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September 11, 2015

VIA FEDERAL EXPRESS OVERNIGHT DELIVERY
U.S. Environmental Protection Agency
Clerk of the Board, Environmental Appeals Board
1201 Constitution Avenue, NW
WJC East Building, Room 3332
Washington, DC 20460

RE: *In re: Carbon Injection Systems LLC, et al.*, RCRA Appeal No. 15-01 (*sua sponte* review of *U.S. EPA v. Carbon Injection Systems, Eric Lofquist and Scott Forster,* Docket No. RCRA-05-2011-009)

Clerk of the Board:

On behalf of my clients, respondents Carbon Injection Systems LLC, Eric Lofquist and Scott Forster (collectively, "Respondents"), and pursuant to the Board's July 14, 2015 Order Identifying Issues to be Briefed, enclosed please find two copies of the Respondents' Response Brief to Region 5's Opening Brief.

If you have any questions regarding the submittal of these items, please contact the undersigned.

Very truly yours,

Keven Drummond Eiber

Enclosures
cc: Environmental Appeals Board (w/ encl.)
Jonathan Fleuchaus (w/ encl.)
Catherine Garypie/Jeffrey Cahn (w/ encl.)
Eric Lofquist (w/ encl.)
Scott Forster (w/ encl.)
Meagan Moore (w/o encl.)

BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC

In re:	)	
	)	**RCRA Appeal No. 15-01**
Carbon Injection Systems LLC;	)	
Scott Forster, and Eric Lofquist,	)	
	)	
Docket no. RCRA-05-2011-0009	)	
	)	
Respondents.	)	

RESPONDENTS CARBON INJECTION SYSTEMS LLC, SCOTT FORSTER AND ERIC LOFQUIST'S RESPONSE BRIEF

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INTRODUCTION

Region 5's argument, succinctly stated, is that injectants are burned for energy recovery because U.S. EPA said so in its Cadence discussion, and this was notice enough. With respect to whether energy includes chemical energy, Region 5 points to no prior interpretative materials that would support such a reading. Rather, Region 5 conflates "material recovery" with "energy recovery," two possible reasons for burning that U.S. EPA consistently has *distinguished* when explaining its regulations. Finally, conceding that injectants in fact supply no substantial useful heat energy to the blast furnace, Region 5 belatedly attempts to show that WCI Steel used top gases from the blast furnace as fuel, as if the possible later use of a by-product of the blast furnace could justify characterizing as wastes the raw materials used to make iron. Region 5's arguments provide no basis to overrule the ALJ's well-reasoned Initial Decision.

ARGUMENT

A. The Phrase "Burned For Energy Recovery" Does Not Include Materials Burned to Recover Chemical Energy.

Region 5's argument that the phrase "burned for energy recovery" includes materials burned for "chemical energy" is flawed in many respects. In essence, however, Region 5's argument boils down to an attempt to equate "material recovery" with "energy recovery," although clearly U.S. EPA has never done so.

First, Region 5 is incorrect that "the terms 'burned' and 'recover' are not [at] issue in this matter." (Region 5 Opening Brief, p. 6). Although the experts appeared to not dispute the definition of "burning," the parties in fact disagree about the extent to which injectants are "burned" in the blast furnace and the parties disagree about the products, if any, of such burning. Moreover, if energy includes "chemical energy," which is contested here, to the extent the recovery of such chemical energy is not accomplished by "burning," the phrase "burned for

energy recovery" still would have no applicability. This is because U.S. EPA determined that burning a material indicates an intent to discard it, and it is discarded materials that are considered wastes. Moreover, while U.S. EPA recognizes the value of, and encourages recycling, it draws the line at recycling by "burning." Region 5, of course, knows that whether the injectants are burned, and whether the burning results in the recovery of energy, are issues that are central to this case. Region 5 even goes so far as to refer, misleadingly, to the blast furnace as a "combustion unit," although none of the expert witnesses or the ALJ characterized it as such.[1]

In addition, in its continued reliance on U.S. EPA's 1985 Cadence discussion, Region 5 continues to insist that because U.S. EPA previously determined that the injectants supply heat upon combustion in the raceway, this is enough to confer jurisdiction, notwithstanding the failure of proof in this regard. Region 5, of course, now knows that U.S. EPA's earlier conclusions in this regard were wrong, and it has conceded that injectants supply no substantial useful heat in the raceway. Accordingly, and belatedly, Region 5 argues that the top gases that are produced by the blast furnace operator provide the necessary heat energy to confer jurisdiction. Other than revealing Region 5's own uncertainty with regard to its chemical energy theory, this also fails, for the reasons discussed in more detail in section D.4., below.

The more significant flaw in Region 5's reasoning is its failure to recognize the difference between "chemical energy" and "material recovery." Region 5 states, without citation, that U.S. EPA "has, in fact, specifically found that the recovery of *chemical* energy can

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[1] Region 5 states, in its Opening Brief, that "as the AJL found, experts for both parties testified that injectants are intentionally added to the combustion unit", citing p. 42 of the ALJ's Initial Decision. Not only did none of the experts ever refer to the blast furnace as a "combustion unit," U.S. EPA in its Cadence discussion called it a "large, shaft (vertical) reactor." 50 Fed. Reg. 49172. Professor Fruehan also classified the blast furnace as a "countercurrent reactor," rejecting the idea of calling it a "combustion unit." (Tr., Vol. V, p. 1132). More importantly, the ALJ's Initial Decision at page 42 provides no support for any such "finding."

be the basis for determining that the burning of this type of material will result in a regulatory solid waste." (Region 5's Opening Brief, p. 12 (emphasis in original)). As its support for this statement, Region 5 points to excerpts in the 1985, 1987 and 1991 preambles to various rulemaking, none of which specifically discuss the concept of *chemical* energy as Professor Fruehan described it. Rather, these excerpts simply reflect U.S. EPA's evolving intent, within the scope of its jurisdiction, to regulate burning of hazardous waste depending on whether the *purpose*, but not the *effect*, of the burning is for destruction, energy recovery or material recovery.

> EPA envisions an ultimate regulatory scheme where regulation of burning applies (as may be necessary to protect human health and the environment) regardless of purpose in all situations *within the Agency's jurisdiction*. . . . In EPA's forthcoming regulations establishing permit standard for burning in boilers and industrial furnaces, EPA will establish permit standards for industrial furnaces burning for material recovery (as well as for energy recovery or destruction) in all situations *not beyond EPA's regulatory authority*.

50 Fed. Reg. 49166-49167(emphasis added). In those forthcoming regulations,[2] U.S. EPA did, in fact, establish permit standards for industrial furnaces regardless of purpose, including blast furnaces. But U.S. EPA did so only after having already concluded that this was not beyond EPA's regulatory authority because it believed that injectants provide substantial, useful heat energy in the blast furnace.

In sum, the preambles referenced by Region 5 contain no discussion of "chemical energy." They do discuss the recovery of material valued, but in those discussions U.S. EPA was distinguishing between energy recovery and material recovery. In none of those discussions does U.S. EPA even remotely, let alone "specifically" describe material recovery as another form

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[2] Burning of Hazardous Waste in Boilers and Industrial Furnaces: Proposed rule and request for comment, 52 Fed. Reg. 16982 (May 6, 1987); Burning of Hazardous Waste in Boilers and Industrial Furnaces: Final rule, 56 Fed. Reg. 7134 (Feb. 21, 1991).

of energy recovery or characterize material recovery as the "recovery of chemical energy." The ALJ correctly determined, following a careful review of the regulatory history, that "the phrase 'burning for energy recovery' reflects the Agency's view that a material 'burned' in an industrial furnace ostensibly for the purpose of material recovery is not subject to regulation as a solid waste unless 'substantial, useful heat energy' is also recovered." (Initial Decision, p. 40). The 1987 and 1991 preambles to which Region 5 cites do not revise the definition of waste and do not provide a different interpretation. They merely reflect U.S. EPA's continuing, mistaken belief[3] that injectants supply substantial, useful heat to the blast furnace.

B. Region 5, Prior to Initiating This Enforcement Proceeding, Did Not Provide Notice of its Interpretation That the Phrase "Burned for Energy Recovery" Extends to Burning for the Recovery of Chemical Energy.

Region 5's argument that it provided fair notice that energy includes chemical energy boils down to "we said so in our Cadence discussion, and this was notice enough." This is insufficient to provide notice of its interpretation that the phrase "burned for energy recovery" included burning to recover chemical energy.

The standard for fair notice "is not whether a regulation is susceptible to only one possible interpretation, but rather, whether the particular interpretation advanced by the regulator was ascertainable by the regulated community." *In re Coast Wood Preserving* 11 E.A.D. 59, 81 (EAB 2003) (quoting *In re Tenn. Valley Auth.*, 9 E.A.D. 357, 412 (EAB 2000)). Neither the text of the regulation, the regulations as a whole, nor the regulatory history as described by Region 5 in its Opening Brief would permit a person to reasonably ascertain that "chemical energy" is

[3] Region 5 characterizes this belief as a "position" when it asserts that "it is longstanding Agency position that these types of materials are burned in blast furnaces for energy recovery." (Region 5 Opening Brief, p. 9). It may have long been U.S. EPA's *position* that it was true that materials are burned in blast furnaces for energy recovery, but a position, or belief, that a fact is true doesn't make it true, and in this case it was proven that the truth is that injectants do not supply substantial useful heat energy to the blast furnace.

included with the meaning of "burned for energy recovery." Region 5 acknowledges that U.S. EPA did not define the words "burn," "energy," or "recovery" in its regulations. Although Region 5 claims that the regulatory history specifically refers to chemical energy, Region 5 points to no discussion in the preambles to both proposed and final solid waste rules that actually equates energy with use for material values. Region 5's attempt to equate material use with energy use is simply not supported by the regulatory history. *See*, 48 Fed. Reg. 14472; 50 Fed. Reg. 614; 50 Fed. Reg. 49164. Contrary to Region 5's current position, examination of the regulatory history establishes that U.S. EPA consistently interpreted "energy recovery" to mean the recovery of "thermal" or "heat" energy.

Further, Region 5 has put forth no evidence Respondents could have, with ascertainable certainty understood Region 5's newly minted interpretation of the phrase "burned for energy recovery." In fact, Region 5 completely ignores the lengthy exchange of communications in 2005 between Respondents and U.S. EPA and Ohio EPA in which Respondents advocated that injectants did not contribute useful heat energy to the blast furnace and should not be regulated as wastes under RCRA and the Agencies merely reiterated their position, based on the Cadence discussion, that injectants supplied heat to the blast furnace and that this conferred jurisdiction. (Tr., Vol. VIII, pp. 1790-1795, 1843, 1874; CX-2, pp. 2732-2739, 2758-2773, 2778-2798, 2803-2808, 2882-2883). Importantly, in the letter from Margaret M. Guerriero of U.S. EPA to Ernie Willis, Ms. Guerriero made clear that U.S. EPA and Ohio EPA were relying primarily, if not exclusively, on the 20-year-old discussion of the use of Cadence product which equated burning to the production of heat. (CX-47). Nothing in the communications from U.S. EPA and Ohio EPA could be interpreted as providing notice that, even if Respondents were correct, injectants would nonetheless be regulated as wastes because they supplied "chemical energy" value to the

blast furnace production process. The fact that Respondents "understood the concept that injectants provide chemical energy to the iron making process," as pointed out by Region 5 in its Opening Brief, merely illustrates this point further.

As discussed in more detail in their Opening Brief, Respondents were not aware of Region 5's novel interpretation of the phrase "burned for energy recovery" until April 2, 2012, when Region 5 filed its Response to Respondents' Motion for Accelerated Decision, over four years after Region 5 initiated this enforcement proceeding.[4] The regulatory history tour provided by Region 5 in its Opening Brief does not provide sufficient reason to conclude otherwise.

C. It Was Not Appropriate for Region 5 to Rely on Its New "Chemical Energy" Interpretation in Seeking Civil Penalties for Past Behavior.

Region 5 declined to address this issue, asserting that "this question is not applicable." Region 5's refusal to address this issue, even hypothetically, should be interpreted as an acknowledgement that, in the absence of fair notice, it would not be appropriate for Region 5 to seek civil penalties from Respondents. *See Satellite Broadcasting Co. v. FCC*, 824 F.2d 1 (D.C. Cir. 1987) (Imposition of a monetary penalty for violating a rule without first providing adequate notice of the substance of the rule violates traditional concepts of due process.)

D. The Hydrocarbon Materials Distributed by Carbon Injection Systems to WCI Steel, Inc., Did Not Supply Substantial, Useful Heat Energy Upon Combustion in the Raceway of WCI Steel's Iron Blast Furnace

Region 5 acknowledges that that injectants "undergo net endothermic (i.e., heat absorbing) reactions in the combustion zone and those reactions actually cool flame temperatures." (Region 5 Opening Brief, p. 29). Region 5 answers this question correctly.

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[4] Even at the hearing, it was clear that Region 5 understood that it was necessary for it to prove that injectants were a source of heat energy in the blast furnace. Senior RCRA Investigator Michael Beedle made particular note in his WCI inspection report and in his testimony that he had ascertained from a Mr. DeLost, the WCI Blast Furnace Coordinator, that fuel injection at the tuyeres would increase the temperature of the hot blast going into the blast furnace. (*See*, CX-28, p. EPA-16782, Tr., Vol. II, p. 304).

"With respect to 'heat energy' 'upon combustion in the raceway,' the answer is no, the CIS materials did not provide substantial, usable heat energy in the raceway." (Id).

1. The Injection Of Hydrocarbons Into The Raceway At Relatively Low Temperatures Results In A Cooling Effect.

It is well established that the injection of hydrocarbon materials into the raceway has a "cooling impact" on raceway temperatures. This was described by Dr. Poveromo at the hearing and is well-documented in the technical literature that forms the record in this case. Professor Fruehan did not disagree.

The cooling effect of injectants on raceway temperatures was noted by Jeschar and Dombrowski in their paper, Summary Evaluation and Assessment of Carbon and Hydrocarbon Raw Materials for Iron Ore Reduction: "It should, however, be noted that the reducing gas is cooled down in front of the tuyeres due to the endothermic separation of the hydrocarbons as is show in figure 6. The figure shows the adiabatic form gas temperature in relation to the mass balance between the injected replacement materials E and the mass of coke carbon C_v gasified in front of the tuyeres." (Jeschar, R. and Dombrowski, G., Summary Evaluation and Assessment of Carbon and Hydrocarbon Raw Materials for Iron Ore Reduction, RX-96, p. 01606). Figure 6 shows that adiabatic form gas temperature in the raceway decreases with an increase in various injectants, including oil. (Id.). The authors concluded that this effect limits the volume of injectants that may be used, otherwise necessary temperature ranges could not be maintained. (Id.).

The course materials prepared by Frederick W. Hyle and Dr. Joseph J. Poveromo for the McMaster University Blast Furnace Ironmaking Course also describe the overall cooling effect of injectants on raceway adiabatic flame temperatures ("RAFT"). (*See, e.g.,* Hyle, F.W., Fuel Injection in the Blast Furnace, RX-98, pp. 01649-01654, 01661-01663). In particular with

regard to the fact that injectants are introduced at relatively cool temperatures, Dr. Poveromo's course materials contain the following explanation:

> As shown in the table on the next page, the partial combustion of injectable hydrocarbons is exothermic at room temperature. However, it should be noted that the heat released (BTU/lb carbon) is less for any of the injectants than for the combustion of coke, and that further, the higher the hydrogen-to-carbon ratio, the less heat is released. Accordingly, methane with the highest hydrogen-to-carbon ration of 4:1 releases the least amount of heat, as opposed to coal with the lowest hydrogen-to-carbon ratio of 0.64:1, which release the highest amount of heat of the injected fuels. This is directly related to the heat of formation; for methane it is - 32,200 BTU/mole, as compared to - 4,800 BTU/mole for oil and only - 2,800 BTU/mole for tar and coal. It should also be noted that the total moles of combustion gases per mole of injectant combusted is greater for any of the injectants than for coke; the higher the hydrogen-to-carbon ratio, the greater the moles of combustion gases. *Consequently, because the heat released by the partial combustion of injectants is less than that for coke while there are more products of combustion, there is insufficient heat to raise the temperature of the products of combustion to the temperature existing in the tuyere zone. In essence, even though the partial combustion of hydrocarbon tuyere injectants in exothermic at room temperature, the reactions are endothermic at the high temperature of the tuyere zone.*

(Declaration of Joseph J. Poveromo, attached to Respondents' Memorandum in Opposition to Complainant's Motion for Partial Accelerated Decision as to Liability (hereafter (Poveromo Decl."), RX-102, pp. 4-5 (*quoting,* Poveromo, J.J., *Blast Furnace Fuel Injection*, McMaster University Blast Furnace Ironmaking Course, 1994)(emphasis added)). Dr. David Wakelin, a recognized ironmaking expert,[5] noted this as well when he contrasted the behavior of injectants as compared to coke which "enters the raceway area already preheated[.]" (Wakelin, D., Characteristics of the Blast Furnace Raceway, CX-13, p. 10114). Both Professor Fruehan's and Dr. Poveromo's testimony was consistent. (Tr., Vol. V, p. 1159; Tr., Vol. XI, pp. 2544-2546).

Careful reading of the Cadence discussion in the preamble to the final solid waste rule reveals that in 1985, U.S. EPA agreed that overall, injectants have a cooling effect in the

[5] Professor Fruehan acknowledged Dr. Wakelin as an expert knowledgeable about ironmaking at the hearing. (Tr., Vol. V, pp. 1172-1173).

raceway. In its Cadence discussion, U.S. EPA explained that injectants "first undergo endothermic [heat absorbing] vaporization, then exothermic [heat generating] combustion to (ideally) carbon dioxide and water where sensible heat is released, and finally endothermic (heat absorbing] dissociation and reduction in the presented of excess carbon provided by the coke to form the residing gases carbon monoxide and hydrogen." 50 Fed. Reg. 49164, 49172. U.S. EPA acknowledged that the "net reaction of injected fuels is endothermic (heat absorbing)," but nonetheless focused on just the middle "exothermic" step in the process it described to conclude that some measureable amount of sensible heat is produced: "Cadence's argument ignores the fact that fuel injectants first behave as *bona fide* fuels by combusting to (ideally) carbon dioxide and water. The amount of sensible heat released during this combustion phase is measured by a fuel injectant's heating value in Btu/lb." *Id.*

However, in concluding that this "combustion phase" releases some sensible heat, U.S. EPA failed to take into account that these materials are injected at relatively low temperature. They must be brought up to raceway temperatures of 3700° to 3900° F during this phase in order for dissociation to carbon monoxide and hydrogen to take place. This requires more heat energy than can be supplied by the combustion of the injectants. Thus, to the extent there even is a brief "combustion phase," that phase alone is heat absorbing.

Indeed, although U.S. EPA in its Cadence discussion and Professor Fruehan at the hearing describe the conversion of injectants to reducing gases as a multi-step process, the scientific literature suggests that "combustion" of injectants does not occur as a separate step or phase, or that "combustion" occurs so rapidly as to be virtually instantaneous such that it is indistinguishable from the highly endothermic dissociation reaction that results in the production of carbon monoxide and hydrogen reducing gases. "According to the laws of thermodynamics,

[injectants] cannot burn to CO2 and H2O in the presence of carbon at the high temperatures of the tuyere zone (3200 - 4000 °F)." (Poveromo Decl., RX-102, p. 4 (*quoting,* Poveromo, J.J., *Blast Furnace Fuel Injection*, McMaster University Blast Furnace Ironmaking Course, 1994). Respondents' expert, Mr. Rorick, further explained that injectants only reside in the raceway for three to five one-thousands of a second. (Tr. Vol. X, pp. 2397-2398).

Injectants are introduced into the blast furnace at the tuyeres at room temperature, or slighted warmer, which is relatively cool when compared to raceway temperature ranges. Any heat that theoretically would be released from their partial combustion is more than offset by the heat required to bring them up to raceway temperatures. Even looking at the "combustion phase" alone, and not taking into account the endothermic effect of the initial vaporization and the endothermic effect of the almost instantaneous dissociation described in the Cadence discussion and by the experts, the "combustion phase" is endothermic, or heat absorbing.

2. The Partial Combustion And Dissociation Of The Injectants In The Raceway Is Endothermic And Does Not Generate Any Substantial, Useful Heat Energy.

The partial combustion of injectants to carbon dioxide, and the dissociation of carbon dioxide to carbon monoxide in the raceway provides no substantial useful heat energy. The reason that the partial combustion of injectants to carbon dioxide and water does not supply heat is explained above. The reason the dissociation of injectants to carbon monoxide and hydrogen does not supply heat is because these reactions are endothermic. All of Region 5's evidence is consistent on this point. "I believe you have to go up to up higher where they talk about carbon plus CO2 going to 2 CO. That's an endothermic reaction and absorbs energy, okay?" (Tr., Vol. V, p. 1172); *see also*, 50 Fed. Reg. at 49172 ("Injected liquid fuels first undergo endothermic vaporization, then exothermic combustion to (ideally) carbon dioxide and water where sensible heat is released, and finally, endothermic dissociation and reduction in the presence of excess

carbon provided by the coke to form the reducing gases carbon monoxide and hydrogen.")).

3. The Combustion And Dissociation Of *Coke* In The Raceway Does Provide Substantial Useful Heat Energy.

The combustion of *coke* in the raceway does not have the same cooling effect as injectants. The combustion of coke in the raceway is totally exothermic, thereby providing substantial heat, because the coke is already preheated before it enters the raceway. As emphasized by Dr. Poveromo:

> The key point of this entire case is that coke acts as an energy source in the blast furnace because it is top charged into the blast furnace. It descends in the furnace counter current to a stream of hot reducing gases. The coke is heated up during this descent to the raceway zone temperature of about 2800 F (1537 C); therefore when it burns in the presence of oxygen in the raceway zone, all of the exothermic heat of reaction of coke is released to the process as the primary energy source for the process.

(Poveromo Decl., RX-102, pp. 3-4 (emphasis in original); Tr., Vol. XI, pp. 2538-2542). Dr. David Wakelin, another blast furnace expert, noted the same distinction between the combustion of room temperature hydrocarbons and preheated coke in the raceway: "Although hydrocarbons typically have positive heats of combustion, their effect on the raceway temperature is negative, because they replace coke that enters the raceway area already preheated to 2800°F." (Wakelin, D., Characteristics of the Blast Furnace Raceway, CX-13, p. 10114).

Region 5 argued at the hearing and in its briefs that because coke supplies heat, any substitute for coke also supplies heat, which can be measured by the BTU value of the substitute material. Again, careful reading of the Cadence discussion in the preamble to the final solid waste rule reveals that in 1985, U.S. EPA failed to appreciate that coke does more than supply the heat energy necessary to drive the reactions in the blast furnace. Coke has three functions in the blast furnace: 1) to provide thermal energy by combustion; 2) to provide reducing gases; and 3) to provide a permeable refractory grid for the passage of gases and liquids. By not

recognizing that coke performs three separate functions in the blast furnace, only the first of which relates to its BTU value, U.S. EPA concluded in simplistic fashion based on standard literature references that any substitute for coke is a substitute for the BTU value of coke and must be considered a source of thermal energy. 50 Fed. Reg. 49164, 49173. Professor Fruehan offered the same conclusory explanation at the hearing. In fact, however, as was testified to by Dr. Poveromo at the hearing, injectants do not provide a permeable refractory grid, and do not provide thermal energy; they only substitute for coke with respect to the second function - providing reducing gases. (Tr., Vol. XI, pp. 2538-2544).

4. The Inevitable Generation Of Top Gases, And Speculation Regarding Their Use, Is Insufficient To Prove That Injectants Provide Substantial Useful Heat Energy.

Region 5 persists in pointing to the generation of top gases as an alternative basis for concluding that the injectants supplied heat energy. U.S. EPA, as well, based its conclusion that blast furnaces can be regulated if they burn hazardous waste because injectants supply heat energy in the form of top gases that are burned elsewhere. *See*, 50 Fed. Reg. 49164, 49172; Burning of Hazardous Waste in Boilers and Industrial Furnaces, 52 Fed. Reg. 16982, 16987 (proposed on May 6, 1987)(to be codified at 40 CFR parts 260, 261, 264, 265, 266, 270 and 271). In fact, the discussion of blast furnace systems in 52 Fed. Reg. 16982 is based *solely* on the eventual use of top gases. *Id.* Consideration of top gases as a source of energy to confer jurisdiction in this case, however, fails for numerous reasons. First, Region 5 presented no evidence that top gases were utilized in any way at the former WCI Steel plant. In fact, as justification for the penalty sought in this case, Region 5 asserted that the release of top gases from the WCI facility presented a threat of great harm to the environment. According to Region 5: "The blast furnace did not include associated air control and monitoring devices designed or operated for burning toxic hazardous waste. . . . There are residents that live near the facility and

may have been exposed to hazardous air emissions. . . . Due to the high probability of exposure and the potential seriousness of contamination, the violation poses a substantial risk." (CX-198, pp. 026817- 026818; *see also* Complainant's Post-hearing Reply Brief, p. 78).

Having been held to its theory of the case by the ALJ, Region 5 now attempts in the context of this appeal to introduce new evidence to cure the deficiency in its evidence. Although Region 5's attempt to supplement the record on appeal should be rejected, the supplemental information proves nothing. The study to which Region 5 refers would have been 20 years old at the time the CIS facility was built. It is undisputed that in late 2004 and early 2005, CIS built its facility new from the ground up upon entering into a supply contract and lease with WCI Steel, Inc. (*not* LTV Steel). A description of the design and construction, photos of the construction in progress, and the construction drawings all were introduced into evidence at the hearing. (*See*, Wosotowsky, P., *Oil Injection at WCI* (Eastern States Blast Furnace and Coke Oven Association, 2006), RX-114; CX-24). WCI installed the circle pipes to support oil injection during a repair outage in 2004. (Id., RX-114, p. 02142). It is not possible that the study to which Region 5 now refers showed that "the CIS facility [was ever] owned and operated by LTV Steel" as Region 5 claims. Even if the study actually contains information about the historic operation of a facility that was later owned and operated by WCI Steel, it could not possibly contain reliable, probative information about how WCI Steel operated its facility decades later.

Furthermore, the "gas utilization study" that Region 5 refers to for the first time in its opening brief is not a part of the record in this case and should not be considered. Although the Board may take judicial notice of any matter that may be noticed by federal courts, including documents in the public domain, federal rules of evidence require that the fact within the document which judicial notice is being requested not be disputed and be capable of "immediate

and accurate determination by resort to sources of reasonable indisputable accuracy." 40 C.F.R. § 22.22(f); Fed. R. Evid. 201(a). As discussed above, Respondents contest the reliability, accuracy, and probative value of the information contained in the study as it relates to this matter. *United States ex rel. Calilung v. Ormat Indus.*, 2015 U.S. Dist. LEXIS 37874 at p. *23 (March 24, 2015) (Court did not take judicial notice of disputed matters and would not accept statements contained in the contested reports as true). Further, despite Region 5's suggestion, the referenced study is not available online, nor is information regarding the substance of the study available online. The study itself offers no support for the utilization numbers, nor was the study prepared by or even for U.S. EPA. For these reasons, the federal rule would prohibit federal courts from taking judicial notice of the study; therefore, the Board should decline to take judicial notice of the study.

Moreover, any determination regarding whether injectants are a solid waste because they were burned for energy recovery to make iron that is based on how a by-product of the blast furnace process might be used in a completely different type of process would be inconsistent with U.S. EPA's approach to making solid waste determinations in general. For example, when applying its continued use policy in analogous situations involving the definition of spent material under 40 C.F.R. § 261.1(c)(1), U.S. EPA confines it analysis to the production process in which the material is first deployed. *See e.g., In re Howmet*, 13 E.A.D. 272, 291 ("After reviewing the rulemaking preambles and interpretive statements by the Agency, we rather believe that the initial deployment or application holds continued significance as a reference point in determining a product's purpose and the waste status of a used material."); *see also In re Gen. Motors Auto.*, 14 E.A.D. 1 (EAB 2008). Here, even if U.S. EPA were to demonstrate that top gases were generated by and later burned for energy recovery by WCI in another part of the

steel plant, and thus were regulated under RCRA or otherwise, Respondents would not be responsible for compliance with such regulations. Respondents supplied raw materials to WCI for use in making iron in the blast furnace. Respondents were not the owners or operators of the blast furnace or of any of WCI's other production or power plant facilities. Any blast furnace top gases were not generated, transported, stored, treated, disposed of or handled in any way by Respondents. Liability in this case cannot reasonably be predicated on WCI's hypothetical and unproved use of a by-product top gas.

Finally, even if it were permissible for Region 5 to look to the hypothetical end use of top gases generated by WCI in determining whether to regulate Respondents' activities, there was no evidence that the injectants were used for the purpose of producing top gases. The injectants supplied by Respondents in fact contributed to a *decrease* in the volume of the top gases generated by the blast furnace. (Tr., Vol. X, p. 2447). And, to the extent that any molecule originating from injectants eventually exited the furnace as part of the top gas, it did not change the constituent elements that make up the top gas in any way. (Tr., Vol. X, pp. 2447-2456).

E. Region 5 Bears the Burden of Proof on the Various Issues Identified For Briefing.

Region 5 and Respondents appear to agree on the appropriate application of the burden of proof on the various issues raised in this case. There is no question that Region 5 has the burdens of presentation and persuasion to prove that the "violation occurred as set forth in the complaint and that the relief sought is appropriate." *See* 40 C.F.R. § 22.24(a); *see In re Vico Constr. Corp.*, 12 E.A.D. 298, 313 (EAB 2005); *In re LVI Env. Servs., Inc.*, 10 E.A.D. 99, 101 (EAB 2001); *In re City of Salisbury,* 10 E.A.D. at 278. It also is uncontested that once Region 5 establishes its *prima facie* case, the burden of presentation shifts to Respondents to establish any applicable defenses that will rebut the allegations in the complaint, including any affirmative

defense. *In re City of Salisbury,* 10 E.A.D. 263, 289 (EAB 2002); *see* 40 C.F.R. § 22.24(a). It also is undisputed that Region 5 bears the burden of proof on the appropriateness of the penalty issue. *In re John A. Capozzi d/b/a Capozzi Custom Cabinets*, 11 E.A.D. 10, 2003 WL 1787938 (EAB 2003); *In re New Waterbury Ltd.,* 5 E.A.D. 529, 537 (EAB 1994). Finally, it also is undisputed that each matter in controversy must be decided upon a preponderance of the evidence. 40 C.F.R. § 22.24(b).

Indeed, as the ALJ correctly determined, Region 5 had the burden of proving, by a preponderance of the evidence, that the materials injected into the blast furnace supplied substantial and useful heat energy to the blast furnace and therefore were a discarded waste. Only after Region 5 satisfied this burden would the burden shift to Respondents to produce evidence showing that the recycling provisions in Ohio Admin. Code § 3745-51-02(E)(1) were applicable. Then, once Respondents produced evidence establishing that the recycling provisions in Ohio Admin. Code § 3745-51-02(E)(1) applied, the burden shifted back to Region 5 to both produce evidence and persuade the trier of fact that the recycling provisions did not apply because the materials were burned for energy recovery.[6] The ALJ properly placed the burden under Ohio Admin. Code § 3745-51-02(C) on Region 5, and the burden under Ohio Admin. Code § 3745-51-02(E) on Respondents. At the end of the day, Region 5 failed to meet its initial burden, so the burden never shifted to Respondents. If it had, though, the ALJ correctly determined that Respondents met their burden under Ohio Admin. Code § 3745-51-02(E), which is the whole point of footnote 30 in the ALJ's Initial Decision.

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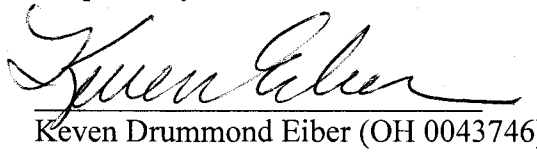
[6] Ohio Admin. Code § 3745-51-02(F) requires that in addition to establishing the application of an exclusion or exemption, the party claiming the exclusion or exemption must also demonstrate a known market or disposition of the materials. Respondents introduced evidence that there is a known market for the injectants. Respondents produced contract documents and testimony showing that the materials are used as an ingredient in a production process. *See* CX-24, pp. 13139-13152; Tr., Vol. X, pp. 2388-2389, 2495). Respondents met their burden in this regard.

Region 5 actually does not take issue with the ALJ's discussion or application of the burden of proof in footnotes 29 and 30 of the Initial Decision. Region 5 even goes as far as acknowledging that "EPA had the burden to prove that the material in question was a "solid waste" because it was discarded by being "burned for energy recovery." (Region 5's Opening Brief, p. 36). What Region 5 actually appears to take issue with is the ALJ's determination of *what* had to be proven, not *who* had to prove it and *how much* proof was required. With respect to *who* and *how much*, the ALJ's discussion and conclusions regarding the burden of proof in footnotes 29 and 30 of the Initial Decision are correct.

CONCLUSION

The Board should find that "burning for energy recovery" means burning to obtain substantial, useful, heat energy. Because Region 5 did not satisfy its burden of proof that the injectants supplied substantial, useful heat energy to the blast furnace, the Board should affirm the ALJ's Initial Decision finding no liability and dismissing the administrative complaint in its entirety. If, however, the Board determines that "burning for energy recovery" could also include the use of materials solely for their "chemical energy," the administrative complaint nonetheless must be dismissed in its entirety for lack of fair notice to Respondents regarding Region 5's interpretation of "burning for energy recovery."

Respectfully submitted,



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CERTIFICATE OF SERVICE

I, Keven Drummond Eiber, an attorney, hereby certify that on September 11, 2015, the original and one copy of the foregoing Response Brief was sent by Federal Express Overnight Delivery to:

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