



ARKANSAS POWER & LIGHT COMPANY
POST OFFICE BOX 551 LITTLE ROCK, ARKANSAS 72203 (501) 371-4000

December 21, 1978

1-128-7

Director of Nuclear Reactor Regulation
ATTN: Mr. R. W. Reid, Chief
Operating Reactor Branch #4
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Intake Impingement Data
(File: 0520.2)

Gentlemen:

Enclosed are the results of impingement monitoring at the intake of Arkansas Nuclear One - Unit 1 during the month of November 1978. This is being submitted per Environmental Technical Specification 4.1.2.a(2).

Very truly yours,

Donald A. Rueten
for Daniel H. Williams
Manager, Licensing

DHW:REI:dr

Enclosures: (3) Copies of report
(1) Set of computer cards

7812280127

INLET TEMPERATURE: 11-1-73
INLET WATER FLOW: 64 F
INLET WATER PRESSURE: 20.4 LBS
NUMBER OF CIRCULATING PUMPS IN OPERATION: 3
SAMPLE COUNT: 2026
24 HOUR TOTAL: 20.4 LBS

SPECIES	SPECIES 24 HR TOTAL WEIGHT (LBS)	SPECIES 24 HR TOTAL COUNT	MAXIMUM LENGTH (MM)	MINIMUM LENGTH (MM)	MODAL WEIGHT (GR)	#	%
ALBINO GROUND SQUID	34.71	1389	220	90 TO 120	5 TO 10	36	62%
CRAB	29.53	247	271	150 TO 160	40 TO 45	7	13%
CRAB	32.12	247	376	90 TO 120	10 TO 15	16	51%
CRAB	0.25	100	160	60 TO 90	0 TO 5	45	98%
CRAB	0.30	11	142	60 TO 90	5 TO 10	3	50%
CRAB	0.03	2	95	90 TO 120	5 TO 10	1	100%
CRAB	0.34	14	191	60 TO 90	0 TO 5	4	50%
CRAB	0.05	2	137	120 TO 150	15 TO 20	1	100%
CRAB	0.12	11	165	90 TO 120	0 TO 5	4	97%
CRAB	0.04	2	80	60 TO 90	5 TO 10	1	100%
CRAB	0.01	2	49	30 TO 60	0 TO 5	1	100%

* TOTAL SAMPLE WT. INCLUDES 165.1 LBS OF DEBRIS ACCUMULATION.

$$T(\mathbf{r}) = T(\mathbf{r}_0) + \frac{1}{2} \nabla^2 T(\mathbf{r}_0) \cdot \mathbf{r}^2 + \dots$$

NUMBER OF CIRCULATING 24 HOUR TOTAL
PUMPS IN OPERATION: 3 SAMPLE COUNT:

24 HOUR TOTAL @
SAMPLE #F1041:

407.5 LBS

* TOTAL SAMPLE WT. INCLUDES 357.2 LBS OF DEBRIS ACCUMULATION.

SAMPLE TIME: 11-17-78
INLET WATERWAY
TEMPERATURE: 53 F

24 HOUR TOTAL *
827 SAMPLE WEIGHT: 33.6 LBS

NUMBER OF CIRCULATING
PUMPS IN OPERATION: 3

SCREENS
WASHED: 6

SPECIES NAME	SPECIES 24 HR TOTAL WEIGHT (LBS)	SPECIES 24 HR TOTAL COUNT	MAXIMUM LENGTH (MM)	MODAL LENGTH (MM)	MODAL LENGTH (MM)	%	MODAL WEIGHT (G)	#	%
WILLOW STARR	16.19	61%	200	90 TO 120	16	52%	5 TO 10	18	58%
WATER LILY	4.75	3%	317	120 TO 150	8	31%	15 TO 20	6	23%
WATER LILY	10.69	4%	342	90 TO 120	13	50%	10 TO 15	11	42%
WATER LILY	0.29	6%	71	30 TO 60	13	50%	0 TO 5	26	100%
STARRED BASS	0.08	2%	145	90 TO 120	1	50%	10 TO 15	1	50%
WATER LILY	1.17	5%	280	90 TO 120	3	50%	10 TO 15	2	33%
WATER LILY	0.02	2%	105	60 TO 90	1	50%	0 TO 5	1	50%
CATFISH	0.12	1%	203	180 TO 210	1	100%	50 TO 55	1	100%
WATER LILY	0.14	2%	184	30 TO 60	1	50%	0 TO 5	1	50%
MISSISSIPPI SILVERSHAD	0.03	3%	108	90 TO 120	3	100%	0 TO 5	2	67%
WATER LILY	0.01	2%	67	60 TO 90	2	100%	0 TO 5	2	100%
WATER LILY	0.06	1%	105	90 TO 120	1	100%	25 TO 30	1	100%
WATER LILY	0.01	1%	70	60 TO 90	1	100%	0 TO 5	1	100%

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SAMPLE TAKE #: 11-07-78 CONTINUED:

SPECIES NAME	SPECIES 24 HR TOTAL WEIGHT(LBS)	SPECIES 24 HR TOTAL COUNT	MAXIMUM LENGTH(MM)	MODAL LENGTH(MM)	#	%	MODAL WEIGHT(GR)	#	%
WIRE-WORM	0.01	1.	82	60 TO 90	1	100%	0 TO 5	1	100%

* TOTAL SAMPLE WT. INCLUDES 0.0 LBS OF DEBRIS ACCUMULATION.

SPECIES		SPECIES 24 HR TOTAL WEIGHT(LBS)	# SCREENS WASHER: 6	NUMBER OF CIRCULATING PUMPS IN OPERATION: 3	24 HOUR TOTAL SAMPLE COUNT:	24 HOUR TOTAL SAMPLE WEIGHT:	28.3 LBS
SPECIES 24 HR TOTAL WEIGHT(LBS)		14.01	402	194	90 TO 120 14 48%	5 TO 10 10 16 55%	
SPECIES 24 HR TOTAL WEIGHT(LBS)		3.13	24	280	150 TO 180 7 27%	0 TO 5 5 19%	
SPECIES 24 HR TOTAL WEIGHT(LBS)		7.34	65	323	90 TO 120 11 42%	10 TO 15 7 27%	
SPECIES 24 HR TOTAL WEIGHT(LBS)		0.17	30	100	30 TO 60 12 46%	0 TO 5 24 92%	
SPECIES 24 HR TOTAL WEIGHT(LBS)		1.01	1	452	450 TO 480 1 100%	820 TO 825 1 100%	
SPECIES 24 HR TOTAL WEIGHT(LBS)		0.04	4	95	60 TO 90 2 50%	10 TO 15 4 100%	
SPECIES 24 HR TOTAL WEIGHT(LBS)		0.23	3	140	90 TO 120 2 67%	5 TO 10 1 33%	
SPECIES 24 HR TOTAL WEIGHT(LBS)		0.01	1	67	60 TO 90 1 100%	0 TO 5 1 100%	
SPECIES 24 HR TOTAL WEIGHT(LBS)		0.02	1	87	60 TO 90 1 100%	5 TO 10 1 100%	
SPECIES 24 HR TOTAL WEIGHT(LBS)		0.04	61	117	90 TO 120 25 96%	5 TO 10 15 58%	

* TOTAL SAMPLE WT. INCLUDES 0.0 LBS OF DEBRIS ACCUMULATION.

SAMPLE WEIGHT: 18.6 LBS

* TOTAL SAMPLE WT. INCLUDES 0.0 LBS OF DERRIS ACCUMULATION.

SAMPLE TIME: 11-14-76
INCLUSIVE TIME
OF SAMPLE: 124 HRS

SCREENS WASHED: 6
NUMBER OF CIRCULATING PUMPS IN OPERATION: 3
24 HOUR TOTAL SAMPLE COUNT: 701
24 HOUR TOTAL # SAMPLE WEIGHT: 25.2 LBS

SPECIES NAME	SPECIES 24 HR TOTAL WEIGHT (LBS)	SPECIES 24 HR TOTAL COUNT	MAXIMUM LENGTH (MM)	MODAL LENGTH (MM)	#	%	MODAL WEIGHT (GR)	#	%
SILVER BASS	14.34	540.	211	90 TO 120	18	60%	5 TO 10	10	60%
WIT- BASS	0.25	48.	323	120 TO 150	9	35%	20 TO 25	6	23%
WIT- BASS	3.13	25.	355	90 TO 120	16	64%	10 TO 15	13	52%
YOUNG FISH	0.18	35.	80	60 TO 90	15	58%	0 TO 5	26	100%
SILVER BASS	0.45	1.	288	270 TO 300	1	100%	200 TO 205	1	100%
WIT- COPIES	0.20	2.	142	90 TO 120	5	83%	10 TO 15	3	50%
WIT- COPIES	0.03	2.	90	30 TO 60	1	50%	0 TO 5	1	50%
WIT- COPIES	0.04	2.	85	60 TO 90	2	100%	5 TO 10	1	50%
WIT- COPIES	0.04	4.	120	90 TO 120	4	100%	10 TO 15	2	50%
WIT- COPIES	0.07	4.	124	90 TO 120	2	50%	5 TO 10	2	50%
SILVER BASS	0.35	32.	118	90 TO 120	26	100%	0 TO 5	17	65%
WIT- COPIES	0.01	1.	86	60 TO 90	1	100%	5 TO 10	1	100%
WIT- COPIES	0.01	1.	66	60 TO 90	1	100%	0 TO 5	1	100%

* TOTAL SAMPLE WT. INCLUDES 0.0 LBS OF DEBRIS ACCUMULATION.

SAMPLE TANK: 11-14-78

INLET WATERBOX
OR SCREENING BOX

TEMPERATURE: 61 F

SCREENS
WASHED: 2

NUMBER OF CIRCULATING
PUMPS IN OPERATION: 3

24 HOUR TOTAL
SAMPLE COUNT: 1357

24 HOUR TOTAL
SAMPLE WEIGHT: 47.1 LBS

SPECIES NAME

SPECIES 24 HR
TOTAL WEIGHT(LBS)

SPECIES 24 HR
TOTAL COUNT

MAXIMUM
LENGTH(MM)

MODAL
LENGTH(MM)

%

MODAL
WEIGHT(GR)

%

WITHESS

29.38

1072

210

90 TO 120

23

64%

5 TO 10

23

64%

WITHESS

9.44

41

290

150 TO 180

11

42%

35 TO 40

4

15%

WITHESS

5.31

70

365

90 TO 120

10

38%

10 TO 15

8

31%

WITHESS

0.19

41

73

30 TO 60

14

54%

0 TO 5

26

100%

WITHESS

0.19

4

170

90 TO 120

3

75%

10 TO 15

2

50%

WITHESS

0.14

4

128

120 TO 150

3

75%

15 TO 20

3

75%

WITHESS

0.09

6

160

60 TO 90

3

50%

0 TO 5

3

50%

WITHESS

0.11

5

171

60 TO 90

3

60%

0 TO 5

3

60%

WITHESS

0.40

8

192

60 TO 90

5

63%

10 TO 15

3

38%

WITHESS

0.11

3

104

90 TO 120

2

67%

5 TO 10

1

33%

WITHESS

0.04

4

76

30 TO 60

3

75%

0 TO 5

3

75%

WITHESS

0.44

1

295

270 TO 300

1

100%

220 TO 225

1

100%

WITHESS

0.66

1

492

480 TO 510

1

100%

295 TO 300

1

100%

CONTINUE ON NEXT PAGE:

SAMPLE TOTAL: 11-15-78 CONTINUED:

SPECIES NAME	SPECIES 24 HR TOTAL WEIGHT (LBS)	SPECIES 24 HR TOTAL COUNT	MAXIMUM LENGTH (MM)	MODAL LENGTH (MM)	#	%	MODAL WEIGHT (GR)	#	%
MISSISSIPPI SILVER-SIDE	0.56	50.	116	90 TO 120	23	88%	5 TO 10	16	62%
GULF SILVER-SIDE	0.02	3.	76	60 TO 90	3	100%	0 TO 5	3	100%
WHITE SILVER-SIDE	0.03	3.	82	60 TO 90	3	100%	0 TO 5	3	100%
RED SILVER-SIDE	0.01	1.	80	60 TO 90	1	100%	0 TO 5	1	100%

* TOTAL SAMPLE WT. INCLUDES 0.0 LBS OF DEBRIS ACCUMULATION.

SAMPLE INFORMATION: 11-17-78									
INLET WATERBOX									
WATER TEMPERATURE: 54 F									
SPECIES 24 HR									
TOTAL WEIGHT (LBS)									
SPECIES 24 HR									
TOTAL COUNT									
NUMBER OF CIRCULATING PUMPS IN OPERATION: 3									
24 HOUR TOTAL									
SAMPLE COUNT: 734									
24 HOUR TOTAL									
SAMPLE WEIGHT: 32.5 LBS									
SPECIES 24 HR	SPECIES 24 HR	SPECIES 24 HR	SPECIES 24 HR	SPECIES 24 HR	SPECIES 24 HR	SPECIES 24 HR	SPECIES 24 HR	SPECIES 24 HR	SPECIES 24 HR
TOTAL WEIGHT (LBS)	TOTAL COUNT	MAXIMUM	MODAL	MODAL	MODAL	MODAL	MODAL	MODAL	MODAL
		LENGTH (MM)	LENGTH (MM)	LENGTH (MM)	LENGTH (MM)	LENGTH (MM)	LENGTH (MM)	LENGTH (MM)	LENGTH (MM)
24.25	534.	197	90 TO 120	11	35%	5 TO 10	10	7	23%
3.44	36.	268	120 TO 150	10	34%	15 TO 20	5	19%	
3.00	33.	330	90 TO 120	17	65%	10 TO 15	14	54%	
0.28	70.	66	30 TO 60	16	69%	0 TO 5	26	100%	
0.25	25.	105	90 TO 120	21	84%	0 TO 5	21	84%	
0.03	5.	85	60 TO 90	5	100%	0 TO 5	5	100%	
0.53	12.	130	90 TO 120	6	50%	5 TO 10	10	3	25%
0.18	7.	107	90 TO 120	4	57%	10 TO 15	3	43%	
0.14	4.	140	120 TO 150	3	75%	15 TO 20	2	50%	
0.03	2.	110	60 TO 90	1	50%	0 TO 5	1	50%	
0.27	2.	282	90 TO 120	1	50%	0 TO 5	1	50%	
0.07	3.	98	30 TO 60	1	33%	0 TO 5	1	33%	
0.01	1.	92	90 TO 120	1	100%	5 TO 10	1	100%	

* TOTAL SAMPLE WT. INCLUDES 0.0 LBS OF DEBRIS ACCUMULATION.

ARKANSAS POWER & LIGHT COMPANY
AND SCREEN MONITORING

RUN DATE: 12/19/78

SPECIES NAME		SPECIES 24 HR TOTAL WEIGHT (LBS)	# SCREENS WASHED: 6	NUMBER OF CIRCULATING PUMPS IN OPERATION: 3		24 HOUR TOTAL SAMPLE COUNT:	935	24 HOUR TOTAL SAMPLE WEIGHT:		48.4 LBS
SPECIES NAME		SPECIES 24 HR TOTAL WEIGHT (LBS)	SPECIES 24 HR TOTAL COUNT	MAXIMUM LENGTH (MM)	MODAL LENGTH (MM)	#	%	MODAL WEIGHT (GR)	#	%
W/AND SMO		40.19	24.	220	90 TO 120	14	42%	5 TO 10	12	36%
W/AND SMO		2.57	26.	298	150 TO 180	7	27%	0 TO 5	4	15%
W/AND SMO		4.75	27.	362	90 TO 120	13	48%	5 TO 10	8	30%
W/AND SMO		0.20	33.	45	30 TO 60	13	50%	0 TO 5	23	85%
W/AND SMO		0.01	1.	80	60 TO 90	1	100%	0 TO 5	1	100%
W/AND SMO		0.13	3.	142	30 TO 60	1	33%	0 TO 5	1	33%
W/AND SMO		0.05	3.	92	30 TO 60	1	33%	10 TO 15	2	67%
W/AND SMO		0.13	6.	102	60 TO 90	5	83%	5 TO 10	5	83%
W/AND SMO		0.04	2.	172	60 TO 90	1	50%	0 TO 5	1	50%
W/AND SMO		0.04	5.	100	60 TO 90	4	80%	0 TO 5	4	80%
W/AND SMO		0.02	1.	99	90 TO 120	1	100%	5 TO 10	1	100%
W/AND SMO		0.14	19.	114	90 TO 120	16	84%	0 TO 5	16	84%
W/AND SMO		0.02	3.	86	60 TO 90	3	100%	0 TO 5	3	100%

CONTINUE TO NEXT PAGE:

ARKANSAS POWER & LIGHT COMPANY
AND SCREEN MONITORING

RUN DATE: 12/19/78

SAMPLE TAKEN: 11-21-78 CONTINUED:

SPECIES NAME	SPECIES 24 HR TOTAL WEIGHT(LBS)	SPECIES 24 HR TOTAL COUNT	MAXIMUM LENGTH(MM)	MODAL LENGTH(MM)	#	%	MODAL WEIGHT(GR)	#	%
STRIPELESS	0.06	2.	126	120 TO 150	2	100%	10 TO 15	2	100%

* TOTAL SAMPLE WT. INCLUDES 0.0 LBS OF DEBRIS ACCUMULATION.

SCREENS: 11-21-78

INLET WATER BOX # SCREENS 6

TEMPERATURE: 50 F

NUMBER OF CIRCULATING PUMPS IN OPERATION: 3

24 HOUR TOTAL #

37.3 LBS

SPECIES NAME	SPECIES 24 HR TOTAL WEIGHT (LBS)	SPECIES 24 HR TOTAL COUNT	MAXIMUM LENGTH (MM)	MODAL LENGTH (MM)	#	%	MODAL WEIGHT (GR)	#	%	
WATERBURY SNAKE	32.75	770.	305	90 TO 120	14	42%	5 TO 10	10	16	48%
WATERBURY SNAKE	1.95	22.	250	150 TO 180	7	32%	20 TO 25	5	23%	
WATERBURY SNAKE	1.51	13.	350	90 TO 120	7	54%	10 TO 15	5	38%	
WATERBURY SNAKE	0.25	40.	90	30 TO 60	13	50%	0 TO 5	24	92%	
WATERBURY SNAKE	0.27	1.	225	210 TO 240	1	100%	125 TO 130	1	100%	
WATERBURY SNAKE	0.17	2.	160	30 TO 60	1	50%	0 TO 5	1	50%	
WATERBURY SNAKE	0.13	6.	87	60 TO 90	6	100%	5 TO 10	5	83%	
WATERBURY SNAKE	0.01	1.	85	60 TO 90	1	100%	0 TO 5	1	100%	
MISSISSIPPI SILVERSHOE	0.16	13.	122	90 TO 120	11	85%	0 TO 5	7	54%	
MISSISSIPPI SILVERSHOE	0.05	2.	120	90 TO 120	2	100%	5 TO 10	1	50%	
MISSISSIPPI SILVERSHOE	0.05	1.	148	120 TO 150	1	100%	20 TO 25	1	100%	

* TOTAL SAMPLE WT. INCLUDES 0.0 LBS OF DEBRIS ACCUMULATION.

SAMPLE 12-19-78 11-22-78
FACILITY NAME
FACILITY ADDRESS

24 HOUR TOTAL *
SAMPLE WEIGHT: 28.2 LBS

NUMBER OF CIRCULATING PUMPS IN OPERATION: 3
SAMPLE COUNT: 480

SCREENS
WASTED: 6

SPECIES 24 HR
TOTAL WEIGHT (LBS): 56 F

SPECIES NAME	SPECIES 24 HR TOTAL WEIGHT (LBS)	SPECIES 24 HR TOTAL COUNT	MAXIMUM LENGTH (MM)	MODAL LENGTH (MM)	%	MODAL WEIGHT (GR)	#	%	
ADULT MALE	23.31	367.	192	150 TO 180	9	31%	5 TO 10	8	26%
ADULT FEMALE	2.00	22.	262	150 TO 180	9	41%	25 TO 30	5	23%
ADULT MALE	3.04	12.	359	90 TO 120	4	33%	10 TO 15	4	33%
ADULT FEMALE	0.26	56.	70	60 TO 90	15	58%	0 TO 5	26	100%
ADULT MALE	0.19	4.	152	30 TO 60	2	50%	0 TO 5	2	50%
ADULT FEMALE	0.04	3.	80	60 TO 90	3	100%	5 TO 10	2	67%
ADULT MALE	0.28	7.	257	60 TO 90	6	86%	0 TO 5	6	86%
ADULT FEMALE	0.01	1.	72	60 TO 90	1	100%	0 TO 5	1	100%
ADULT MALE	0.01	1.	90	60 TO 90	1	100%	0 TO 5	1	100%
ADULT FEMALE	0.03	1.	121	120 TO 150	1	100%	10 TO 15	1	100%
ADULT MALE	0.04	3.	105	90 TO 120	4	80%	0 TO 5	3	60%
ADULT FEMALE	0.02	1.	101	90 TO 120	1	100%	5 TO 10	1	100%

* TOTAL SAMPLE WT. INCLUDES 0.0 LBS OF DEBRIS ACCUMULATION.

SAMPLE DATA: 11-20-78 CONTINUED:

SPECIES NAME	SPECIES 24 HR TOTAL WEIGHT(LBS)	SPECIES 24 HR TOTAL COUNT	MAXIMUM LENGTH(MM)	MODAL LENGTH(MM)	#	%	MODAL WEIGHT(GR)	#	%
SKIPPY HERRING	0.06	1.	163	150 TO 180	1	100%	25 TO 30	1	100%

* TOTAL SAMPLE WT. INCLUDES 0.0 LBS OF DEBRIS ACCUMULATION.

Sample Time: 11-24-78

Inlet Waterbox
Temperature: 53 F

Number of Circulating
Pumps in Operation: 3

24 Hour Total
Sample Weight: 42.4 LBS

Species Name	Species 24 Hr Total Weight (LBS)	Species 24 Hr Total Count	Maximum Length (mm)	Modal Length (mm)	%	Modal Weight (gm)	%
White Crayfish	34.75	904	200	90 TO 120	21 62%	5 TO 10	17 50%
Blue Crayfish	2.63	39	238	150 TO 180	8 31%	0 TO 5	5 19%
White Bass	1.52	9	386	90 TO 120	4 44%	5 TO 10	3 33%
Yellow Perch	1.00	218	85	60 TO 90	14 52%	0 TO 5	27 100%
Blue Catfish	0.17	31	13	60 TO 90	19 61%	0 TO 5	24 77%
Channel Catfish	0.09	11	116	60 TO 90	8 73%	0 TO 5	8 73%
Mississippi Silverside	0.06	5	109	90 TO 120	5 100%	5 TO 10	3 60%
White Crayfish	0.05	2	108	90 TO 120	2 100%	5 TO 10	1 50%
Flathead Catfish	0.01	1	84	60 TO 90	1 100%	0 TO 5	1 100%
Yellow Perch	0.14	3	155	30 TO 60	1 33%	0 TO 5	1 33%
White Crayfish	0.02	1	62	60 TO 90	1 100%	5 TO 10	1 100%
White Bass	0.07	2	134	90 TO 120	1 50%	10 TO 15	1 50%
White Crayfish	0.02	1	388	360 TO 390	1 100%	370 TO 375	1 100%

Continued on Next Page:

SAMPLE TAKEN: 11-29-78 CONTINUED:

SPECIES NAME	SPECIES 24 HR TOTAL WEIGHT (LBS)	SPECIES 24 HR TOTAL COUNT	MAXIMUM LENGTH (MM)	MODAL LENGTH (MM)	#	%	MODAL WEIGHT (GR)	#	%
EMERALD SHINER	0.01	1.	83	60 TO 90	1	100%	0 TO 5	1	100%

* TOTAL SAMPLE WT. INCLUDES 0.0 LBS OF DEBRIS ACCUMULATION.