

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

PREFILED REBUTTAL TESTIMONY

OF

MARK ROLFES

PROJECT MANAGER

OTTER TAIL POWER COMPANY

JUNE 9, 2006



PREFILED REBUTTAL TESTIMONY OF MARK ROLFES

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

2 **PREFILED REBUTTAL TESTIMONY OF MARK ROLFES**

3 **I. INTRODUCTION**

4 **Q: Please state your name and business address.**

5 A: Mark Rolfes. My business address is P.O. Box 218, Big Stone City, South Dakota.

6 **Q: Did you submit direct testimony in this proceeding?**

7 A: Yes. My direct testimony has been marked as Applicants' Exhibit 8.

8 **Q: What issues do you address in your rebuttal testimony?**

9 A: The purpose of my rebuttal testimony is to update the Application with some relatively
10 minor changes in the design of Big Stone Unit II that have been made since the Application was
11 originally filed with the Commission on July 21, 2005, and to provide the Applicants' response
12 to the recommendations of Dr. Denney at pages 56-58 of her testimony regarding the
13 Application. As indicated below in Section III, the Applicants accept and adopt all of those
14 recommendations.

15 **II. CHANGES TO THE DESIGN OF THE PROJECT**

16 **Q: What changes in the design of the Project have been made or are under**
17 **consideration since the Application was filed with the Commission?**

18 A: Since the Application was filed almost a year ago, there have been a number of minor
19 changes in the design of the plant and the surrounding infrastructure. The changes are the result
20 of more detailed information having been learned and more definition put on the plant and its
21 system, although the plant's overall basic design and operation have not changed. I have also

1 identified other minor changes that are under consideration. Changes will continue to occur
 2 throughout the design process.

3 The changes that have been made since the Application was filed are described below
 4 and shown on Applicants' Exhibits 33 A-F attached to this testimony. Applicants' Exhibits
 5 33 A-F are intended to replace certain exhibits in the Application:

- 6 - Applicants' Exhibit 33-A replaces Exhibit 1-2 in the Application;
- 7 - Applicants' Exhibit 33-B replaces Exhibit 2-2 in the Application;
- 8 - Applicants' Exhibit 33-C replaces Exhibit 2-3 in the Application;
- 9 - Applicants' Exhibit 33-D replaces Exhibit 2-4 in the Application; and
- 10 - Applicants' Exhibit 33-E replaces Exhibit 2-5 in the Application.

11 • Additional Property:

12 The Applicants have taken options on or purchased five additional pieces of property that
 13 will increase the plant site buffer area. The residence closest to the plant site, which is north and
 14 west of the plant, has been purchased. The Applicants also have purchased or taken options on
 15 additional properties to the north and west of the proposed water storage ponds, and taken an
 16 option on one of the residents to the south of the water storage ponds. The Project site, including
 17 these additional properties, is shown on Applicants' Exhibit 33-A.

18 • Expanded Construction Lay Down Area:

19 The Applicants plan to have an enlarged construction lay down area with a railspur
 20 leading from the plant's main railspur into the lay down area to facilitate delivery of material by
 21 rail. The expansion of the lay down area would occur on additional property to the east. All of

1 the lay down area would be returned to its original state following construction. The lay down
 2 area is shown on Applicants' Exhibit 33-A.

3 • Revised Site Layout:

4 A revised site layout for the plant is attached as Applicants' Exhibit 33-B, and shows the
 5 exact size and location of the plant structures. The changes are minor and are confined to the
 6 areas adjacent to the existing plant structures.

7 • Fire Pump:

8 Because of revisions to the higher National Fire Protection Code, we are evaluating
 9 whether or not two additional diesel powered booster fire pumps will need to be added. One is
 10 for the main boiler building and the second is for the coal silos to provide enhanced water
 11 pressure at the elevated locations. The proposed locations of the fire pumps are shown on
 12 Applicants' Exhibit 33-B.

13 • Brine Concentrators:

14 Because of the current water balance it may prove to be more practical to add two brine
 15 concentrators, rather than one. The final decision on the number of brine concentrators has yet to
 16 be made. If two concentrators are used, they will be located adjacent to the existing brine
 17 concentrator that is shown on Applicants' Exhibit 33-B.

18 • Coal Stock Out:

19 The original design for the coal stock out was a retractable plow and telescopic chute.
 20 We are evaluating whether to replace this with a fixed tripper and fabric filter dust collector and
 21 lowering well, as this arrangement is anticipated to provide better dust control and serviceability

1 of the coal stock out operation. These proposed facilities are also shown on Applicants' Exhibit
 2 33-C.

3 • Active Stockpile Change:

4 With the previous mentioned proposed change of the telescopic chute to a lowering well,
 5 the active coal stockpile capacity would change from 28,000 tons to an estimated 75,000 tons.

6 See Applicants' Exhibit 33-C.

7 • Retractable Plow:

8 A proposed retractable plow would be added to the conveyor from the storage silos to
 9 provide for emergency emptying of the silos. The location of the plow is shown on Applicants'
 10 Exhibit 33-C.

11 • Limestone Crusher:

12 A proposed limestone crusher and fabric filter would be added in order for the Project to
 13 be able to receive two inch and larger crushed limestone. The proposed location of these
 14 facilities is shown on Applicants' Exhibit 33-D. The larger limestone will be less susceptible to
 15 freezing in cold weather and will allow the Applicants to utilize a larger range of limestone
 16 suppliers.

17 • Limestone Storage:

18 The Applicants propose to replace the 15,000-ton umbrella limestone storage with an
 19 8,000 ton hoop storage facility having open ends orientated perpendicular to the wind. This
 20 storage arrangement should be more cost effect and provide better dust control. A flow diagram
 21 of these facilities is found in Applicants' Exhibit 33-D.

22 • Coal Silos:

1 The coal silo size has changed to 65 feet in diameter and 225 feet high.

2 • In-Plant Coal Silo Filling:

3 The planned in-plant coal silo filling conveyors have been changed to a tripper conveyor
4 arrangement.

5 • Construction Water and Waste Water:

6 The Applicants are considering an offer from Big Stone City to provide construction
7 water supply and wastewater treatments.

8 • Water Storage Capacity:

9 The water storage capacity for the planned ponds has been revised to a capacity of 18,900
10 acre-feet in the following ponds (this is for the total site including existing ponds):

11

Pond Name	Existing or Proposed	Approximate Volume (acre-feet)
Cooling Pond & Existing Makeup Pond	Existing	5,560
Evaporation Pond	Existing	1,436
Holding Pond	Existing	965
Bottom Ash Pond	Existing	21
Water Makeup Pond	Proposed	10,800
Cooling Tower Blowdown Pond	Proposed	100
TOTAL		18,900

12

13 • Water Appropriations:

14 The water appropriations will be for a total of 18,000 acre-feet per year, which includes
15 both Big Stone Unit I and Big Stone Unit II.

16 • Revised Water Consumption:

1 The water balance has been revised to include an annual average total fresh water make
2 up of approximately 11,700 acre-feet per year for both units. This is due to better design
3 knowledge and assumptions for the water balance and water consumption. The water supply
4 system and its typical evaporation are shown on Applicants' Exhibit 33-E.

5 **III. RECOMMENDATIONS**

6 **Q: Will the Applicants adopt the recommendations made by Dr. Denney in her**
7 **testimony at pages 56-58?**

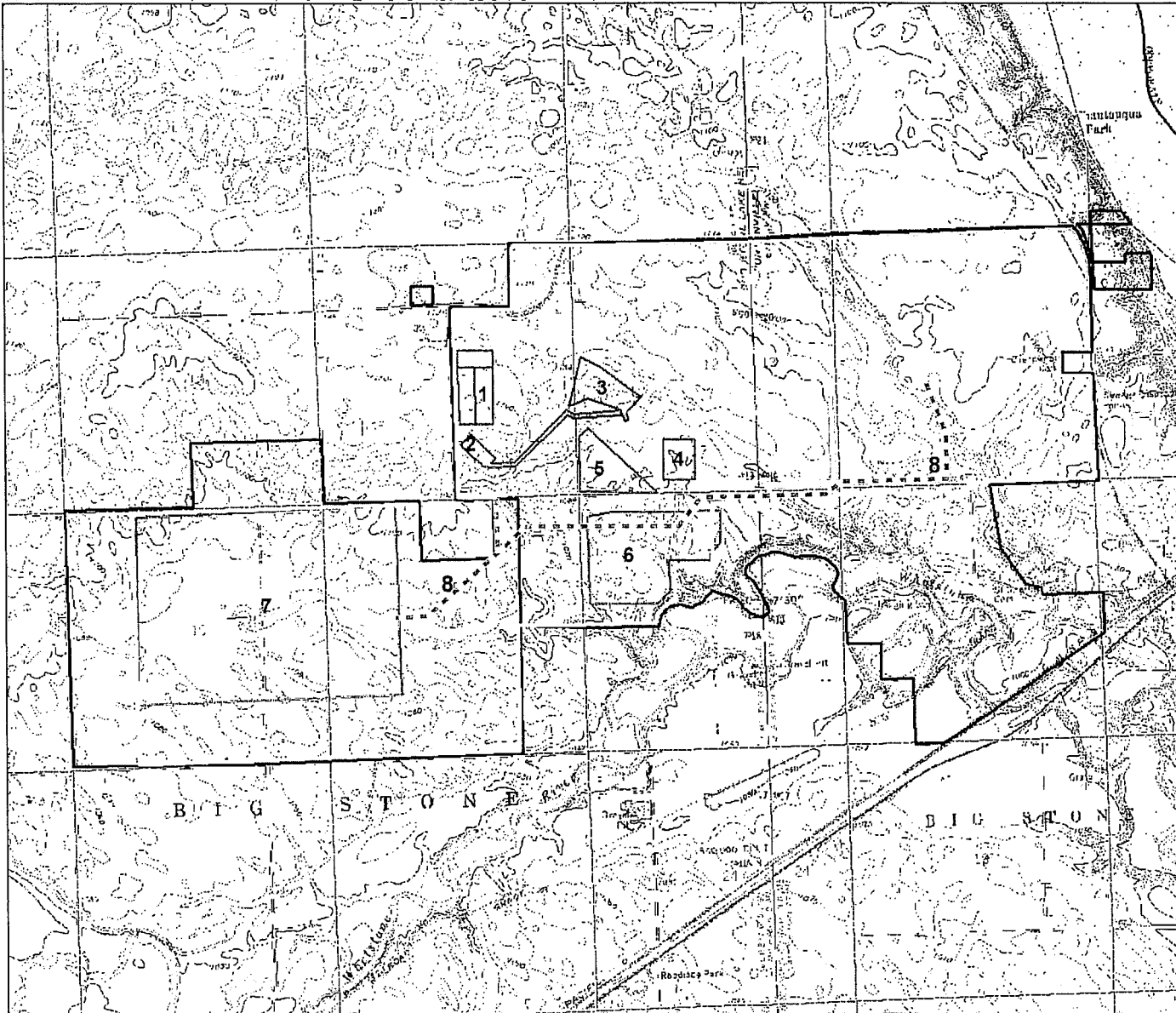
8 A: Yes. The Applicants agree to implement the recommendations of the Local Review
9 Committee by: (1) preparing a housing contingency plan; (2) financing an additional officer for
10 the Grant County Sheriff's Office; (3) adopting and implementing a drug and alcohol screening
11 protocol for Big Stone Unit II employees; (4) acquiring the necessary fire protection equipment
12 and training local fire department; and (5) appointing a public relations representative to
13 facilitate the exchange of information between the Applicants and local communities. Some of
14 these activities already have been started. For example, the Applicants have had discussions
15 with the Grant County Sheriff about adding an officer, and have had discussions with suppliers
16 of equipment and training for the local fire department. The Applicants also have selected a
17 public relations representative, and have included drug and alcohol screening in all of their
18 employment plans and policies.

19 The Applicants also agree to adopt the recommendations contained in the Draft
20 Environmental Impact Statement concerning plant construction and operation, which are listed in
21 Dr. Denney's testimony at page 58, lines 1 through 11.

1 Finally, the additional information identified by Dr. Denney as missing in Table 2 of her
2 testimony is provided in the Prefiled Rebuttal Testimony of other Applicants' witnesses.

3 **Q: Does this conclude your testimony?**

4 **A: Yes.**



- Project Area
- Property Boundary (Currently Owned or Optioned)
- Project Features
- 1 Cooling Tower Blowdown Pond
 - 2 Cooling Tower
 - 3 New Plant
 - 4 Construction Parking
 - 5 Ethanol Plant
 - 6 Construction Laydown
 - 7 Makeup Storage Pond
 - 8 Water Pipelines
 - Water Pipeline Corridors

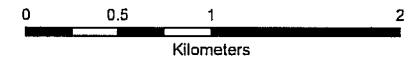
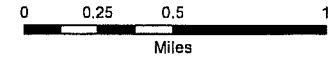


Exhibit 1-2

PROJECT SITE
Big Stone II Project
Big Stone II Co-owners

Revised June 2006

EXHIBIT
Applicants'
EXHIBIT 33-A

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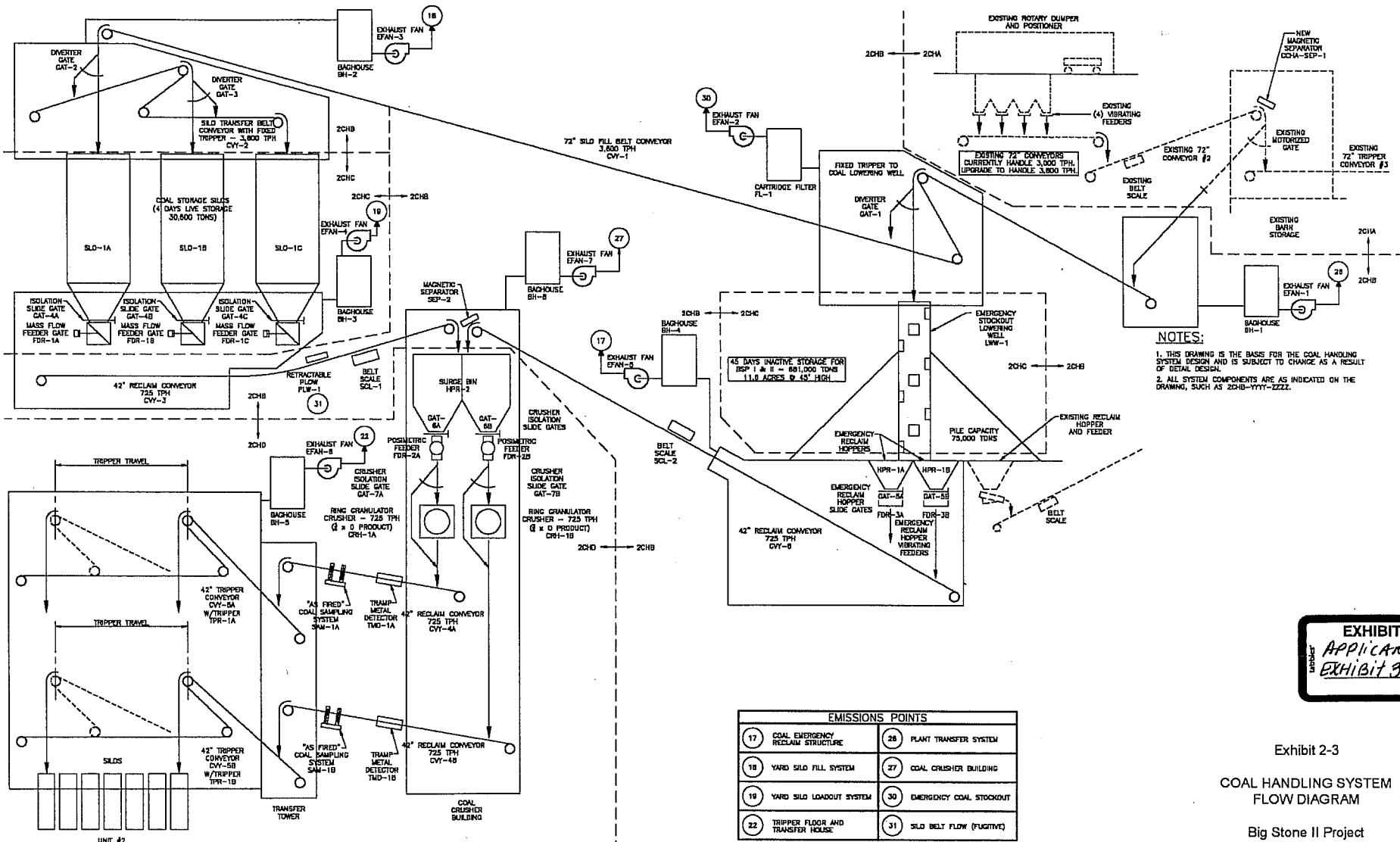


ID	Facility	ID	Facility
1	Generation Building	26	Yard Coal Silos
2	Fabric Filter	27	Emergency Stockout Lowering Well
3	ID Fans (BSP II)	28	Emergency Coal Reclaim Structure
4	FGD Booster Fans (BSP I)	29	Circulating Water Pipe
5	Common Wet Scrubber	30	Circulating Water Pump Structure
6	Bottom Ash Load Out Area	31	Cooling Tower
7	Chimney	32	Cooling Tower Blowdown Pond
8	Generator Step-Up Transformer	33	Yard Services Building
9	Unit Auxiliary Transformer	34	Limestone Receiving Dumper Structure
10	DemIn Storage Tank	35	Limestone Conveyor
11	Exhaust Ductwork	36	Limestone Storage Building
12	Fly Ash Silo (BSP II)	37	Chemical Feed Building
13	Flue Gas Demineralizer (FGD) Building	38	FGD Byproducts Stockout Conveyor FGD Byproducts Storage/Truck Load Out Area
14	Reagent Prep Building	39	Area
15	FGD Byproduct Dewatering Building	40	230kV Substation Addition
16	Fuel Oil Pump Structure	41	Brine Concentrator
17	Limestone Day Bin	43	Wastewater Pump Structure
18	Limestone Precrusher	44	Condensate Storage Tank
19	CEMS Enclosure	45	Process Steam Pipe Rack
20	Reagent Slurry Storage Tank	46	Temporary Location of BSP I Fly Ash Silo
21	Reclaim Water Tank	48	Coal Tripper Transfer Structure
22	Filter Feed Tank	49	Powerblock Firewater Booster Pumps
23	Coal Crusher Building	50	Emergency Diesel Generator Building
24	Coal Conveyor	51	Water Supply Pump Structure
25	Ammonia Storage Area	52	Coal Area Firewater Booster Pumps

EXHIBIT
 Applicants
 Exhibit 33-B

Exhibit 2-2
 POWER PLANT SITE
 Big Stone II Project
 Big Stone II Co-owners
 Revised June 2006

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NOTES:
 1. THIS DRAWING IS THE BASIS FOR THE COAL HANDLING SYSTEM DESIGN AND IS SUBJECT TO CHANGE AS A RESULT OF DETAIL DESIGN.
 2. ALL SYSTEM COMPONENTS ARE AS INDICATED ON THE DRAWING, SUCH AS 2CHB-YYYY-ZZZZ.

EXHIBIT
 APPLICANTS'
 EXHIBIT 33-C

EMISSIONS POINTS	
17	COAL EMERGENCY RECLAIM STRUCTURE
18	YARD SLO FILL SYSTEM
19	YARD SLO LAOUDT SYSTEM
22	TRIPPER FLOOR AND TRANSFER HOUSE
26	PLANT TRANSFER SYSTEM
27	COAL CRUSHER BUILDING
30	EMERGENCY COAL STOCKOUT
31	SLO BELT FLOW (FUGITIVE)

Exhibit 2-3

COAL HANDLING SYSTEM FLOW DIAGRAM

Big Stone II Project
 Big Stone II Co-owners
 Revised June 2006

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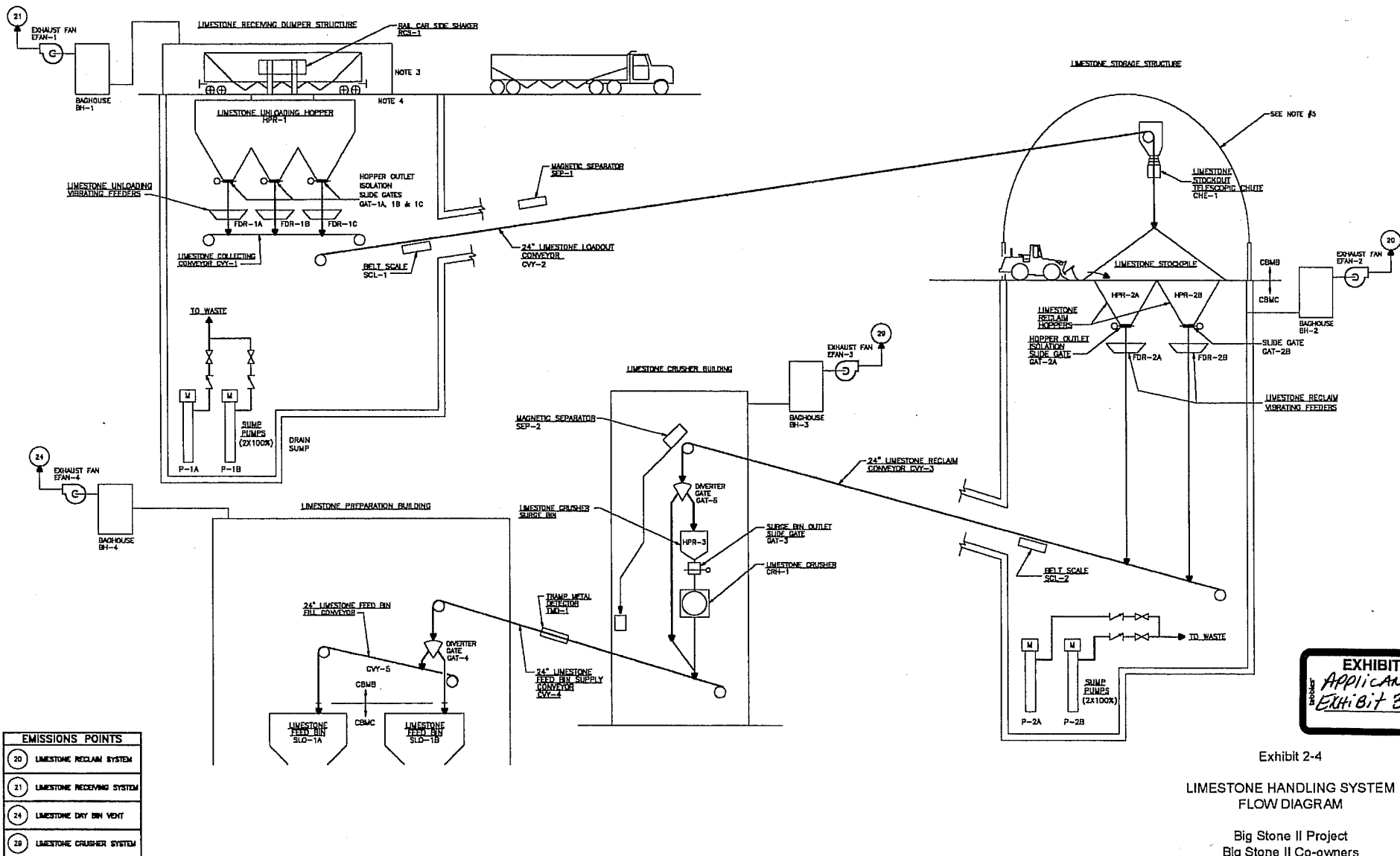
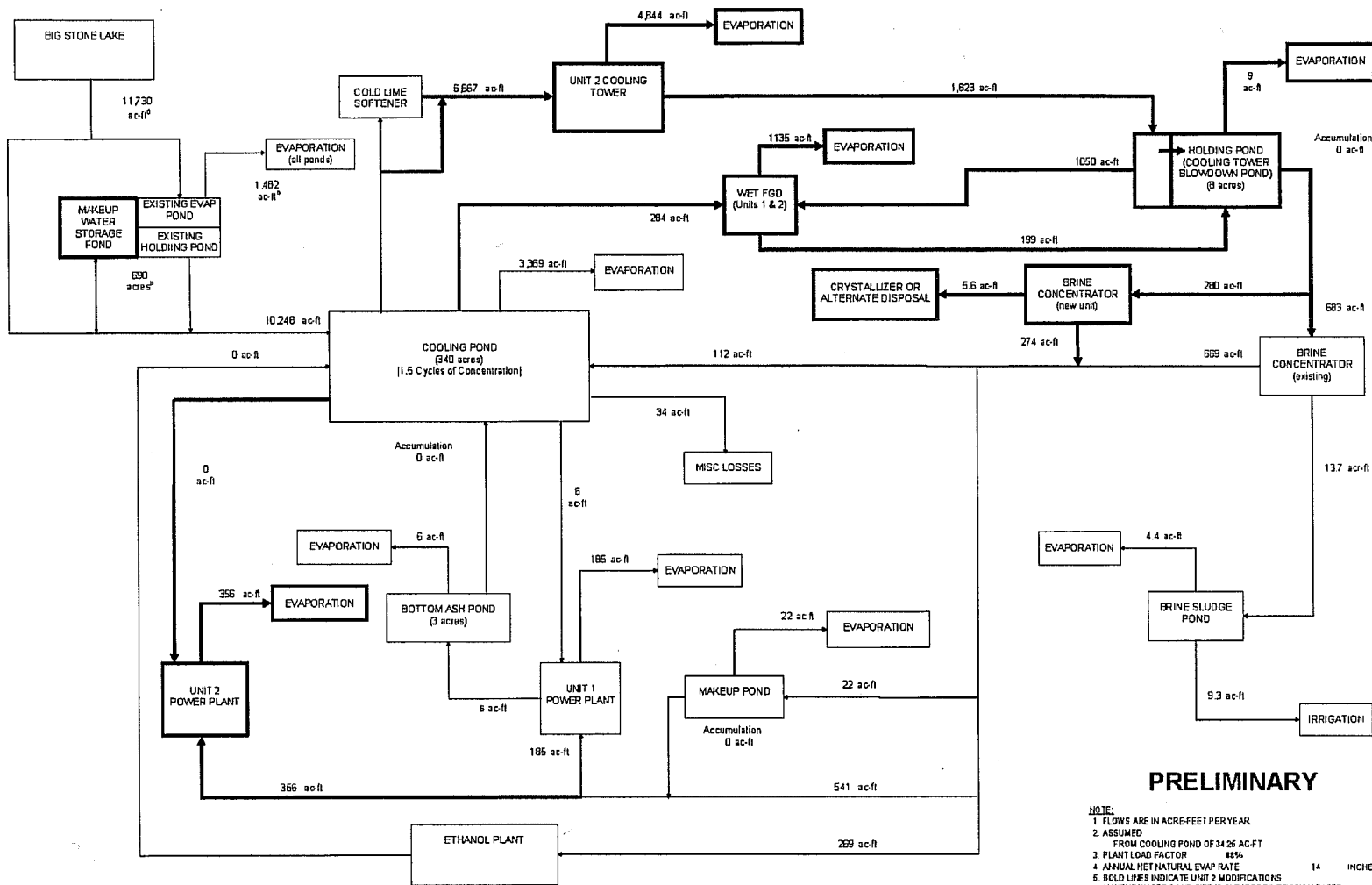


Exhibit 2-4

LIMESTONE HANDLING SYSTEM
FLOW DIAGRAM

Big Stone II Project
Big Stone II Co-owners
Revised June 2006

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PRELIMINARY

- NOTE:
 1. FLOWS ARE IN ACRE-FEET PER YEAR
 2. ASSUMED
 FROM COOLING POND OF 34.25 AC-FT
 3. PLANT LOAD FACTOR 85%
 4. ANNUAL NET NATURAL EVAP RATE 14 INCHES
 5. BOLD LINES INDICATE UNIT 2 MODIFICATIONS
 6. MAKEUP WATER POND SIZE IS SUBJECT TO REVISION BASED ON FINAL DESIGN. EVAPORATION AND TOTAL ALLOCATION MAY BE ADJUSTED ACCORDINGLY.

EXHIBIT
 Applicants'
 Exhibit 93-E

Exhibit 2-5

**WATER SUPPLY SYSTEM
 SCHEMATIC
 TYPICAL EVAPORATION**

Big Stone II Project
 Big Stone II Co-owners
 Revised June 2006

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