

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

EXELON GENERATION LLC,)	
)	
Petitioner,)	
)	
v.)	PCB 16-106
)	(Variance- Air)
ILLINOIS ENVIRONMENTAL)	
PROTECTION AGENCY,)	
)	
Respondent.)	

NOTICE OF FILING

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PLEASE TAKE NOTICE that we have today electronically filed **Petitioner Exelon Generation LLC's Responses to the Illinois Pollution Control Board's Questions** with the Office of the Clerk of the Illinois Pollution Control Board.

Dated: July 14, 2016

Respectfully submitted,
EXELON GENERATION LLC

By: /s/ Katharine F. Newman

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PETITIONER EXELON GENERATION LLC’S RESPONSES TO THE ILLINOIS POLLUTION CONTROL BOARD’S QUESTIONS

Exelon Generation LLC (“Exelon Generation”), by and through its attorneys, Sidley Austin LLP, respectfully offers the following responses to the request for briefing and questions posed by the Illinois Pollution Control Board (“Board”) on June 16, 2016 in an Order of the Board (“Order”). The Order directs Exelon Generation to respond on or before July 19, 2016. Below, Exelon Generation sets forth the Board’s request and questions in italics and provides an answer immediately following each item.

Request for Briefing

In the petition, Exelon argues that complying with the Nuclear Regulatory Commission’s rules and regulations constitutes an arbitrary and unreasonable hardship under Section 35 of the Act. Pet. at 4, 5, 7-10. Therefore, separate from the questions, below, the Board directs Exelon to brief the Board on the legal authority for Exelon’s argument. The Board is particularly interested in legal precedent for compliance with rules and regulations in one area of the law serving as an arbitrary and unreasonable hardship in justification for relief from another area of the law.

Exelon Generation Brief in Response:

Exelon Generation respectfully wishes to clarify its argument regarding the nature of the Nuclear Regulatory Commission’s (“NRC”) rules and regulations and their interaction with the Sulfur Content Rule. Exelon Generation does not argue that the substantive requirements of the rules conflict. Rather, it is the short timeframe for compliance with the Sulfur Content Rule that presents a substantial hardship to the Company at the four nuclear generating stations identified in the variance petition (the “Petition”). As stated in the Petition, based on the nature of the operations and various rules and restrictions placed on those operations, the fuel in the tanks cannot be used or diluted by the compliance deadline. Pet. at 7-10. In addition, the location of the tanks within the secured area of the nuclear power facilities present additional logistical challenges that make it very difficult and potentially unsafe to drain and replace the contents of the tanks to meet the January 2017 deadline. Pet. at 9-10.

The IPCB may grant a variance when a petitioner shows “that compliance with any rule or regulation, requirement or order of the Board would impose an arbitrary or unreasonable hardship.” 415 ILCS 5/35(a). “Virtual certainty of a future violation of the [IPCB’s] rule is a

hardship.” *Marathon Oil Co. v. EPA*, 242 Ill. App. 3d 200, 207 (Ill App. Ct 5d. 1993); *see also Caterpillar Tractor Co. v. the Pollution Control Board*, 48 Ill. App. 3d 655, 660 (Ill App. Ct. 3d 1977) (“[T]here is uncontradicted evidence that the only alternatives presently available to Caterpillar are to obtain a variance, to operate the furnaces without a permit in violation of law, or to shut down the furnaces ... we believe Caterpillar did establish that a denial would cause an arbitrary or unreasonable hardship.”) Where there is minimal impact on the environment, as is the case here, the hardship becomes arbitrary and unreasonable. *Marathon Oil*, 242 Ill. App. 3d at 207. (“Marathon could be prosecuted and punished or forced to slow or shut down, costing Marathon, its employees and the economy a monetary loss, even though the proposed discharge would not or could not harm the environment. This hardship placed on Marathon and the public is arbitrary and unreasonable, if granting the variance would not adversely impact the environment.”)

In this case, unless a variance is granted, Exelon will have substantial difficulty meeting the January 2017 deadline. With the additional time requested in the Petition, Exelon Generation will be able to comply with the Sulfur Content Rule in a safe and orderly fashion.

Exelon Generation believes the facts, as explained in the Petition, are unique to nuclear generating stations and are sufficient to support a showing of arbitrary and unreasonable hardship, particularly in light of the minimal projected impact to the environment. Pet. at 25-26. The Illinois Environmental Protection Agency (“Illinois EPA”) agrees that the environmental impact of granting the variance will be minimal. *See* Illinois EPA’s July 5, 2016 Recommendation (“Illinois EPA Recommendation”) at ¶ 29 (“The Illinois EPA does not believe that any injury to the public or environment will result from granting the variance.”) and ¶ 38 (“Illinois EPA has no objection to the Board granting Exelon’s Petition.”).

Specific Questions

1. *Exelon states that the four facilities are “not currently impacting the Lemont and Pekin NAAs [non-attainment areas]...” Pet. at 7. The Board directs Exelon to identify the geographic area or areas that the requested variance would affect. The Board also directs Exelon to compare existing levels of SO₂ in the affected areas to the National Ambient Air Quality Standards (NAAQS).*

Exelon Generation Response: Exelon Generation consulted with Illinois EPA regarding the potential emissions impact of the requested variance. Illinois EPA concluded that the Facilities would not contribute to the SO₂ nonattainment areas and stated so in its recommendation. *See* Illinois EPA Recommendation at ¶ 29 (“None of the Facilities are located in an SO₂ nonattainment area, and the estimated SO₂ emissions increase is extremely unlikely to impact an SO₂ nonattainment area. Further, the Illinois EPA has examined the locations of these Facilities in comparison to areas currently being investigated and modeled for future area designation recommendations, and found that there is no overlap; the Agency therefore does not believe that the Facilities will impact potential future nonattainment areas.”)

Exelon Generation agrees with this conclusion due to the minimal emissions associated with the requested variance and the location of the Facilities outside the nonattainment areas. The potentially affected geographic areas include portions of the four counties in which the facilities are located. Each of these counties is designated as attainment for the SO₂ NAAQS. This includes Ogle County for Byron Station, LaSalle County for LaSalle Station, Grundy

County for Dresden Station and DeWitt County for Clinton Station. The impacted areas would be the immediate vicinity of each station.

The NAAQS for SO₂ is 75 ppb based on the “design value” (the 99th percentile maximum 1-hour daily concentration averaged over three years). Illinois EPA maintains fifteen (15) SO₂ air monitors throughout the state. One of these monitors is located in a county with one of the four nuclear stations—Oglesby (LaSalle County). The data for that monitor results in a design value of 9 ppb. Illinois EPA concluded that the impact, if any, from LaSalle Station on the Oglesby monitor would be very small, and would already have been seen due to the current use of diesel fuel at the station.

See also the Response to Question 2.

2. Provide a map layering the following four pieces of information: a) the locations of the air quality monitoring stations (found in the “Illinois Annual Air Quality Report”; b) currently designated SO₂ NAA; c) SO₂ NAAs USEPA intends to designate as set forth in its February 16, 2016 letter to the IEPA; and d) the four facilities in the requested variance.

Exelon Generation Response: See Exhibit A, attached hereto.

3. Tables 2 and 3 of Appendix A to the petition appear to contain a double-counting mathematical error. For Dresden, the figures for the Small Tanks and Large Tank are totaled within the table. However, the totals calculated for all four facilities combined include the figures for the Dresden Small Tanks and Large Tank plus the total for both. Pet. at 20-21, App. A. Provide updated tables with corrected figures and comment on any resulting revisions to the petition.

Exelon Generation Response: Please find below revised Tables 2 and 3 correcting the double-counting mathematical error.¹ The values that have changed are noted in bold font.

**Revised Table 2
Emissions Based on Current Sulfur Concentrations**

Facility		Diesel Fuel Storage Capacity (Full Tanks)		Sulfur Mass Concentration		Mass of Sulfur Dioxide Emissions					
				Facility	Rule	Facility	Rule	Difference	Facility	Rule	Difference
		(gal)	(lb)	(ppm)		(lb)			(tons)		
Byron		255,500	1,773,937	26	15	92.17	53.18	39.00	0.046	0.027	0.019
Clinton		137,193	952,531	160		304.57	28.55	276.02	0.152	0.014	0.138
Dresden	All Other Tanks	47,775	331,702	21		13.92	9.94	3.98	0.007	0.005	0.002
	Aux Boiler Tank	150,000	1,041,450	150		312.19	31.22	280.97	0.156	0.016	0.140
	Total	197,775	1,373,152	--		326.11	41.16	284.95	0.163	0.021	0.142
LaSalle		197,200	1,369,160	147		402.22	41.04	361.18	0.201	0.021	0.181
						Total =		961.14 lbs	Total =		0.481 tons

¹ Please see Exhibit B for additional detail regarding these calculations.

**Revised Table 3
Emissions Based on Compliance Plan Sulfur Concentration**

Facility	Diesel Fuel Storage Capacity (Full Tanks)		Sulfur Mass Concentration		Mass of Sulfur Dioxide Emissions						
	(gal)	(lb)	Facility	Rule	Facility	Rule	Difference	Facility	Rule	Difference	
			(ppm)			(lb)			(tons)		
Byron	255,500	1,773,937	250	15	886.28	53.18	833.10	0.443	0.027	0.417	
Clinton	137,193	952,531	250		475.89	28.55	447.34	0.238	0.014	0.224	
Dresden	All Other Tanks	47,775	331,702		250	165.72	9.94	155.78	0.083	0.005	0.078
	Aux Boiler Tank	150,000	1,041,450		250	520.32	31.22	489.10	0.260	0.016	0.245
	Total	197,775	1,373,152		--	686.04	41.16	644.88	0.343	0.021	0.322
LaSalle	197,200	1,369,160	250		684.05	41.04	643.00	0.342	0.021	0.322	
					Total:		2,568.32 lbs	Total:		1.284 tons	

The corrections reduce the SO₂ emissions below the levels included in the Petition. For example, estimated emissions based on current sulfur concentrations are reduced from 0.622 tons to 0.481 tons and estimated emissions based on the 250 ppm compliance plan sulfur concentration fall from 1.607 tons to 1.284 tons. Pet. at 20-21. Additionally, using the corrected calculations, the estimated cost per ton of SO₂ reduced (Pet. at 26 and n. 14) increases to \$3.1-\$8.2 million (\$3.95M/1.284 tons) and (\$3.95 M/.481 tons).

4. *Table 4 of Appendix A to the petition contains the expected emissions per facility on a yearly basis. Pet. at 21. Provide an updated table showing the total SO₂ emissions in tons for each facility over the number of years the variance is requested for each facility. Quantify the difference in emissions between the variance and compliance with the Sulfur Content Rule. Include the total overall emissions in tons for all facilities.*

Exelon Generation Response: See Exhibit C attached hereto.

5. *Exelon states that it has been replenishing the stored fuel with ultra low sulfur diesel fuel (ULSD) since 2007 (except at Clinton where it began replenishing with ULSD in 2010) but still has 707,000 gallons of stored fuel that exceed the 15 ppm standard. For example, the Unit 1 Diesel Fuel Day Tank at the LaSalle facility still contains 211 ppm sulfur after nine years of dilution. Pet. at 3, 23, 25, Table 8 to Appendix B.*

- a. *What is the “shelf-life” of the diesel fuel--both the higher-sulfur-content diesel fuel and the ULSD*
- b. *Explain how fuel stability is maintained. Are proper storage and the use of additives essential to preventing fuel degradation?*
- c. *Does Exelon’s compliance plan compromise fuel stability?*

Exelon Generation Response: Diesel fuel that is supplied for the emergency diesel generators is considered a safety-related component. Thus, it is subject to strict quality control requirements. Each station in the Exelon Nuclear fleet in Illinois implements a diesel fuel oil testing program (“Fuel Oil Program”). The Fuel Oil Program is required by a specific Technical Specification (TS) under NRC regulations.

Fuel oil storage tanks for certain pieces of critical equipment are sampled monthly. Monthly analyses include testing for clear and bright, color and total particulate. Additional analyses are performed quarterly. All analyses are performed in accordance with appropriate ASTM methods and the results of these analyses are utilized to ensure fuel stability at the stations. Historically, fuel stability in the tanks has not been a problem at the stations.

The shelf-life of diesel fuel is managed at each station by the analyses described above and any degradation would be detected in the analytical results. By meeting the criteria required in each station’s technical specification, the fuel will be adequate to use in plant equipment.

Exelon’s proposed compliance plan will not compromise fuel stability. The stations will continue to monitor the fuel oil as required by their technical specifications. There are no necessary changes to the monitoring frequencies specified in the Fuel Oil Programs.

6. Table 9 in Appendix C of the petition appears to conflict with other statements in the petition. The petition states, for example, that Exelon “will not incur any additional costs to come into compliance with the Sulfur Content Rule under the terms of the requested variance.” Pet. at 18.

Therefore, the Board directs Exelon to clarify Table 9 of Appendix C and distinguish between: 1) the maintenance costs for emergency fuel supplies under NRC regulations; 2) the operating costs under the proposed variance compliance plan; and 3) the costs of compliance with the Board’s Sulfur Content Rule on January 1, 2017.

Furthermore, does the \$375,181 estimated cost for Dresden Boiler fuel replacement, (Table 9 of Appendix C) represent the cost of bringing that tank into compliance with the Sulfur Content Rule before January 1, 2017?

Finally, the Board directs Exelon to provide:

- a. additional detail on the constituent parts of the \$3,950,036 and \$2,202,976 figures provided in Table 9; and*
- b. a line-item comparison between the costs of January 1, 2017 compliance with the Sulfur Content Rule versus the costs of the petition’s proposed compliance plan.*

Exelon Generation Response:

- (i) Explanation of Table 9

Exelon Generation intends to comply with the Sulfur Content Rule and will incur the costs necessary to achieve compliance. The Company only seeks additional time to comply. Accordingly, there are no “additional costs to come into compliance under the terms of the requested variance.” Pet. at 18.

Table 9 of Appendix C of the Petition (“Table 9”) includes \$2.2 million in costs that Exelon Generation estimated it will incur to drain and replace fuel at Clinton and LaSalle

stations and the auxiliary boiler tank at Dresden station (\$754K at Clinton; \$1.07M at LaSalle, plus \$375K for the Dresden Boiler tank). Based on the information available at the time of the Petition, these costs would be incurred regardless of whether the variance is granted—they would simply be incurred at a later date under the proposed compliance plan. Exelon Generation would spend approximately \$2.2 million under both timelines (although the Company recognizes that there is a risk of cost increases or decreases due to price fluctuations, further usage and dilution of the fuel and supplemental sampling).

Table 9 also includes \$1.7 million in costs that Exelon Generation would need to spend in order to immediately drain and replace the fuel at Byron and Dresden (excluding the Dresden boiler tank). If the variance is granted, these tanks likely will have time to come into compliance through dilution and Exelon Generation will not incur this expense. The \$2.2 million for Clinton, LaSalle and the Dresden boiler tank plus the \$1.7 million for Byron and Dresden (other than the boiler tank) total \$3.95 million.

Table 9 contains estimates for the cost of labor, the replacement fuel and possible recovery revenue for the diesel removed from the tanks. Table 9 does not include any O&M expenses, because as explained below, the O&M costs are not impacted by the request for a variance.

Illinois EPA “does not disagree with the cost estimates provided in Table 9 of the Petition.” Illinois EPA Recommendation at ¶ 28.

(ii) O&M Cost Estimates

Table 9 does not address what Exelon Generation would consider to be O&M expenses because the O&M expenses do not change with the sulfur content of the fuel. In other words, the O&M costs for purposes of the Petition represent the base rate and essentially are not relevant to the analysis.

For example, fuel sampling and analysis are required by each Station’s technical specifications (i.e., NRC License) on a scheduled basis and will not change under either of the two scenarios. Also, tank cleanings and inspections are required every 10 years which represents the maintenance costs for the diesel fuel inventory.

(iii) Additional Detail and Line-Items

The estimated total cost to comply with the sulfur rule by January 1, 2017 shown in Table 9 would be \$3,950,036. These costs include:

- Exelon Generation and contractor labor costs for planning, staging equipment, security, fuel removal, fuel replacement, sampling and analysis, and management oversight,
- Equipment costs for removing fuel, tank cleaning, and spill containment,
- Testing and transport of fuel to its recycling location,
- Purchase, testing and off-loading of new fuel into the tanks,
- LESS: value received for recycling of the fuel removed from the tanks.

7. The Board directs Exelon to comment on the costs of bringing some of the tanks with the highest sulfur content and the largest volume of fuel into compliance with the Sulfur Content Rule as a part of its compliance plan. For example, how much would it cost to bring the following units into compliance:

“Unit 2/3 Aux Heating Boiler Diesel Fuel Tank” (Appendix B, Table 7); and

“EDG Unit 1 Diesel Fuel Storage Tank”; “EDG Unit 2 Diesel Fuel Storage Tank”; and

“EDG Common Diesel Fuel Storage Tank” (Appendix B, Table 8).

Exelon Generation Response: Below is a table estimating the costs for the specified tanks:

Estimated Costs of Specific Tank Compliance

Tank ID and Station Location	Total Volume	Recycling of Fuel	Refill	Labor	Total
	Gal	-\$0.40/Gal	\$5/Gal	Cost	Cost
Unit 2/3 Aux Heating Boiler Diesel Tank (Dresden)	70,000	-\$28,000	\$350,000	\$53,181	\$375,181
EDG Unit 1 Diesel Fuel Storage Tank (LaSalle)	40,000	-\$16,000	\$200,000	\$42,680	\$226,680
EDG Unit 2 Diesel Fuel Storage Tank (LaSalle)	40,000	-\$16,000	\$200,000	\$42,680	\$226,680
EDG Common Diesel Fuel Storage Tank (LaSalle)	40,000	-\$16,000	\$200,000	\$42,680	\$226,680
			Total Project Cost		\$1,055,221

The purpose of the variance is to allow this work to be done on a schedule that recognizes the unique nature and purpose of the tanks at nuclear generating stations and allows the work to be done safely and securely.

8. When describing the compliance plan, Exelon stated: “The tanks at each Facility currently contain diesel with varying sulfur concentrations. Not all tanks have been sampled and the available sulfur data has been collected by taking grab samples. Exelon Generation selected 250 ppm as a maximum concentration for this variance in order to be conservative and provide a compliance margin.” Pet. at 19.

Tables 5-8 in Appendix C of the petition contain the sulfur concentration measurements from the tanks at each of the four facilities. All tanks listed at Byron and Clinton have been sampled. Only a 2000-gallon tank at Byron had more than 132 ppm, and only a 731-gallon and 35,000-gallon tank at Clinton had more than 160 ppm. At Dresden, only a 150,000-gallon tank had an uncertain value, but it was less than 150 ppm, while the other tanks were all below 21

ppm. The LaSalle station had the most untested tanks (10 out of 15), but were characterized as mimicking values no more than 211 ppm. App. C, Tables 5-8.

Under Exelon's compliance plan with a 250 ppm sulfur limit across the board, Exelon's Table 3 shows this would result in a potential to emit of 1.6071 tons SO₂ during the variance period. That amount is more than the "worst case scenario" identified in Table 2 in Appendix A of the petition. Pet. at 20-21, App. A, Table 2-3.

- a. Comment on revising the compliance plan to limit the sulfur content of the fuel on a tank-by-tank (or tank group or station) basis using the measured values in Tables 5-8 plus a factor-of-safety rather than a generic 250 ppm limit for all tanks across all four facilities.*
- b. For the tanks that have not yet been tested, how long would it take to have them tested and how much it would cost?*

Exelon Generation Response:

(i) Compliance Plan

Revising the compliance plan to limit the sulfur content of the fuel on a tank-by-tank basis would not be practicable and would require a significant amount of labor resources at the station for sampling purposes. The interconnections between the main storage tanks and their respective day tanks also have to be taken into consideration. The day tanks are connected directly to a larger tank. Attempting to track the sulfur concentration on a tank-by-tank basis could prove futile given the changes of fuel usage and the fluctuating levels within the tanks.

As noted in the Petition, Table 3 titled "Emissions Based on Compliance Plan Sulfur Concentrations" was presented for illustration purposes only. Pet. at 21. The emissions calculated using the proposed 250 ppm sulfur concentration in Table 3 (as revised) demonstrate that 1.284 tons is, in theory, the highest value of SO₂ emissions possible under the compliance plan. See Revised Table 3, above and attached at Exhibit B. These emissions are merely theoretical because, as the Board noted in the question above, the sulfur concentrations in the tanks at the Stations are below 250 ppm. A more representative "worst case" actual emissions scenario was presented in Revised Table 2 (corrected to total 0.481 tons). Because Exelon Generation already purchases ULSD and commits in its compliance plan to continue to purchase ULSD, tank concentrations will continue to decrease over time.

Conceptually, Exelon Generation based its original compliance plan limits, in large part, on the special rules in 35 IAC 214.161(c) and (d), which set 500 ppm sulfur content limits for Midwest Generation and Caterpillar. Illinois EPA concluded that it had no objection to the Board granting Exelon's variance based on a 250 ppm compliance plan. Illinois EPA Recommendation at ¶ 38.

Furthermore, revising the compliance plan from 250 ppm will have no environmental benefit. The factors driving decreased emissions are the requirement to purchase only ULSD and the removal and replacement of the existing stored diesel. As noted above, Exelon Generation currently purchases and will continue to purchase only ULSD. Newly purchased diesel fuel will only continue to dilute the tank concentrations with each new delivery. Tanks that cannot be diluted will be drained and replenished with ULSD. This, combined with the overall negligible SO₂ emissions associated with the variance, mean that alternate limits would provide no additional environmental benefits.

(ii) Testing Costs

Exelon Generation estimates it will cost approximately \$2,000 - \$4,000 per sample, including labor costs, to sample the remaining tanks. However, sampling individual tanks would not change the need for the variance. For the reasons discussed above, a tank-by-tank compliance plan is not practical and is not any more protective of the environment than the currently proposed plan.

9. Exelon states that emissions “will be offset, in part, by the recent change to fuel the Dresden auxiliary boilers with natural gas. This switch was implemented on October 25, 2015 and directionally will reduce SO₂ emissions at Dresden Station.” Pet. at 22. In prior SO₂ air variances cases before the Board, petitioners have developed compliance plans to provide a net benefit to Illinois air quality and the environment.

The Board directs Exelon to evaluate the opportunity to offset increased emissions in its compliance plan.

Exelon Generation Response: The conversion to use natural gas for the Dresden auxiliary boilers has already been completed. The Company has not identified any similar opportunities at the other stations. Consistent with the Company’s internal policies and commitment to sustainability, it will continue to look for opportunities to improve station efficiencies and environmental performance on an ongoing basis.

Additionally, Exelon Generation is continuing to sample tanks and several are scheduled to have the diesel fuel changed out and replaced with ULSD later this year. As the Company seeks a variance, it is actively working on compliance and continuing to lower the sulfur content in the tanks.

10. 35 Ill. Adm. Code 104.204(g)(3) requires that the petitioner take measures during the period of the variance to minimize the impact of the discharge of contaminants on human, plant, and animal life in the affected area. Respond to this requirement. Include the numerical interim sulfur content limitations that can be achieved during the period of the variance.

Exelon Generation Response: Over the period of the variance, the sulfur content of the stored diesel fuel will continue to decrease as tanks are diluted with ULSD and the diesel fuel is consumed, removed and replenished, as needed. Although it is not feasible to set specific interim sulfur content limitations in light of the complex interchange between the tanks, as described in response to Question 8, Exelon Generation will be able to demonstrate progress with the compliance plan as it is implemented.

Exelon Generation will also continue to minimize use of combustion sources. Typically the combustion sources are only utilized during maintenance and testing (for the generators) and during the need for station heat (for the boilers at Byron and Dresden). In addition, the generators are required to comply with 40 C.F.R. 63 Subpart ZZZZ which requires to operate and maintain the engines according to manufacturer’s (onsite-specific) emissions-related operation and maintenance instructions.

In addition to these steps which will minimize impacts, and as indicated in response to Questions 8 and 9, above, the overall environmental impact of the requested variance is

minimal. Illinois EPA “does not believe that any injury to the public or environment will result from granting the variance.” Illinois EPA Recommendation at ¶ 28.

11. Indicate whether the requested variance involves existing permits or permit applications. If so, provide the material portion of the permits or applications along with the permit numbers, if already assigned.

Exelon Generation Response: Exelon Generation provided references to the permits associated with the Facilities in Section V of the Petition. Pet. at 11-15. The requested variance does not implicate the requirements in any of these existing permits or permit applications.

12. Exelon refers to selling existing fuel “to someone who could lawfully use it.” Pet. at 22. Further, Exelon states that the cost estimate of removing the existing fuel from the tanks and replacing it with ULSD “takes into account any resale value for the current fuel.” Pet at 24. Appendix C, Table 9 to the petition details the cost estimate for emptying and replenishing the fuel tanks.

The Board directs Exelon to provide additional detail on the resale market for the diesel fuel with sulfur content greater than 15 ppm. Specifically:

- a. How did Exelon arrive at the \$0.40/gal price for recycling of fuel (Appendix C, Table 9)?*
- b. Does the sale price of the diesel fuel in the tanks differ from the “recycling of fuel” price?*
- c. Has Exelon sold diesel from the tanks at any of the four facilities in the past two years? Were those sales made at the \$.40/gal price?*
- d. Has Exelon identified potential buyers who may lawfully use the fuel?*

Exelon Generation Response: The \$0.40/gal price for recycling fuel is simply an estimate based on knowledge of the used oil market and pricing fluctuations. At the time the Petition was filed, no vendor quotes had been obtained. Exelon assumed that the diesel fuel that was sold would be recycled (i.e., used) by the vendor who would purchase the fuel. The sale price was not intended to imply the fuel would be disposed of in any manner.

There have been two instances where diesel fuel was sold as a result of scheduled maintenance of storage tanks during the past two years. At Byron Station in December 2014 and January 2015, 4,000 gallons and 3,872 gallons respectively, was removed by the Station’s vendor for recycling. The fuel had to be recycled because the storage tanks were at capacity and no additional fuel could be added. For that amount of fuel, and at that time, the Company received \$0.10/gal.

After the submittal of the Petition, Exelon Environmental worked with two separate vendors to obtain quotes for potential buyers. The vendors identified two companies that could lawfully utilize the fuel. Exelon Asset Recovery also identified another potential vendor as well. Exelon Generation is in the process of reviewing these proposals.

13. *During the Sulfur Content Rule rulemaking process, IEPA stated that it identified approximately 725 sources affected by the rule, including Exelon facilities, and contacted owners of those facilities. Several sources obtained relief in that rulemaking to address existing stocks of noncompliant fuel. See, e.g., 35 Ill. Adm. Code 214.161(c). Did Exelon communicate with IEPA about that rulemaking? If not, why?*

Exelon Generation Response: During the rulemaking process, Exelon Generation recognized that it already had been purchasing ULSD for years. After the rule was promulgated, Exelon Generation realized the practical complexities of the necessary compliance steps and limited compliance timeframe. Hence, the Company requires additional time to come into compliance with the Sulfur Content Rule, as requested in the Petition.

14. *Exelon recently announced a plan to close the Clinton and Quad Cities facilities.*

- a. *Should Exelon's plan to close the Clinton facility be reflected in the petition for variance? Explain.*
- b. *If Exelon closes the Clinton and Quad Cities facilities, what will happen to the diesel fuel stored at those facilities?*
- c. *Does the \$0.40/gal "recycling of fuel" price found in Table 9 of Appendix C apply to the sale of that fuel?*

Exelon Generation Response: The proposed closure of Clinton Station in 2017 will not change the relief requested for that facility. NRC emergency equipment requirements will remain in place after "closure" and mandate continued operation of various key plant components including the EDGs at issue in the Petition and those at Quad Cities.

Please also see the response to Question 12, above.

15. *The Board notes that while Exelon purchased only ULSD for the Byron, Dresden, and LaSalle facilities beginning in 2007, it continued to purchase standard, higher sulfur content diesel for the Clinton facility until 2010. The Board directs Exelon to provide an explanation for Exelon's decision to continue the purchase of higher sulfur diesel at the Clinton facility.*

Exelon Generation Response: Exelon Generation notes that the U.S. EPA specification for non-road diesel fuel was 500 ppm sulfur in 2007 and that this did not change to 15 ppm until 2010. Nonetheless, upon further investigation of fuel deliveries to Clinton Station, it was discovered that ULSD fuel has in fact been delivered to the station since 2007. The first ULSD purchase record for Clinton, dated May 22, 2007, is attached as Exhibit D.

Dated: July 14, 2016

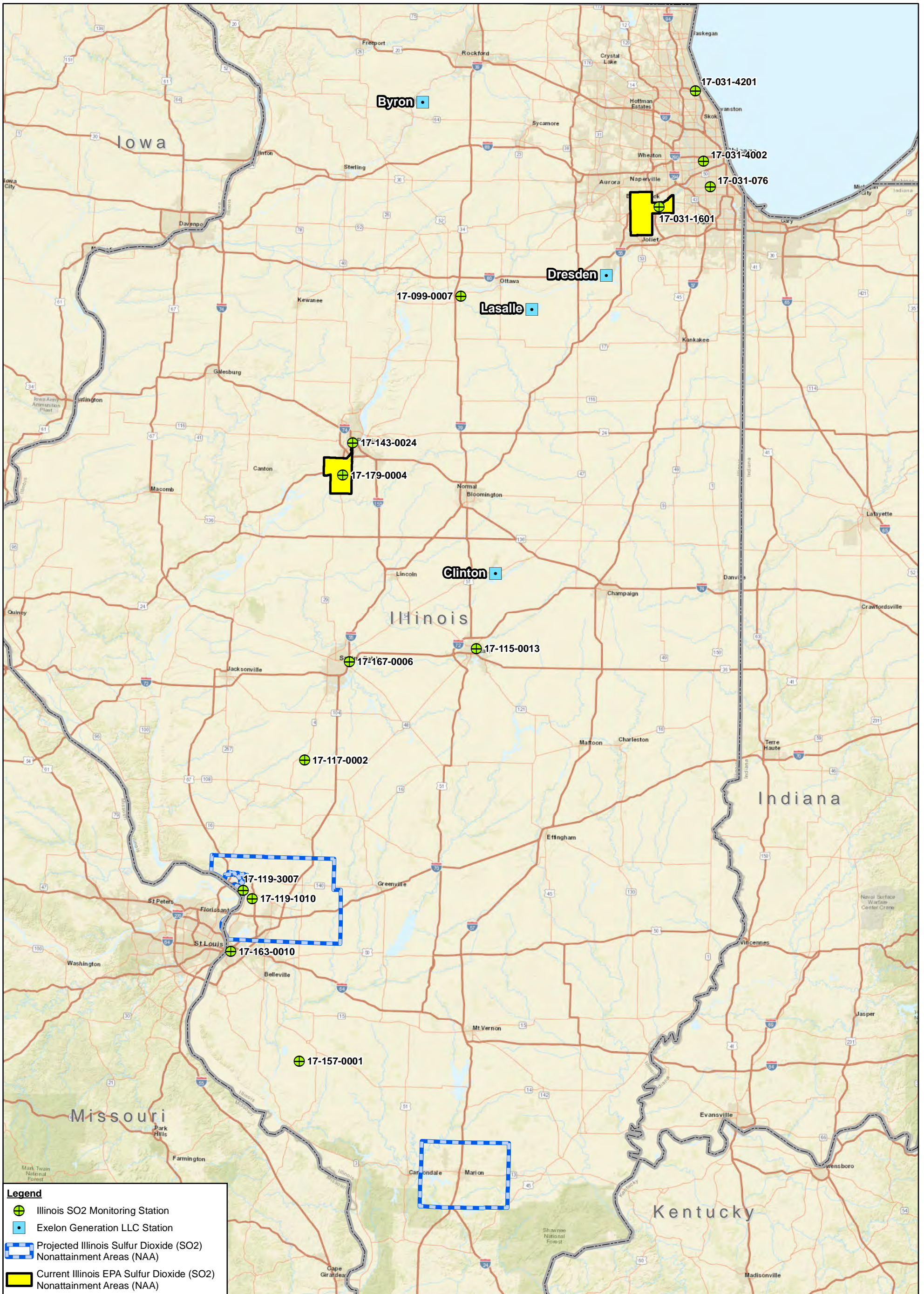
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Exhibit A



Legend

- Illinois SO2 Monitoring Station
- Exelon Generation LLC Station
- Projected Illinois Sulfur Dioxide (SO2) Nonattainment Areas (NAA)
- Current Illinois EPA Sulfur Dioxide (SO2) Nonattainment Areas (NAA)

0 25
Miles
Coordinate System:
NAD 1983 UTM Zone 16N



EXELON GENERATION LLC

Response to IPCB Question 2:
Illinois SO2 Nonattainment Areas and Monitoring Map

054021-22
Jul 6, 2016

FIGURE 1

Exhibit B

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Revised Table 2

Emissions Based on Current Sulfur Concentrations

Facility	Diesel Storage Capacity (Full Tanks)		Sulfur Mass Concentration		Mass of Fuel Bound Sulfur		Sulfur Molar Mass	Mole of Fuel Bound Sulfur		Sulfur Dioxide Molar Mass	
			Facility	Rule	Facility	Rule		Facility	Rule		
	(gal)	(lb)	(ppm)		(lb)		(lb/lbmol)	(lb/lbmol)		(lb/lbmol)	
Byron	255,500	1,773,937	26	15	46.12	26.61	32.06	1.44	0.83	64.07	
Clinton	137,193	952,531	160		152.40	14.29		4.75	0.45		
Dresden	All Other Tanks	47,775	331,702		21	6.97		4.98	0.22		0.16
	Aux Boiler Tank	150,000	1,041,450		150	156.22		15.62	4.87		0.49
	Total	197,775	1,373,152		--	163.18		20.60	5.09		0.64
LaSalle	197,200	1,369,160	147		201.27	20.54		6.28	0.64		

Assumes a density of 6.943 lb/gal

Facility	Mass of Sulfur Dioxide Emissions						
	Facility	Rule	Difference	Facility	Rule	Difference	
	(lb)			(tons)			
Byron	92.17	53.18	39.00	0.046	0.027	0.019	
Clinton	304.57	28.55	276.02	0.152	0.014	0.138	
Dresden	All Other Tanks	13.92	9.94	3.98	0.007	0.005	0.002
	Aux Boiler Tank	312.19	31.22	280.97	0.156	0.016	0.140
	Total	326.11	41.16	284.95	0.163	0.021	0.142
LaSalle	402.22	41.04	361.18	0.201	0.021	0.181	
	Total (lbs) =		961.14	Total (tons) =		0.481	

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Revised Table 3

Emissions Based on Compliance Plan Sulfur Concentration

Facility	Diesel Storage Capacity (Full Tanks)		Sulfur Mass		Mass of Fuel Bound Sulfur		Sulfur Molar Mass	Mole of Fuel Bound		Sulfur Dioxide	
			Facility	Rule	Facility	Rule		Facility	Rule		
	(gal)	(lb)	(ppm)		(lb)		(lb/lbmol)	(lb/lbmol)		(lb/lbmol)	
Byron	255,500	1,773,937	250	15	443.48	26.61	32.06	13.83	0.83	64.07	
Clinton	137,193	952,531	250		238.13	14.29		7.43	0.45		
Dresden	All Other Tanks	47,775	331,702		250	82.93		4.98	2.59		0.16
	Aux Boiler Tank	150,000	1,041,450		250	260.36		15.62	8.12		0.49
	Total	197,775	1,373,152		--	343.29		20.60	10.71		0.64
LaSalle	197,200	1,369,160	250		342.29	20.54		10.68	0.64		

Assumes a density of 6.943 lb/gal

Facility	Diesel Storage Capacity (Full Tanks)		Mass of Sulfur Dioxide Emissions						
			Facility	Rule	Difference	Facility	Rule	Difference	
	(gal)	(lb)	(lb)			(tons)			
Byron	255,500	1,773,937	886.28	53.18	833.10	0.443	0.027	0.417	
Clinton	137,193	952,531	475.89	28.55	447.34	0.238	0.014	0.224	
Dresden	All Other Tanks	47,775	331,702	165.72	9.94	155.78	0.083	0.005	0.078
	Aux Boiler Tank	150,000	1,041,450	520.32	31.22	489.10	0.260	0.016	0.245
	Total	197,775	1,373,152	686.04	41.16	644.88	0.343	0.021	0.322
LaSalle	197,200	1,369,160	684.05	41.04	643.00	0.342	0.021	0.322	
			Total (lbs) =		2568.32	Total (tons) =		1.284	

Exhibit C

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Table 4

Estimated Emissions Over Requested Variance Period

Facility	Years Averaged	Historic Diesel Burned Annual Averages		Sulfur Mass Concentration		Mass of Fuel Bound Sulfur		Sulfur Molar Mass	Mole of Fuel Bound Sulfur		Sulfur Dioxide Molar Mass
				Facility	Rule	Facility	Rule		Facility	Rule	
		(gal)	(lb)	(ppm)		(lb)		(lb/lbmol)	(lbmol)		(lb/lbmol)
Byron	2011-2015	107,094	743,556	26	15	19.33	11.15	32.06	0.60	0.35	64.07
Clinton		27,218	188,973	160		30.24	2.83		0.94	0.09	
Dresden*		33,211	230,584	21		4.84	3.46		0.15	0.11	
LaSalle		32,814	227,830	147		33.49	3.42		1.04	0.11	

*Emergency Engines Only

Assumes a density of 6.943 lb/gal

Facility Location	Annual Mass of Sulfur Dioxide Emissions						Total Mass of Sulfur Dioxide Emissions Over Requested Variance Period								
	Facility	Rule	Difference	Facility	Rule	Difference	Variance Years Requested	Facility	Rule	Difference	Facility	Rule	Difference		
	(lb SO ₂)			(tons SO ₂)			(No.)	(lb)			(tons)				
Byron	38.63	22.29	16.35	0.019	0.011	0.008	3	115.90	66.87	49.04	0.06	0.03	0.02		
Clinton	60.42	5.66	54.76	0.030	0.003	0.027	4	241.70	22.66	219.04	0.12	0.01	0.11		
Dresden*	9.68	6.91	2.76	0.005	0.003	0.001	3	29.03	20.74	8.29	0.01	0.01	0.004		
LaSalle	66.93	6.83	60.10	0.033	0.003	0.030	4	267.72	27.32	240.40	0.13	0.01	0.12		
Annual Total =			133.97 lb	Annual Total =			0.067 tons	Variance Total =			516.77 lb	Variance Total =			0.26 tons

Exhibit D

Electronic Filing - Received, Clerk's Office : 07/14/2016

TIMB21 - PURCHASES/RECEIPTS USAGE STATISTICS - [NuclearProduction(PN1P)]

File Edit Navigate *Options* View Help

Select to view transaction details.

Facility: CPS Catalog ID: 0001418985 2 Date: Thru:

PURCHASES

Date	Purchase Order	Release	Line	Qty	UI	Unit Price	Vendor	Suffix
05/22/2007	00040337	00225	0001	5,512	GA		\$2.750000 00004276	

Trans: 77 Total Qty: 228,374

CERTIFICATE OF SERVICE

I, the undersigned, certify that on July 14, 2016, I electronically served the attached **Petitioner Exelon Generation LLC's Responses to the Illinois Pollution Control Board's Questions** on the following persons:

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Dated: July 14, 2016

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