)	Reference Dose - Oral (RFDo) (mg/kg-day)
Tetrachlorodibenzo-p-dic (TCDD) 2,3,7,8-	1746-01-6	4.60E-10		1.60E-04		3.00E-08	1.50E+05	1.50E+05	0.00E+00

Select Chemicals of Concern to be Modeled (Steps 4 5)

Reference Dose - Inhalation (RFC) (mg/m^3)	Bio- concentration Factor (BCF) (L/kg)	Soil Saturation Level (SOILSAT) (mg/kg)	Toxicity Characteristic Level (TC) (mg/L)	Henry's Law Coefficient (H) ($atm\text{-}m^3/mol\text{-}K$)	Diffusion Coefficient in Water (Dw) (cm^2/sec)	Diffusion Coefficient in Air (Da) (cm^2/sec)	Solubility (SOL) (mg/L)	Landfill Dilution Attenuation Factor (DAFLF)	Surface Impoundment Dilution Attenuation Factor (DAFSI)
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-05	6.81E-06	1.27E-02	1.93E-05	3.55E+11	9.05E+04

Select Chemicals of Concern to be Modeled (Steps 4 5)

Time to reach steady state (T*) (hrs)	Skin Permeability Coefficient (Kpw) (cm/hr)	Tau (T) (hrs)	Bunge Coefficient (B) (unitless)	Organic/ Inorganic	Bio- accumulation Factor (BAF) (L/kg)	Chronic Ecological Threshhold (Aquatic TRV) (mg/L)	Carcinogen/ Noncarcinogen	Molecular Weight (MW) (gm/mol)	Vapor Pressure (Vp) (atm)	Surface Water Partition Coefficient (Kdsw) (L/kg)
3.80E+01	1.40E+00	8.10E+00	6.30E+02	1.00E+00	1.19E+06	3.00E-08	Carcinogen	3.22E+02	9.74E-13	2.18E+04

Select Chemicals of Concern to be Modeled (Steps 4 5)

LogKow
6.80E+00

Limiting Pathways

		Detection Limit Analysis - Toxicity of Petitioned Waste cannot be confirmed if Detection Limits fall below maximum allowable concentration				
Chemical Name	CAS Number	Maximum Allowable TCLP Concentration (mg/L)	Maximum Allowable TCLP Pathway	Maximum Allowable Total Concentration (mg/Kg)	Maximum Allowable Total Pathway
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1746-01-6	4.03E+00	GW Dermal-Adult	3.54E-08	Fish Ingestion

Groundwater Pathway Hazard Quotient

				Petitioned Waste Non-carcinogenic Hazard Quotient - Groundwater Exposure			
Chemical Name	Waste Stream TCLP Concentration (mg/L)	Dilution Attenuation Factor (DAF)	Waste Volume Adjusted DAF	Groundwater Ingestion Pathway	Groundwater Inhalation Pathway	Groundwater Dermal Absorption Pathway - Adult	Groundwater Dermal Absorption Pathway - Child
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	4.60E-10	---	---	---	---	---	---
All Waste Constituents	---	---	---	---	---	---	---

Groundwater Pathway Hazard Quotient

Petitioned Waste	Groundwater Pathway Aggregate Hazard Quotient
---	---

Groundwater Pathway Risk

			Petitioned Waste Carcinogenic Risk - Groundwater Exposure Pathways					
Chemical Name	Dilution Attenuation Factor (DAF)	Waste Volume Adjusted DAF	Waste Stream TCLP Concentration (mg/L)	Groundwater Ingestion Pathway	Groundwater Inhalation Pathway	Groundwater Dermal Absorption Pathway - Adult	Groundwater Dermal Absorption Pathway - Child	Groundwater Pathway Aggregate Risk
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	**3.55E+11**	3.55E+11	4.60E-10	2.66E-18	1.87E-19	1.14E-16	4.97E-17	1.17E-16
All Waste Constituents	---	---	---	2.66E-18	1.87E-19	1.14E-16	4.97E-17	1.17E-16

Results for Analysis: New Dioxane info

Maximum Allowable TCLP Concentrations - Groundwater Exposure Pathways

Chemical Name Risk Factor = 1.00E-06 HQ Factor = 1.00E+00 * = Detection Limit	Actual Waste Stream TCLP Concentration (mg/L)	Limiting Maximum Allowable Receptor Concentration (mg/L)	Dilution Attenuation Factor (DAF)	Waste Volume Adjusted DAF	Delisting Level (Waste) (mg/L - Leachate)	Max. Allowable Receptor Concentration Based on Groundwater Ingestion	Max. Allowable Receptor Concentration Based on Groundwater Inhalation
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	4.60E-10	1.14E-11	3.55E+11	3.55E+11	**4.03E+00**	4.87E-10	6.92E-09

Results for Analysis: New Dioxane info

Maximum Allowable TCLP Concentrations - Groundwater Exposure Pathways

Max. Allowable Receptor Concentration Based on Adult Groundwater Dermal Absorption	Max. Allowable Concentration Based on Child Groundwater Dermal Absorption	Max Allowable Concentration Based on MCL (mg/L)
1.14E-11	2.61E-11	3.00E-08

Surface Pathway Hazard Quotient

		Petitioned Waste Non-carcinogenic Hazard Quotient - Surface Water Exposure Pathways					
Chemical Name	Waste Stream Total Concentration (mg/Kg)	Surface Water Ingestion Pathway	Air Particulate Inhalation Pathway	Fish Ingestion Pathway	Soil Ingestion Pathway	Air Volatile Inhalation Pathway	Surface Pathway Aggregate Hazard Quotient
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1.60E-04	---	---	---	---	---	---
All Waste Constituents	---	---	---	---	---	---	---

Surface Pathway Risk

		Petitioned Waste Carcinogenic Risk - Surface Water Exposure Pathways					
Chemical Name	Waste Stream Total Concentration (mg/Kg)	Surface Water Ingestion Pathway	Air Particulate Inhalation Pathway	Fish Ingestion Pathway	Soil Ingestion Pathway	Air Volatile Inhalation Pathway	Surface Pathway Aggregate Cancer Risk
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1.60E-04	5.95E-09	1.46E-09	4.51E-03	2.14E-09	9.57E-19	4.51E-03
All Waste Constituents	---	5.95E-09	1.46E-09	4.51E-03	2.14E-09	9.57E-19	4.51E-03

Maximum Allowable Total Concentrations - Surface Exposure Pathways

		Maximum Allowable Total Concentration (mg/Kg)						
Chemical Name Risk Factor = 1.00E-06 HQ Factor = 1.00E+00 * = Detection Limit	Waste Stream Total Concentration (mg/Kg)	Maximum Allowable Total Concentration (mg/kg)	Delisting Level (waste) (mg/L)	Surface Water Ingestion	Air Particulate Inhalation	Fish Ingestion	Soil Ingestion	Air Volatile Inhalation
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	*1.60E-04*	*3.54E-08*	*	*2.69E-02*	*1.09E-01*	*3.54E-08*	*7.47E-02*	*1.67E+08*

Aggregate Risk and Hazard Quotient Results

		Petitioned Waste Aggregate Non-carcinogenic Hazard			Petitioned Waste Aggregate Carcinogenic Risk		
Chemical Name	CAS Number	Aggregate HI-Groundwater Pathways	Aggregate HI-Surface Pathways	Total Aggregate Hazard Index	Aggregate Risk-Groundwater Pathways	Aggregate Risk-Surface Pathways	Total Aggregate Risk
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1746-01-6	---	---	---	1.17E-16	4.51E-03	4.51E-03
All Waste Constituents Excluding Non-detect Risk	**---**	**---**	**---**	**---**	**1.17E-16**	**4.51E-03**	**4.51E-03**
All Waste Constituents Including Non-detect Risk	---	---	---	---	**1.17E-16**	**4.51E-03**	**4.51E-03**

Pathways Exceeding the Delisting Limits

		Exceeding Pathways Analysis - Chemicals that exceed the delisting level listed by exceeding pathway					
Chemical Name	CAS Number	Actual TCLP Concentration (mg/L)	Limiting TCLP Concentration (mg/L)	Limiting TCLP Pathway	Actual Total Concentration (mg/kg)	Limiting Total Concentration (mg/Kg)	Limiting Total Pathway
Tetrachlorodibenzo-p-dioxin (TCDD) 2.3.7.8-	1746-01-6	---	---	---	1.60E-04	3.54E-08	Fish Ingestion

Select Chemicals of Concern to be Modeled (Steps 4 5)

Chemical Name	CAS Number	TCLP Concentration (mg/L)	TCLP Detection Limit	Total Concentration (mg/kg)	Total Detection Limit	Maximum Contaminant Level (MCL) (mg/L)	Carcinogenic Slope Factor - Oral (CSFo) (kg-day/mg)	Carcinogenic Slope Factor - Inhalation (CSFi) (kg-day/mg)	Reference Dose - Oral (RFDo) (mg/kg-day)
Tetrachlorodibenzo-p-dic (TCDD) 2,3,7,8-	1746-01-6	2.05E-10		1.60E-04		3.00E-08	1.50E+05	1.50E+05	0.00E+00

Select Chemicals of Concern to be Modeled (Steps 4 5)

Reference Dose - Inhalation (RFC) (mg/m^3)	Bio- concentration Factor (BCF) (L/kg)	Soil Saturation Level (SOILSAT) (mg/kg)	Toxicity Characteristic Level (TC) (mg/L)	Henry's Law Coefficient (H) ($atm\text{-}m^3/mol\text{-}K$)	Diffusion Coefficient in Water (Dw) (cm^2/sec)	Diffusion Coefficient in Air (Da) (cm^2/sec)	Solubility (SOL) (mg/L)	Landfill Dilution Attenuation Factor (DAFLF)	Surface Impoundment Dilution Attenuation Factor (DAFSI)
0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-05	6.81E-06	1.27E-02	1.93E-05	3.55E+11	9.05E+04

Select Chemicals of Concern to be Modeled (Steps 4 5)

Time to reach steady state (T*) (hrs)	Skin Permeability Coefficient (Kpw) (cm/hr)	Tau (T) (hrs)	Bunge Coefficient (B) (unitless)	Organic/ Inorganic	Bio- accumulation Factor (BAF) (L/kg)	Chronic Ecological Threshhold (Aquatic TRV) (mg/L)	Carcinogen/ Noncarcinogen	Molecular Weight (MW) (gm/mol)	Vapor Pressure (Vp) (atm)	Surface Water Partition Coefficient (Kdsw) (L/kg)
3.80E+01	1.40E+00	8.10E+00	6.30E+02	1.00E+00	1.19E+06	3.00E-08	Carcinogen	3.22E+02	9.74E-13	2.18E+04

Select Chemicals of Concern to be Modeled (Steps 4 5)

LogKow
6.80E+00

List of COCs with Altered Chemical Properties

Chemical Name	CAS Number	Parameter Modified	Parameter Symbol	Parameter Units	Original Value	Modified Value
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1746-01-6	Skin Permeability Coefficient	Kpw	cm/hr	1.4	1.4
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1746-01-6				6.8	498953107388

Limiting Pathways

		Detection Limit Analysis - Toxicity of Petitioned Waste cannot be confirmed if Detection Limits fall below maximum allowable concentration			
Chemical Name	CAS Number	Maximum Allowable TCLP Concentration (mg/L)	Maximum Allowable TCLP Pathway	Maximum Allowable Total Concentration (mg/Kg)	Maximum Allowable Total Pathway
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1746-01-6	4.03E+00	GW Dermal-Adult	3.54E-08	Fish Ingestion

Results for Analysis: New Dioxane info

Groundwater Pathway Hazard Quotient

				Petitioned Waste Non-carcinogenic Hazard Quotient - Groundwater Exposure			
Chemical Name	Waste Stream TCLP Concentration (mg/L)	Dilution Attenuation Factor (DAF)	Waste Volume Adjusted DAF	Groundwater Ingestion Pathway	Groundwater Inhalation Pathway	Groundwater Dermal Absorption Pathway - Adult	Groundwater Dermal Absorption Pathway - Child
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	2.05E-10	---	---	---	---	---	---
All Waste Constituents	---	---	---	---	---	---	---

Groundwater Pathway Hazard Quotient

Petitioned Waste	Groundwater Pathway Aggregate Hazard Quotient
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Groundwater Pathway Risk

			Petitioned Waste Carcinogenic Risk - Groundwater Exposure Pathways					
Chemical Name	Dilution Attenuation Factor (DAF)	Waste Volume Adjusted DAF	Waste Stream TCLP Concentration (mg/L)	Groundwater Ingestion Pathway	Groundwater Inhalation Pathway	Groundwater Dermal Absorption Pathway - Adult	Groundwater Dermal Absorption Pathway - Child	Groundwater Pathway Aggregate Risk
Tetrachlorodibenzo-p-dioxin (TCDD) 2 3 7 8-	**3.55E+11**	3.55E+11	2.05E-10	1.18E-18	8.35E-20	5.08E-17	2.21E-17	5.21E-17
All Waste Constituents	---	---	---	1.18E-18	8.35E-20	5.08E-17	2.21E-17	5.21E-17

Maximum Allowable TCLP Concentrations - Groundwater Exposure Pathways

Chemical Name Risk Factor = 1.00E-06 HQ Factor = 1.00E+00 * = Detection Limit	Actual Waste Stream TCLP Concentration (mg/L)	Limiting Maximum Allowable Receptor Concentration (mg/L)	Dilution Attenuation Factor (DAF)	Waste Volume Adjusted DAF	Delisting Level (Waste) (mg/L - Leachate)	Max. Allowable Receptor Concentration Based on Groundwater Ingestion	Max. Allowable Receptor Concentration Based on Groundwater Inhalation
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	2.05E-10	1.14E-11	3.55E+11	3.55E+11	**4.03E+00**	4.87E-10	6.92E-09

Maximum Allowable TCLP Concentrations - Groundwater Exposure Pathways

Max. Allowable Receptor Concentration Based on Adult Groundwater Dermal Absorption	Max. Allowable Concentration Based on Child Groundwater Dermal Absorption	Max Allowable Concentration Based on MCL (mg/L)
1.14E-11	2.61E-11	3.00E-08

Surface Pathway Hazard Quotient

		Petitioned Waste Non-carcinogenic Hazard Quotient - Surface Water Exposure Pathways					
Chemical Name	Waste Stream Total Concentration (mg/Kg)	Surface Water Ingestion Pathway	Air Particulate Inhalation Pathway	Fish Ingestion Pathway	Soil Ingestion Pathway	Air Volatile Inhalation Pathway	Surface Pathway Aggregate Hazard Quotient
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1.60E-04	---	---	---	---	---	---
All Waste Constituents	---	---	---	---	---	---	---

Surface Pathway Risk

		Petitioned Waste Carcinogenic Risk - Surface Water Exposure Pathways					
Chemical Name	Waste Stream Total Concentration (mg/Kg)	Surface Water Ingestion Pathway	Air Particulate Inhalation Pathway	Fish Ingestion Pathway	Soil Ingestion Pathway	Air Volatile Inhalation Pathway	Surface Pathway Aggregate Cancer Risk
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1.60E-04	5.95E-09	1.46E-09	4.51E-03	2.14E-09	9.57E-19	4.51E-03
All Waste Constituents	---	5.95E-09	1.46E-09	4.51E-03	2.14E-09	9.57E-19	4.51E-03

Maximum Allowable Total Concentrations - Surface Exposure Pathways

		Maximum Allowable Total Concentration (mg/Kg)						
Chemical Name Risk Factor = 1.00E-06 HQ Factor = 1.00E+00 * = Detection Limit	Waste Stream Total Concentration (mg/Kg)	Maximum Allowable Total Concentration (mg/kg)	Delisting Level (waste) (mg/L)	Surface Water Ingestion	Air Particulate Inhalation	Fish Ingestion	Soil Ingestion	Air Volatile Inhalation
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	*1.60E-04*	*3.54E-08*	*	*2.69E-02*	*1.09E-01*	*3.54E-08*	*7.47E-02*	*1.67E+08*

Aggregate Risk and Hazard Quotient Results

		Petitioned Waste Aggregate Non-carcinogenic Hazard			Petitioned Waste Aggregate Carcinogenic Risk		
Chemical Name	CAS Number	Aggregate HI-Groundwater Pathways	Aggregate HI-Surface Pathways	Total Aggregate Hazard Index	Aggregate Risk-Groundwater Pathways	Aggregate Risk-Surface Pathways	Total Aggregate Risk
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1746-01-6	---	---	---	5.21E-17	4.51E-03	4.51E-03
All Waste Constituents Excluding Non-detect Risk	---	---	---	---	**5.21E-17**	**4.51E-03**	**4.51E-03**
All Waste Constituents Including Non-detect Risk	---	---	---	---	**5.21E-17**	**4.51E-03**	**4.51E-03**

Results for Analysis: New Dioxane info

Pathways Exceeding the Delisting Limits

	Exceeding Pathways Analysis - Chemicals that exceed the delisting level listed by exceeding pathway						
Chemical Name	CAS Number	Actual TCLP Concentration (mg/L)	Limiting TCLP Concentration (mg/L)	Limiting TCLP Pathway	Actual Total Concentration (mg/kg)	Limiting Total Concentration (mg/Kg)	Limiting Total Pathway
Tetrachlorodibenzo-p-dioxin (TCDD) 2,3,7,8-	1746-01-6	---	---	---	1.60E-04	3.54E-08	Fish Ingestion

EXHIBIT C

Proposed Modified Adjusted Standard Order

ORDER

The Illinois Pollution Control Board (Board) grants to Peoria Disposal Company (PDC) a delisting adjusted standard from 35 Ill. Adm. Code 721.Subpart D, subject to the following conditions:

1. This adjusted standard applies only with respect to PDC's facility located at 4349 W. Southport Road in Peoria, Peoria County, Illinois. This adjusted standard becomes effective on January 8, 2009, and remains in effect for as long as PDC maintains a valid Resource Conservation and Recovery Act (RCRA) Part B permit for the Waste Stabilization Facility (WSF).

2. a. This adjusted standard is provided only for the residue resulting from the treatment of K061 RCRA listed hazardous waste using PDC's new proprietary stabilization technology described in the RCRA Delisting Adjusted Standard Petition for PDC's EAF Dust Stabilized Residue (EAFDSR), including the Technical Support Document, filed by PDC with the Board on April 25, 2008 (Petition); provided, however, that the treatment process and chemicals may be modified pursuant to condition 3(b). The K061 waste streams must be from among the steel mills represented in the Petition's full-scale, in-plant trials; provided, however, that other K061 waste streams may be added pursuant to condition 3(a). This adjusted standard is provided for up to a total annual waste disposal volume of EAFDSR of 95,000 cubic yards.

   b. PDC's EAFDSR meeting the delisting levels of condition 4 is non-hazardous as defined in 35 Ill.Adm.Code 721 and no longer subject to regulation under 35 Ill.Adm.Code 722-728 or the permitting standards of 35 Ill. Adm. Code 703; provided, however, that PDC remains obligated to determine whether the EAFDSR is characteristically hazardous waste by operation of Subpart C of 35 Ill.Adm.Code 721. The EAFDSR must meet the verification testing requirements of condition 3 to ensure that hazardous constituents are not present in the EAFDSR at levels of regulatory concern. The EAFDSR must be handled as K061 RCRA listed hazardous waste unless and until it meets the delisting levels of condition 4 as verified by testing pursuant to condition 3.

   c. PDC's non-hazardous EAFDSR must be disposed of off-site in a RCRA Subtitle D landfill that:

      i. Has a liner, a leachate collection system, and a groundwater monitoring system;

      ii. Is located in the State of Illinois and permitted by the Illinois Environmental Protection Agency (IEPA);

iii Meets the requirements of the Board's non-hazardous solid waste landfill regulations at 35 Ill. Adm. Code 810-814; and

iv. Has all necessary IEPA-issued permits to receive the non-hazardous EAFDSR.

3. Verification Testing.

a. Bench-Scale Treatability Testing.

i. Except as provided in condition 3(a)(ii), PDC must verify through bench-scale treatability testing that each K061 waste stream received by PDC for chemical stabilization can be treated to consistently meet the delisting levels of condition 4 prior to the operation of full-scale treatment of that waste stream.

ii. PDC is not required to conduct bench-scale treatability testing under condition 3(a)(i) for any K061 waste streams from the steel mills already represented in the Petition's full-scale, in-plant trials; provided, however, that if there is a significant change in the treatment process or chemicals pursuant to condition 3(b), PDC must conduct such bench-scale treatability testing prior to the operation of full-scale treatment of any of those waste streams.

iii. PDC must submit a report of the treatability testing to IEPA within seven days after completing such testing.

b. Modification in Treatment Process or Chemicals.

i. Before implementing any significant change in the full-scale treatment process or chemicals, PDC must, in accordance with 35 Ill.Adm.Code 720.122(h), analyze the new treatment residue for:

A. Compliance with the delisting levels of condition 4;

B. The constituents of 35 Ill. Adm. Code 724, Appendix I, less pesticides and herbicides;

C. Oil and grease, pH, total cyanide, total sulfide; and

D. The RCRA toxicity characteristic constituents of 35 Ill.Adm.Code 721.124.

ii. At least 15 days before implementing any significant change in the full-scale treatment process or chemicals, PDC must submit to IEPA the results of the testing described in condition 3(b)(i) and the bench-scale treatability testing described in condition 3(a).

iii. If no delisting level in condition 4 is exceeded and no new hazardous constituent is detected during the testing described in condition 3(b)(i), then the new treatment residue shall be considered to be within the scope of this adjusted standard, subject to compliance with bench-scale treatability testing requirements under condition 3(a).

iv. If any delisting level of condition 4 is exceeded or if any new hazardous constituent is detected during the testing described in condition 3(b)(i), and PDC wishes to have the new treatment residue considered to be within the scope of this adjusted standard, PDC may file a petition with the Board to amend this adjusted standard. Such petition must comply with 35 Ill.Adm.Code 720.122. New treatment residue must be handled as K061 RCRA listed hazardous waste unless and until the Board issues a written decision granting the petition to amend the adjusted standard under 35 Ill.Adm.Code 720.122.

v. For purposes of condition 3(b):

A. A "significant change" in the treatment process means mixing effort less than that used in the Petition's full-scale, in-plant trials.

B. A "significant change" in the treatment chemicals means a difference in the treatment chemicals from those used in the Petition's full-scale, in-plant trials, including different chemicals and different ratios, dosages, or sources of the same chemicals; provided, however, that this provision does not apply to different ratios or dosages of the same chemicals from the same sources used pursuant to condition 3(c)(ii)(B) unless such different ratios or dosages could introduce a new hazardous constituent to the new treatment residue.

C. A "new hazardous constituent" means a chemical listed in 35 Ill. Adm.Code 724.Appendix I that:

I. Was not detected as part of the Petition; or

II. Was detected as part of the Petition and excluded from condition 4, but which is detected during the testing described in condition 3(b)(i) at a concentration greater than the highest concentration detected as part of the Petition.

D. "New treatment residue" means the waste resulting from treatment after a significant change in the treatment process or chemicals.

c. Testing of Treatment Residue.

i. PDC must collect representative grab samples of each treated mixer load of the EAFDSR and composite the grab samples to produce a daily composite batch sample. This sample must be analyzed for TCLP leachate concentrations for all the constituents listed in condition 4 prior to disposal of the treated daily batch.

ii. If a verification sample does not indicate compliance with all delisting levels, the treatment residue must be:

Treated further using additional curing time as the chemical reagents complete their reactions with the waste, followed by another round of verification sampling and analysis;

A. Re-processed through the WSF for re-treatment, followed by another round of verification sampling and analysis; or

B. Managed as K061 RCRA listed hazardous waste at a properly permitted RCRA Subtitle C facility.

iii. All subsequent verification analyses must:

A. Be conducted on a composite sample that represents the entire daily batch as did the preceding sample that contained any concentration of a constituent exceeding the constituent's value in condition 4; and

B. Include analysis for all constituents listed in condition 4.

iv. If all delisting levels are not achieved within the maximum storage time allowed PDC by its RCRA Part B permit, the entire daily batch must undergo re-treatment in the WSF or be managed as K061 RCRA listed hazardous waste as required by 35 Ill. Adm.Code 728 and the WSF RCRA Part B permit.

v. PDC must submit annually to IEPA the data collected pursuant to condition 3(c) and a summary of the data. Alternatively, IEPA may consent to receipt of only the summary or a subset of the data or both.

d. All analyses must be performed according to SW-846 methodologies incorporated by reference in 35 Ill. Adm. Code 720. The analytical data must be compiled and maintained for a minimum of three years on site. These data must be furnished upon request of and made available for inspection by any employee or representative of the State of Illinois.

4. Delisting Levels. Based on testing pursuant to condition 3, the constituent concentration in TCLP leachate from the EAFDSR must not exceed any of the values shown below, otherwise such wastes must be managed and disposed of as K061 RCRA listed hazardous waste in accordance with 35 Ill. Adm.Code 703 and 722-728.

Constituent	**TCLP Delisting Level (mg/L)**
Antimony	0.206
Arsenic	0.0936
Barium	21.0
Beryllium	0.416
Cadmium	0.11
Chromium (Total)	0.6
Lead	0.75
Mercury	0.025
Nickel	11.0
Selenium	0.58
Silver	0.14
Thallium	0.088
Vanadium	3.02
Zinc	4.3

5. Data Submittal. All data must be submitted to the Manager of the Permit Section, Bureau of Land, Illinois Environmental Protection Agency, 1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 within the time period specified. At IEPA's request, PDC must submit any other analytical data obtained pursuant to condition 3(c) within the time period specified by IEPA. All data must be accompanied with the following certification statement:

> Under civil and criminal penalty of law for the making or submission of false or fraudulent statements or representations, I certify that the information contained in or accompanying this document is true, accurate, and complete.

As to any identified section of this document for which I cannot personally verify its truth, accuracy, or completeness, I certify, as Peoria Disposal Company's official having supervisory responsibility for the person(s) who, acting under my direct instructions, made the verification, that this information is true, accurate, and complete.

In the event that any of this information is determined by the Board or a court of law to be false, inaccurate, or incomplete, I recognize and agree that this exclusion of waste will be void as if it never had effect or to the extent directed by the Board or court and that Peoria Disposal Company will be liable for any actions taken in contravention of its obligations under RCRA (including its RCRA Part B permit) or the Comprehensive Environmental Response, Compensation and Liability Act or corresponding provisions of the Environmental Protection Act premised upon Peoria Disposal Company's reliance on the void exclusion.

_____
(Name of certifying person)

_____
(Title of certifying person)

_____
(Date)

6. PDC, at least 15 calendar days before transporting an initial load of delisted EAFDSR to a given disposal facility, must provide IEPA with a one-time, written notification identifying that disposal facility. The notification submittal must be addressed as specified in condition 5.

IT IS SO ORDERED.

Section 41(a) of the Environmental Protection Act provides that final Board orders may be appealed directly to the Illinois Appellate Court within 35 days after the Board serves the order. 415 ILCS 5/41(a) (2016); *see also* 35 Ill.Adm.Code 101.300(d)(2), 101.906, 102.706. Illinois Supreme Court Rule 335 establishes filing requirements that apply when the Illinois Appellate Court, by statute, directly reviews administrative orders. 172 Ill.2d R. 335. The Board's procedural rules provide that motions for the Board to reconsider or modify its final orders may be filed with the Board within 35 days after the order is received. 35 Ill.Adm.Code 101.520; *see also* 35 Ill.Adm. Code 101.902, 102.700, 102.702.

I, Don Brown, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above order on _____, 201__, by a vote of _____.

_____
Don Brown, Clerk of the Illinois Pollution Control Board