

INDEX TO STUEVE'S PREFILED DIRECT TESTIMONY EXHIBITS

| Label | Exhibit Description |
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| Stueve Exhibit | 1 – Prefiled Direct Testimony of Mary Jo Stueve |
| | 1-A Resume |
| | 1-B U.S. PIRG Fact Sheet |
| | 1-C Comparison of EPA's Mercury Rule and STAPPA/ALAPCO's Model State and Territorial Air Pollution Program Administrators (STAPPA) Association of Local Air Pollution Control Officials (ALAPCO) |

SOUTH DAKOTA PUBLIC UTILITIES COMMISSION

CASE NO. EL05-022

IN THE MATTER OF THE APPLICATION BY OTTER TAIL POWER COMPANY
ON BEHALF OF THE BIG STONE II CO-OWNERS
FOR AN ENERGY CONVERSION FACILITY SITING PERMIT FOR THE
CONSTRUCTION OF THE BIG STONE II PROJECT

DIRECT TESTIMONY

OF

MARY JO STUEVE

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MAY 19, 2006

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TESTIMONY OF MARY JO STUEVE

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1 **BEFORE THE SOUTH DAKOTA PUBLIC UTILITIES COMMISSION**

2 **DIRECT TESTIMONY OF MARY JO STUEVE**

3 **I. INTRODUCTION**

4 **Name and address**

5 My name is Mary Jo Stueve, resident of South Dakota 196 E. 6th St., Sioux Falls. I
6 also maintain a home at 518 Saint Joseph Ave., Graceville, Minnesota and have
7 agricultural land in Big Stone and Traverse County, Minnesota.

8 **Employment**

9 I am currently employed by Clean Water Action as State Coordinator. Our office is
10 located at 231 S. Phillips Ave. STE 250, Sioux Falls. With more than 9,000 member
11 households in South Dakota and 100,000 regionally, Clean Water Action has a long
12 history of supporting citizen efforts nation wide to protect water resources, promoting
13 sound solid waste management, pushing for agriculture policies that strengthen rural
14 communities, and working for a transition to clean renewable energy.

15 **Educational background**

16 My education includes Master of Arts (2004) in International Policy Studies with a
17 Certificate in Nonproliferation from the Monterey Institute of International Studies,
18 Master of Public Affairs (2003) from the University of Minnesota's Hubert H.
19 Humphrey Institute of Public Affairs, and a Bachelor of Arts (1999) in Sociology and
20 Latin America Area Studies from the University of Minnesota, Morris.

21 **Work history**

22 My work history includes twenty-four years in family farm operations, two years as
23 General Manager with Carlson Oil Co., Inc., four years in health care and community

1 services, and graduate research work at the Center for Nonproliferation Studies
2 (CNS) in Monterey, California.

3 **Experience relevant to my testimony**

4 I am a mother of four, grandmother of three, with another grandchild due the end of
5 May and come from a family of six girls and four boys. I have volunteered
6 extensively over the course of thirty years in areas such as youth formation and
7 community service, social justice, affordable housing, international humanitarian
8 assistance and anti-poverty efforts in the United States, most recently with
9 AmeriCorps VISTA, Volunteer in Service to America. I have worked tirelessly over
10 the course of my life to improve socio-economic living conditions, inequalities,
11 housing and health conditions for families and communities in both rural and urban
12 settings in the United States as well as outside our borders in Mexico and Cuba.
13 Going back to school to acquire two Master Degrees I have studied and researched
14 extensively with colleagues from around the world, mid-career professionals such as
15 lawyers, government officials, NGO (non-governmental organization) program
16 officers, UN (United Nations) personnel and representatives and U.S. military
17 officers among others on issues related to *governance, accountability and leadership*
18 *for the common good.*

19 **II. DECISION TO PARTICIPATE**

20 I have sought to intervene as a party in this matter in order to protect and preserve
21 quality of life, health, and social and economic well-being, as an interested person
22 (49-41B-17 (3)). The proposed Big Stone II poses a threat of serious injury to the
23 environment and to the social and economic condition of inhabitants or expected

1 inhabitants, [including those yet to be born, especially the fetus] in the siting area and
2 beyond. Big Stone Lake is a diamond in the rough. Curtis Bailey, President of
3 Citizens for Big Stone Lake, wrote in the organization's 2005 brochure. "Along both
4 the Minnesota and South Dakota shores of Big Stone Lake, new areas are being
5 opened for development. Seasonal and permanent dwellings are being constructed at
6 an impressive rate. Unique and beautiful, our 27-mile lake has become a truly
7 desirable destination." The proposed Big Stone II plant will substantially impair the
8 health, safety and welfare of inhabitants and will unduly interfere with the orderly
9 development of the region (49-41B-22); especially with the risk of becoming a *toxic*
10 *hot spot* (Volume III: Fate and Transport of Mercury in the Environment, Mercury
11 Study Report to Congress, EPA-452/R-97-0005, December 1997) should project Co-
12 Owners implement purchase of mercury Cap-And-Trade allowances, a choice
13 acknowledged by Mr. Graumann at the Public Hearing in Milbank, South Dakota,
14 September 2005.

15 **III. PURPOSE AND SUMMARY OF TESTIMONY**

16 The purpose and summary of this testimony is to produce and submit to the
17 Commission's official docket file, for the public record, my objections regarding
18 granting a permit for the proposed Big Stone II project and to document sources
19 supporting such. Mercury poses unacceptable risk to our children, our health, our
20 environment, our future. To date, concerns regarding mercury have not been
21 adequately addressed nor studies performed specific to the 20 mile radius study area
22 (See Exhibit 5-1 Application for a South Dakota Energy Conversion Facility Siting
23 Permit, July 2005 "Community Impacts Study Area"). I find this unacceptable and

1 reason alone to deny permitting. The public has a right to know *beforehand* rather
2 after the fact.

3 **IV. SUPPORTING EVIDENCE AND RESEARCH**

4 It would be impossible to cite the vast body of scientific research supporting my
5 concerns regarding mercury. For the sources I refer to below I have provided hyper
6 links to full text whenever possible and in other cases have given an excerpt or author
7 abstract and citation. The following body of evidence shows that mercury poses great
8 risk not only to the environment but to quality of life, health, social and economic
9 well-being. The material facts contained in these studies deserve full consideration by
10 the Commission before granting a permit to the proposed Big Stone II.

11 Public Health and Economic Consequences of Methylmercury Toxicity to the
12 Developing Brain, the findings of the Center for Children's Health and the
13 Environment at Mount Sinai School of Medicine (pdf)

14 Leonardo Trasande,^{1,2,3,4} Philip J. Landrigan,^{1,2} and Clyde Schechter⁵

15 ¹ Center for Children's Health and the Environment, Department of Community and Preventive
16 Medicine, and ² Department of Pediatrics, Mount Sinai School of Medicine, New York, New
17 York, USA; ³ Division of General Pediatrics, Children's Hospital, Boston, Massachusetts, USA; ⁴
18 Department of Pediatrics, Harvard Medical School, Boston, Massachusetts, USA; ⁵ Department of
19 Family Medicine, Albert Einstein College of Medicine, Bronx, New York, USA

20 VOLUME 113 | NUMBER 5 | May 2005 • Environmental Health Perspectives

21

hundreds of thousands of American babies born each year and b) that this loss of intelligence exacts a significant economic cost to American society, a cost that amounts to at least hundreds of millions of dollars each year.

blood level is 1.7 times the maternal blood concentration, as described in the most recent and extensive meta-analysis on the matter (Stern and Smith 2003), these children are also born with cord blood mercury concentrations

a child's social productivity is approximately \$4-9 million, as suggested by studies of willingness-to-pay (WTP) estimates of a life (Viscusi and Aldy 2004), then by the WTP methodology the true cost of methyl mercury toxicity may be much higher than our estimate. We also chose not to include other noncognitive impacts. Lead, for example, has been associated with criminality and antisocial behavior (Dietrich et al. 2001; Needleman et al. 1996, 2002; Nevin 2000; Strattall and Lynch 2001). However, because these behaviors have not been described as yet for methyl mercury, we chose not to include such costs in our estimate.

Some will argue that our range of costs fails to incorporate the role of confounding factors in quantifying the economic consequences of methyl mercury exposure. It is true that efforts

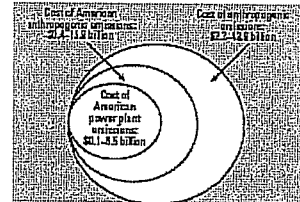
Table 1. Cost of anthropogenic mercury (Hg) exposure using a logarithmic model.

| Variable | Segment of population (percentile) | | | |
|--|------------------------------------|---------------|----------------|---------------|
| | 90-92.1 Hg | 82.2-94.9 Hg | 95-99.3 Hg | ≥ 99.4 Hg |
| Range of maternal total Hg concentration | 4.84-6.0 µg/L | 5.8-7.13 µg/L | 7.13-15.0 µg/L | > 15.0 µg/L |
| Assumed maternal total Hg concentration | 4.84 | 5.8 | 7.13 | 15 |
| No. effect concentration (maternal total Hg) | 3.41 | 3.41 | 3.41 | 3.41 |
| IQ points lost at assumed concentration | 0.76 | 1.16 | 1.80 | 3.21 |
| Loss of 1 IQ points = decrease in lifetime earnings | | | | |
| For boys, lifetime earnings (1.931% decrease) | | | \$1,032,002 | |
| For girls, lifetime earnings (3.225% decrease) | | | \$763,468 | |
| No. of boys in birth cohort affected | 45,603 | 69,155 | 81,387 | 12,482 |
| No. of girls in birth cohort affected | 43,601 | 65,482 | 67,201 | 11,601 |
| Lost income | \$1.1 billion | \$2.0 billion | \$4.4 billion | \$1.2 billion |
| Total cost = \$8.7 billion in each year's birth cohort | | | | |

Assumptions: EAF = 70%, main consequence = loss of IQ over lifetime.

Table 2. Sensitivity analysis: cost of anthropogenic methyl mercury exposure.

| Variable | Base-case cost estimate (range)* |
|---|--------------------------------------|
| Children born to women with Hg > 4.84 µg/L, effect > 3.5 µg/L | |
| Logarithmic model | \$3.7 billion (\$4.0-13.9 billion) |
| Linear model, cord:maternal Hg ratio = 1.7 | \$2.9 billion (\$2.0-43.8 billion) |
| Linear model, cord:maternal Hg ratio = 1 | \$19.3 billion (\$12.3-29.6 billion) |
| Children born to women with > 5.8 µg/L, effect > 4.84 µg/L | |
| Logarithmic model | \$3.9 billion (\$2.2-6.3 billion) |
| Linear model, cord:maternal Hg ratio = 1.7 | \$18.7 billion (\$11.9-24.9 billion) |
| Linear model, cord:maternal Hg ratio = 1 | \$11.0 billion (\$7.0-14.6 billion) |



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Mercury Exposure Linked to Loss of IQ & Billions in Societal Costs


A study conducted at Mt. Sinai in New York shows that exposure to mercury in the womb is associated with a loss in IQ, a loss that has long-term effects on our society and could be costing us billions of dollars:

<http://www.healthylivingnyc.com/article/122>

Article Reviewed by Ansley Roche (Last accessed 05/18/2006).

1997 Mercury Study Report to Congress

This Mercury Study prepared by the U.S. Environmental Protection Agency provides an assessment of the magnitude of U.S. mercury emissions by source, the health and environmental implications of those emissions, and the availability and cost of control technologies.

 [Mercury White Paper \(15KB\)](#) - Describes EPA's recent, ongoing, and planned actions to reduce mercury pollution.

- ☒ Volume I: Executive Summary (1.24MB)
- ☒ Volume II: An Inventory of Anthropogenic Mercury Emissions in the United States (1.57MB)
- ☒ Volume III: Fate and Transport of Mercury in the Environment (4.25MB)
- ☒ Volume IV: An Assessment of Exposure to Mercury in the United States (1.29MB)
- ☒ Volume V: Health Effects of Mercury and Mercury Compounds (1.15MB)
- ☒ Volume VI: An Ecological Assessment for Anthropogenic Mercury Emissions in the United States (2.91MB)
- ☒ Volume VII: Characterization of Human Health and Wildlife Risks from Mercury Exposure in the United States (727KB)
- ☒ Volume VIII: An Evaluation of Mercury Control Technologies and Costs (828KB)

1 **ANA and other health care groups sue EPA to prevent future mercury**
2 **exposure.** American Nurse, Jul/Aug2005, Vol. 37 Issue 4, p4-4, 1/3p; Abstract:
3 The article reports that in an unprecedented action, American Nurses Association
4 and three other leading health care groups filed a lawsuit against the U.S.
5 Environmental Protection Agency (EPA) on June 14 to force the federal agency to
6 strengthen its official rule on mercury pollution from coal-fired power plants.
7 According to widely accepted scientific research, mercury is a potent neurotoxin
8 that can cause developmental and learning disabilities, reduced IQ and impaired

1 motor skills in children, and altered sensation, impaired hearing and vision, and
2 motor disturbances in adults.; (AN 18297435)

3 <http://www.ana.org/pressrel/2005/pr0614.htm>

4 **STAYING AHEAD OF THE FEDS**: EPA Proposes Cap-And-Trade to Cut
5 Back On Mercury Emissions, But Many States Think They Have a Quicker,
6 Better Solution. Larry Morandi, State Legislatures; Jun 2005; 31, 6; Research
7 Library, pg. 14

8 **Inspector General Blasts EPA Mercury Analysis**, by: Stokstad, Erik, Science,
9 2/11/2005, Vol. 307 Issue 5711, p829-831, 2p, 1c; Abstract: This article reports
10 on environmentalism in the U.S. When the U.S. Environmental Protection
11 Agency (EPA) proposed such a cap-and-trade system last year, it argued that it
12 was the most effective way to cut back the 48 tons of mercury, a known
13 neurotoxin, emitted nationwide each year. Coal-fired power plants are responsible
14 for about 40% of all mercury emissions in the U.S., making them the largest
15 single source. No federal rules on mercury from power plants are in place yet,
16 although EPA determined in 2000 that regulation was appropriate and necessary;
17 (AN 16178054)

18 **Japan remembers Minamata**. By: McCurry, Justin. Lancet, 1/14/2006, Vol. 367
19 Issue 9505, p99-100, 2p, 1c; Abstract: This article reports on the 50 year
20 anniversary of the first patient being diagnosed in Japan's worst case of industrial
21 pollution. Over 900 people died and thousands of others were left permanently
22 disabled as the disease attacked their nervous system, causing blindness, seizures,
23 and a variety of sensory disorders. In total, about two million suffered health

- 7 -

1 problems from eating fish that was contaminated with mercury. The tragedy that
2 struck the seaside town of Minamata was entirely manmade. From 1932 to 1968,
3 Chisso Corporation, a local petrochemical and plastics maker, dumped an
4 estimated 27 tons of mercury into Minamata bay, poisoning fish and eventually,
5 the people who ate them.; DOI: 10.1016/S0140-6736(06)67944-0; (AN
6 19397624)

7 TED Case Studies, **Minamata Disaster**

8 <http://www.american.edu/TED/MINAMATA.HTM>

9 Senator Patrick Leahy's **Mercury Timeline**

10 http://leahy.senate.gov/issues/environment/mercury/hg_time.html

11 **City bans medical devices that contain mercury.** By: Sibbald, Barbara. CMAJ:

12 Canadian Medical Association Journal, 1/7/2003, Vol. 168 Issue 1, p78, 1/2p, 1c;

13 ...Centers for Disease Control and Prevention reported that 10% of American

14 women of child- bearing age had mercury concentrations above the level

15 considered safe for the developing fetus. It is estimated that coal-fired power

16 plants in the U.S. release 51 tons of mercury into the atmosphere there every year,

17 accounting for about one-third of the country's yearly airborne emissions.; (AN

18 8873686)

19 **Keep that mercury down!** American Nurse, Sep/Oct2005, Vol. 37 Issue 5, p4-4,

20 1/5p; Abstract: The article reports that the Pennsylvania State Nurses Association

21 (PA Nurses) recently took on the issue of mercury and its effect on the air

22 Pennsylvanians breathe. In her testimony at the state capitol, PA Nurses

23 Executive Administrator Michele Campbell, urged the Department of

1 Environmental Protection to move forward with a plan to decrease mercury
 2 emissions by 90 percent by the year 2007. Pennsylvania's coal-fired power plants
 3 are responsible for at least 83 percent of the state's mercury emissions to air, and
 4 its power plants are some of the highest emitters nationwide.; (AN 18682385)
 5 **Control mercury emissions now.** By: Uram, Eric; O'Donnell, Frank; Stadler,
 6 Felice. Issues in Science & Technology, Fall2002, Vol. 19 Issue 1, p13, 3p;
 7 Abstract: Comments on an article about the reduction of mercury pollution from
 8 electric power plants in the U.S. Importance of controlling mercury emissions
 9 from coal-fired power plants by the utility industry and regulators to public health
 10 and wildlife; Issue raised on mercury emissions control; Contamination of food
 11 supply in the country; Step taken by state governments to prevent mercury
 12 pollution.; (AN 7592657)

13 USGS Water-Resources Investigations Report 03-4078

14 <http://nd.water.usgs.gov/pubs/wri/wri034078/>

15 Reconnaissance of Mercury in Lakes, Wetlands, and Rivers in the Red River of
 16 the North Basin, North Dakota, March Through August 2001 Water-Resources
 17 Investigations Report 03-4078 By Steven K. Sando, G.J. Wiche, R.F. Lundgren,
 18 and Bradley A. Sether

19 Prepared in cooperation with the U.S. Army Corps of Engineer

20 **V. FOR CONSIDERATION: REGULATING MERCURY: A MODEL RULE**
 21 **FOR STATES AND LOCALITIES**

22 **NEW PROPOSALS TO CONTROL MERCURY CONTAMINATION.**

23 November 2005 Full Report available from:

1 State and Territorial Air Pollution Program Administrators (STAPPA) Association of Local Air
2 Pollution Control Officials (ALAPCO)
3 444 North Capitol Street, NW, Suite 307, Washington, DC 20001
4 Telephone: (202) 624-7864; Fax: (202) 624-7863
5 Web site: www.4cleanair.org; E-mail: 4cleanair@4cleanair.org

6 (Excerpt)

7 Under the auspices of the State and Territorial Air Pollution Program
8 Administrators (STAPPA) and the Association of Local Air Pollution
9 Control Officials (ALAPCO), the state and local regulators have
10 developed a “model rule” that could be adapted by air agencies around the
11 nation. It would require that electric power companies eliminate up to 95
12 percent of their toxic mercury emissions by 2012. This flexible cleanup
13 strategy would have two phases, with interim controls – and associated
14 emission reductions – required by 2008.

15 This model rule calls for far deeper cuts in toxic mercury emissions from
16 electric power plants than federal rules issued this year by the U.S.

17 Environmental Protection Agency (EPA) and would require the cleanup to
18 be achieved more than a decade earlier. Unlike the federal approach, the
19 state/local plan would not permit power companies to “trade” mercury
20 emissions: <http://www.4cleanair.org/FinalMercuryModelRule-111405.pdf>

21 This concludes my testimony. I look forward to the Commissions’ full review and
22 consideration.