DOE/FE/55014--T33

DOE/FE/55014--T33

DE88 016256

UNITED STATES
DEPARTMENT OF ENERGY
GREAT PLAINS
COAL GASIFICATION PROJECT
QUARTERLY TECHNICAL PROGRESS REPORT
FOURTH FISCAL QUARTER 1987-1988
April-June, 1988

Published July 29, 1988

Prepared by

ANG Coal Gasification Company
Administrator of the Great Plains Gasification Project
for the United States Department of Energy

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED *CP*

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency Thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

This document was prepared by the
ANG Coal Gasification Company,
Administrator of the Great Plains Coal Gasification Project
for the United States Department of Energy.

The following is provided by ANG, acting as Project Administrator of the Facilities for the Department of Energy pursuant to the Project Administration Agreement effective October 1, 1986 between ANG Coal Gasification Company and the United States of America through the Secretary of Energy.

For the purpose of continuity, this report has been formatted on the same basis as reports of similar content previously prepared by the Great Plains Gasification Associates Partnership under their contract with the Department of Energy. The Department of Energy has requested that the former agreement between Great Plains Gasification Associates and the Department of Energy be used as a guideline for reporting purposes. As such report titles and content reflect this direction.

Table of Contents

1. LIGNITE COAL PRODUCTION
 - A. Mining
 - B. Production
 - C. Coal Quality ROM As-Received
 - D. Ash and Hazardous Waste
 - E. Raw Material and Energy Consumption
2. SNG PRODUCTION
 - A. SNG Production Summary
 - B. Plant Operations
 - C. Limitations to Plant Production
 - D. Attachments
3. SNG GAS QUALITY
4. BY-PRODUCTS PRODUCTION AND INVENTORIES
5. ON-STREAM FACTORS
6. RAW MATERIAL, PRODUCT AND BY-PRODUCT CONSUMPTION AND ENERGY CONSUMPTION FOR PLANT OPERATIONS
7. CAPITAL IMPROVEMENT PROJECTS
JULY 1987-JUNE 1988 BUDGET
8. PLANT MAINTENANCE
 - A. Summary
 - B. Areas 1100, 1200, 1300, 2000, 8200, 3000, 5500, 6000, 8100
 - C. Areas 1400, 1700, 1900, 4000, 5100, 1800
 - D. Work Orders
9. ENVIRONMENTAL, SAFETY, AND MEDICAL-EXECUTIVE SUMMARIES
 - A. Environmental
 - B. Safety
 - C. Medical
10. QUALITY ASSURANCE/QUALITY CONTROL ACTIVITIES
 - A. Statement of Policy
 - B. Overall Program
 - C. Plant Inspection Group

1. LIGNITE COAL PRODUCTION

A. Mining

Coal deliveries from The Coteau Properties Company's (Coteau) Freedom Mine began on August 15, 1983 to Basin Electric Power Cooperative's Antelope Valley Station (AVS) and on March 13, 1984 to the Great Plains Coal Gasification Project (Great Plains).

Coal nominations for 1988 to Great Plains and Basin Electric are 5,772,000 and 4,969,000 tons respectively for a total of 10,741,000 tons. However, on April 15, 1988, Basin Electric notified ANG of a revision to their coal delivery schedule for 1988. Basin Electric has requested that an additional 460,000 tons be delivered during the first six months of 1988 and 279,000 tons be delivered during the 1988-1989 fiscal period. When the revised projected tonnage for the first half of 1988 is combined with the revised tonnage for the period July through December 1988, the latest projected tonnage for 1988 now totals 11,479,600 tons.

Actual 1987 deliveries to ANG were 5,876,337 tons compared to the estimate of 5,825,000. Actual deliveries to Basin Electric were 5,213,808 tons compared to the estimate to 4,915,000 tons.

Currently, overburden removal operations continue at the Freedom Mine with dragline "B" in Mine Area 4 North and dragline "A" in Mine Area 4 South. Lignite removal requirements are handled by two 27-yard electric loading shovels and seven 160-ton class coal haulers.

Coal quality is monitored on a daily basis by Coteau through the direction of the Coal Resources Department. A concerted effort to deliver suitable quality coal to the gasifiers is of the utmost concern of Coteau. As a result of this effort, Coteau has met all of the coal quality standards as defined within the Restatement of Coal Sales Agreement between ANG and Coteau.

B. Production (Tons)

	April	May	June	4th Quarter Total	1987-1988 Fiscal Year to Date
<u>Coteau Production Summary</u>					
Primary crushed coal - Coteau to ANG	782,624	808,780	850,103	2,441,507	9,789,961
Primary crushed coal - Coteau to BEPC	0	118,143	202,404	320,547	1,422,638
Total primary crushed coal delivered by Coteau	<u>782,624</u>	<u>926,923</u>	<u>1,052,507</u>	<u>2,762,054</u>	<u>11,212,599</u>
<u>BEPC Coal Summary</u>					
Screened coal (fines) - ANG to BEPC	302,194	339,944	327,273	969,411	3,888,854
Primary crushed coal - Coteau to BEPC	0	118,143	202,404	320,547	1,422,638
Total primary crushed coal and fines - ANG to BEPC	<u>302,194</u>	<u>458,087</u>	<u>529,677</u>	<u>1,289,958</u>	<u>5,311,492</u>
<u>ANG Coal Summary</u>					
Secondary crushed sized coal - ANG to gasifiers*	498,814	494,768	480,051	1,473,633	5,850,962
Screened coal (fines) - ANG to BEPC	302,194	339,944	327,273	967,411	3,888,854
Sized coal to (from) live coal storage	(18,384)	(25,932)	42,779	(1,537)	50,145
Primary crushed coal - Coteau to ANG	<u>782,624</u>	<u>808,780</u>	<u>850,103</u>	<u>2,441,507</u>	<u>9,789,961</u>
Percent Fines Rejected	37.73%	40.73%	40.54%	39.68%	39.93%

*Inventory shrinkage of +40,143 tons not included in sized coal to gasifiers.

C. Coal Quality ROM As-Received

Primary Crushed Coal from Coteau to ANG

See Table 1.1

Primary Crushed Coal from Coteau to BEPC

See Table 1.2

Secondary Crushed Sized Coal from ANG to Gasifiers

See Table 1.3 to 1.6

Screened Coal (Fines) from ANG to BEPC

See Table 1.7

DAILY QUALITY of COTEAU DELIVERED COAL TO ANG
ANG LABORATORY
APRIL, 1988
PREPARED BY COAL RESOURCES AND MINING

05/10/88

AS RECEIVED

DRY

DATE	TONS DELIVERED	% MOISTURE	% ASH	% TOTAL SULFUR	% Na2O IN COAL	% Na2O IN ASH	BTU/LB	% ASH	% TOTAL SULFUR	BTU/LB
1	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
2	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
3	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
4	45643	35.95	8.18	0.64	0.52	6.30	6879	12.76	1.00	10740
5	41889	35.36	8.28	0.61	0.51	6.15	6968	12.82	0.94	10780
6	42882	36.30	7.59	0.56	0.31	4.10	6910	11.91	0.88	10848
7	41416	36.50	6.03	0.60	0.25	4.20	7068	9.50	0.95	11130
8	44131	36.23	7.04	0.74	0.31	4.44	6964	11.04	1.15	10920
9	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
10	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
11	42855	36.00	7.65	0.61	0.37	4.90	6931	11.96	0.96	10829
12	38628	35.16	8.44	0.58	0.30	3.60	6901	13.01	0.89	10643
13	43408	35.95	8.13	0.70	0.33	4.10	6936	12.70	1.10	10829
14	40866	35.65	7.90	0.70	0.34	4.30	6984	12.27	1.09	10854
15	38958	36.98	7.32	0.55	0.27	3.70	6785	11.62	0.88	10766
16	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
17	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
18	37035	35.72	7.89	0.35	0.37	4.73	6901	12.27	0.54	10736
19	38936	36.16	7.77	0.60	0.39	5.00	6949	12.18	0.93	10884
20	40225	36.82	7.04	0.57	0.40	5.70	6802	11.14	0.90	10767
21	33978	36.41	6.77	0.53	0.41	6.00	6866	10.64	0.83	10797
22	19417	35.69	8.26	0.57	0.56	6.75	6855	12.85	0.89	10659
23	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
24	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
25	44890	36.75	7.14	0.53	0.48	6.72	6864	11.29	0.84	10852
26	39511	36.80	7.82	0.56	0.49	6.30	6684	12.38	0.89	10575
27	44550	36.57	5.30	0.55	0.45	8.50	7000	8.35	0.86	11036
28	28461	35.57	7.99	0.64	0.63	7.98	6963	12.39	0.99	10807
29	34945	35.35	6.34	0.52	0.79	12.53	7137	9.81	0.80	11039
30	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0

WEIGHTED AVERAGE		36.12	7.42	0.59	0.42	5.71	6918	11.61	0.92	10830
RANGE HIGH		36.98	8.44	0.74	0.79	12.53	7137	13.01	1.15	11130
LOW		35.16	5.30	0.35	0.25	3.60	6684	8.35	0.54	10575
DELIVERED	782624									
SAMPLED	782624									
FOR FISCAL 1987/1988 TO DATE										
WEIGHTED AVERAGE		35.47	7.42	0.61	0.48	6.47	6966	11.49	0.95	10798
RANGE HIGH		38.12	9.81	0.95	1.50	19.80	7290	15.10	1.40	11300
LOW		33.06	5.30	0.32	0.08	1.20	6570	8.35	0.48	10360
DELIVERED	8131078									
SAMPLED	7511106									

DAILY QUALITY OF COTEAU DELIVERED COAL TO ANG
ANG LABORATORY
MAY, 1988
PREPARED BY COAL RESOURCES AND MINING

06/13/88

AS RECEIVED								DRY		
DATE	TONS DELIVERED	% MOISTURE	% ASH	% TOTAL SULFUR	% Na2O IN COAL	% Na2O IN ASH	BTU/LB	% ASH	% TOTAL SULFUR	BTU/LB
1	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
2	37079	37.47	7.40	0.52	0.59	8.02	6687	11.84	0.83	10694
3	39115	37.51	7.34	0.60	0.60	8.17	6616	11.74	0.96	10588
4	32172	36.69	6.52	0.54	0.75	11.45	6909	10.30	0.85	10914
5	27217	36.26	6.83	0.59	0.61	8.86	6924	10.72	0.92	10863
6	34249	35.79	7.49	0.58	0.65	8.65	6929	11.67	0.91	10971
7	9307	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
8	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
9	44081	36.63	7.80	0.71	0.77	9.92	6941	12.08	1.10	10766
10	43869	36.23	7.08	0.65	0.73	10.27	7008	11.10	1.01	10990
11	41564	35.93	6.25	0.60	0.54	8.71	7091	9.75	0.94	11068
12	32277	35.23	7.83	0.69	0.82	10.41	7062	12.09	1.07	10902
13	29805	35.14	6.60	0.59	0.58	8.84	7122	10.17	0.91	10981
14	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
15	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
16	30477	34.40	7.58	0.86	0.68	8.90	7187	11.56	1.32	10956
17	34526	36.80	6.46	0.64	0.71	11.05	6994	10.22	1.01	11066
18	38223	36.99	7.26	0.70	0.60	8.33	6854	11.52	1.11	10878
19	43768	35.81	7.49	0.77	0.36	4.80	6984	11.66	1.21	10880
20	46404	34.92	7.16	0.76	0.47	6.60	7152	11.01	1.17	10990
21	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
22	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
23	40657	34.49	6.74	0.76	0.38	5.60	7243	10.28	1.16	11057
24	43734	35.05	7.10	0.67	0.33	4.63	7190	10.93	1.03	11070
25	49147	33.57	7.12	0.70	0.30	4.20	7334	10.71	1.06	11040
26	44478	34.27	7.85	0.65	0.42	5.30	7150	11.94	0.99	10878
27	30939	35.87	6.28	0.53	0.39	6.20	7069	9.79	0.82	11023
28	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
29	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
30	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
31	35692	35.17	7.39	0.58	0.47	6.30	7058	11.41	0.90	10887

WEIGHTED AVERAGE		35.68	7.14	0.66	0.55	7.69	7031	11.09	1.02	10928
RANGE HIGH		37.51	7.85	0.86	0.82	11.45	7334	12.09	1.32	11070
LOW		33.57	6.25	0.52	0.30	4.20	6616	9.75	0.82	10588
DELIVERED	808780									
SAMPLED	799473									
FOR FISCAL 1987/1988 TO DATE										
WEIGHTED AVERAGE		35.49	7.39	0.62	0.49	6.59	6972	11.45	0.96	10811
RANGE HIGH		38.12	9.81	0.95	1.50	19.80	7334	15.10	1.40	11300
LOW		33.06	5.30	0.32	0.08	1.20	6570	8.35	0.48	10360
DELIVERED	8939858									
SAMPLED	8310579									

DAILY QUALITY of COTEAU DELIVERED COAL TO ANG
ANG LABORATORY
JUNE, 1988
PREPARED BY COAL RESOURCES AND MINING

07/12/88

AS RECEIVED								DRY		

DATE	TONS DELIVERED	% MOISTURE	% ASH	% TOTAL SULFUR	% Na2O IN COAL	% Na2O IN ASH	BTU/LB	% ASH	% TOTAL SULFUR	BTU/LB
****	*****	*****	***	*****	*****	*****	*****	***	*****	*****
1	34851	35.39	7.19	0.57	0.44	6.10	7033	11.13	0.88	10885
2	31913	34.00	7.12	0.55	0.43	6.10	7231	10.80	0.83	10956
3	46210	33.13	7.36	0.63	0.49	6.70	7235	11.01	0.93	10819
4	27567	32.73	7.95	0.70	0.48	6.00	7207	11.81	1.04	10713
5	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
6	35336	33.46	8.73	0.60	0.59	6.80	7074	13.11	0.90	10631
7	35631	35.46	7.12	0.58	0.42	5.90	7046	11.04	0.90	10917
8	36843	33.87	7.45	0.59	0.36	4.80	7140	11.27	0.89	10797
9	27196	33.87	8.27	0.64	0.38	4.60	7164	12.51	0.96	10833
10	30029	33.60	7.93	0.57	0.29	3.60	7138	11.95	0.85	10751
11	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
12	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
13	45929	35.66	8.66	0.74	0.43	4.80	6856	13.77	1.16	10657
14	48153	36.32	7.12	0.65	0.30	4.20	6992	11.18	1.02	10980
15	50353	35.73	7.32	0.70	0.25	3.40	7111	11.39	1.09	11064
16	39502	35.97	8.14	0.65	0.40	4.90	6931	12.72	1.01	10825
17	26165	34.50	8.06	0.68	0.31	3.90	7107	12.30	1.04	10850
18	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
19	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
20	43411	34.79	7.68	0.62	0.35	4.50	7053	11.78	0.96	10815
21	47839	35.20	7.43	0.60	0.59	8.00	6953	11.46	0.92	10730
22	44210	34.80	7.54	0.65	0.71	9.40	7118	11.56	0.99	10918
23	29894	35.04	6.98	0.74	0.66	9.40	7041	10.74	1.14	10839
24	21087	34.66	8.66	0.71	0.82	9.40	6964	13.28	1.08	10658
25	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
26	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
27	31229	34.01	8.26	0.84	0.59	7.10	7100	12.52	1.27	10759
28	38668	35.27	7.27	0.79	0.42	5.80	7036	11.24	1.22	10870
29	38995	36.16	6.75	0.75	0.50	7.45	6999	10.58	1.18	10963
30	39092	36.88	7.35	0.64	0.79	10.80	6818	11.65	1.01	10802

WEIGHTED AVERAGE		34.91	7.62	0.66	0.47	6.19	7052	11.73	1.01	10835
RANGE HIGH		36.88	8.73	0.84	0.82	10.80	7235	13.77	1.27	11064
LOW		32.73	6.75	0.55	0.25	3.40	6818	10.58	0.83	10631
DELIVERED		850103								
SAMPLED		850103								
FOR FISCAL 1987/1988 TO DATE										
WEIGHTED AVERAGE		35.44	7.41	0.62	0.48	6.55	6980	11.48	0.96	10813
RANGE HIGH		38.12	9.81	0.95	1.50	19.80	7334	15.10	1.40	11300
LOW		32.73	5.30	0.32	0.08	1.20	6570	8.35	0.48	10360
DELIVERED		9789961								
SAMPLED		9160682								

DAILY QUALITY of COTEAU DELIVERED COAL to BEPC - AVS
ANG LABORATORY
APRIL, 1988
PREPARED BY COAL RESOURCES AND MINING

05/10/88

AS RECEIVED								DRY		
DATE	TONS DELIVERED	% MOISTURE	% ASH	% TOTAL SULFUR	% Na2O IN COAL	% Na2O IN ASH	BTU/LB	% ASH	% TOTAL SULFUR	BTU/LB
1	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
2	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
3	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
4	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
5	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
6	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
7	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
8	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
9	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
10	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
11	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
12	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
13	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
14	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
15	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
16	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
17	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
18	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
19	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
20	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
21	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
22	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
23	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
24	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
25	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
26	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
27	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
28	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
29	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
30	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0

WEIGHTED AVERAGE		0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
RANGE HIGH		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LOW		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DELIVERED	0									
SAMPLED	0									
FOR FISCAL 1987/1988 TO DATE										
WEIGHTED AVERAGE		36.54	7.35	0.61	0.43	5.86	6809	11.58	0.95	10732
RANGE HIGH		42.42	11.00	0.95	0.76	11.00	7130	17.13	1.48	11170
LOW		33.04	4.97	0.40	0.07	1.10	6100	7.96	0.64	9912
DELIVERED	1102091									
SAMPLED	975975									

DAILY QUALITY of COTEAU DELIVERED COAL to BEPC - AVS

ANG LABORATORY

MAY, 1988

PREPARED BY COAL RESOURCES AND MINING

06/13/88

AS RECEIVED

DRY

DATE	TONS DELIVERED	% MOISTURE	% ASH	% TOTAL SULFUR	% Na2O IN COAL	% Na2O IN ASH	BTU/LB	% ASH	% TOTAL SULFUR	BTU/LB
*****	*****	*****	***	*****	*****	*****	*****	***	*****	*****
1	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
2	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
3	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
4	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
5	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
6	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
7	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
8	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
9	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
10	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
11	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
12	5041	37.17	6.99	0.52	0.79	11.31	6925	11.13	0.83	11022
13	8221	37.42	5.99	0.55	0.52	8.66	6919	9.58	0.88	11057
14	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
15	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
16	7099	36.74	7.43	0.76	0.28	3.80	7026	11.75	1.19	11106
17	7522	36.14	8.23	0.80	0.70	8.53	6865	12.88	1.26	10750
18	8010	37.77	7.29	0.73	0.50	6.83	6651	11.71	1.18	10687
19	8015	36.82	7.34	0.77	0.49	6.71	6925	11.62	1.22	10961
20	5006	36.87	6.89	0.86	0.47	6.80	7012	10.91	1.37	11107
21	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
22	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
23	8005	35.00	7.83	0.80	0.53	6.80	7082	12.04	1.24	10895
24	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
25	8048	36.55	6.34	0.67	0.42	6.60	7133	9.99	1.05	11242
26	10039	37.23	6.82	0.70	0.51	7.50	6966	10.86	1.11	11097
27	11990	37.11	6.66	0.48	0.22	3.30	6878	10.59	0.77	10937
28	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
29	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
30	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
31	6996	36.58	8.66	0.56	0.37	4.30	6710	13.66	0.89	10581

WEIGHTED AVERAGE		36.80	7.17	0.67	0.47	6.54	6922	11.33	1.07	10952
RANGE HIGH		37.77	8.66	0.86	0.79	11.31	7133	13.66	1.37	11242
LOW		35.00	5.99	0.48	0.22	3.30	6651	9.58	0.77	10581
DELIVERED	93992									
SAMPLED	93992									
FOR FISCAL 1987/1988 TO DATE										
WEIGHTED AVERAGE		36.56	7.33	0.61	0.43	5.92	6819	11.55	0.96	10751
RANGE HIGH		42.42	11.00	0.95	0.79	11.31	7133	17.13	1.48	11242
LOW		33.04	4.97	0.40	0.07	1.10	6100	7.96	0.64	9912
DELIVERED	1196083									
SAMPLED	1069967									

DAILY QUALITY of COTEAU DELIVERED COAL to BEPC - AVS
ANG LABORATORY
JUNE, 1988
PREPARED BY COAL RESOURCES AND MINING

07/12/88

AS RECEIVED

DRY

DATE	TONS DELIVERED	AS RECEIVED						DRY		
		% MOISTURE	% ASH	% TOTAL SULFUR	% Na2O IN COAL	% Na2O IN ASH	BTU/LB	% ASH	% TOTAL SULFUR	BTU/LB
1	2514	35.88	9.20	0.59	0.44	4.80	6729	14.35	0.92	10494
2	8062	36.38	7.87	0.60	0.48	6.10	6868	12.38	0.94	10795
3	9127	36.26	6.84	0.63	0.45	6.60	6946	10.73	0.99	10897
4	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
5	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
6	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
7	6118	36.89	6.60	0.54	0.53	8.00	6966	10.46	0.86	11038
8	6056	35.51	6.34	0.58	0.29	4.50	7128	9.84	0.91	11053
9	15315	36.38	7.12	0.62	0.41	5.70	6966	11.18	0.98	10950
10	9729	35.92	7.75	0.56	0.37	4.80	6898	12.10	0.87	10765
11	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
12	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
13	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
14	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
15	120	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
16	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
17	15041	34.93	8.54	0.65	0.40	4.90	6931	12.72	1.01	10825
18	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
19	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
20	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
21	4992	34.78	9.03	0.81	0.66	7.36	6907	13.85	1.24	10590
22	4982	35.14	8.05	0.77	0.58	7.25	6964	12.41	1.18	10737
23	5568	34.96	7.43	0.71	0.55	7.44	6957	11.42	1.08	10696
24	5010	36.00	8.46	0.66	0.70	8.31	6765	13.23	1.04	10570
25	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
26	0	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0
27	5015	35.86	7.48	0.84	0.67	8.99	6994	11.67	1.32	10995
28	5029	35.68	8.05	0.73	0.70	8.70	6850	12.50	1.13	10650
29	5039	35.35	7.44	0.76	0.63	8.52	7033	11.50	1.17	10878
30	5110	37.22	7.18	0.64	0.80	11.10	6882	11.43	1.01	10963

WEIGHTED AVERAGE		35.83	7.65	0.65	0.50	6.65	6933	11.86	1.02	10833
RANGE HIGH		37.22	9.20	0.84	0.80	11.10	7128	14.35	1.32	11053
LOW		34.78	6.34	0.54	0.29	4.50	6729	9.84	0.86	10494
DELIVERED	112827									
SAMPLED	112707									
FOR FISCAL 1987/1988 TO DATE										
WEIGHTED AVERAGE		36.49	7.36	0.62	0.44	5.99	6830	11.58	0.97	10759
RANGE HIGH		42.42	11.00	0.95	0.80	11.31	7133	17.13	1.48	11242
LOW		33.04	4.97	0.40	0.07	1.10	6100	7.96	0.64	9912
DELIVERED	1308910									
SAMPLED	1182674									

DAILY QUALITY of COAL to the GASIFIERS
ANG LABORATORY
APRIL, 1988
PREPARED BY COAL RESOURCES AND MINING

05/10/88

AS RECEIVED								DRY		

DATE	TONS DELIVERED	% MOISTURE	% ASH	% TOTAL SULFUR	% Na2O IN COAL	% Na2O IN ASH	BTU/LB	% ASH	% TOTAL SULFUR	BTU/LB
****	*****	*****	***	*****	*****	*****	*****	***	*****	*****
1	17286	36.56	5.80	0.62	0.51	8.78	7112	9.14	0.97	11210
2	15700	36.58	7.03	0.72	0.56	7.98	6943	11.09	1.14	10948
3	16800	36.51	6.79	0.64	0.45	6.58	7100	10.70	1.01	11184
4	17000	36.42	6.33	0.56	0.40	6.30	7063	9.96	0.88	11109
5	15957	36.61	6.11	0.59	0.43	6.98	7006	9.63	0.94	11052
6	16356	36.98	5.70	0.57	0.53	9.30	7038	9.05	0.90	11168
7	16500	36.66	6.04	0.66	0.46	7.60	7028	9.54	1.04	11096
8	16505	36.72	6.30	0.70	0.32	5.02	7026	9.96	1.11	11103
9	16573	36.53	6.16	0.69	0.37	5.98	7075	9.71	1.08	11148
10	16188	37.13	7.03	0.58	0.61	8.72	6810	11.19	0.93	10832
11	16009	36.21	7.24	0.62	0.45	6.20	6979	11.34	0.98	10940
12	15927	36.67	5.96	0.64	0.29	4.90	7117	9.42	1.01	11238
13	16348	35.58	6.19	0.74	0.32	5.20	7183	9.61	1.14	11151
14	16963	35.94	6.51	0.57	0.33	5.10	7089	10.17	0.90	11066
15	17315	36.01	6.64	0.74	0.23	3.50	7063	10.37	1.16	11037
16	16791	35.90	6.33	0.66	0.27	4.25	7165	9.88	1.03	11178
17	17088	36.47	5.97	0.65	0.35	5.86	7153	9.39	1.03	11260
18	16700	36.73	5.90	0.67	0.40	6.87	7088	9.32	1.06	11203
19	17000	36.66	5.97	0.73	0.40	6.76	7146	9.43	1.15	11283
20	16200	36.56	6.07	0.64	0.53	8.80	7044	9.57	1.02	11104
21	16829	36.43	5.88	0.56	0.38	6.50	6954	9.25	0.88	10939
22	17376	36.47	6.23	0.56	0.54	8.67	6976	9.81	0.88	10981
23	16869	37.06	5.97	0.63	0.40	6.65	6964	9.48	1.00	11064
24	16846	36.68	5.94	0.54	0.34	5.65	7068	9.37	0.85	11162
25	16736	36.10	5.90	0.59	0.49	8.24	7089	9.23	0.92	11094
26	16628	36.87	4.75	0.53	0.45	9.56	7083	7.53	0.84	11229
27	17243	37.21	5.29	0.48	0.68	12.81	7040	8.43	0.77	11211
28	16377	37.11	5.69	0.58	0.60	10.50	7103	9.04	0.92	11295
29	16340	36.37	5.94	0.54	0.64	10.70	6991	9.34	0.85	10987
30	16364	36.25	6.01	0.61	0.70	11.66	7051	9.43	0.96	11061

WEIGHTED AVERAGE		36.53	6.12	0.62	0.45	7.38	7052	9.64	0.98	11111
RANGE HIGH		37.21	7.24	0.74	0.70	12.81	7183	11.34	1.16	11295
LOW		35.58	4.75	0.48	0.23	3.50	6810	7.53	0.77	10832
DELIVERED	498814									
SAMPLED	498814									
FOR FISCAL 1987/1988 TO DATE										
WEIGHTED AVERAGE		36.38	6.10	0.63	0.47	7.70	7042	9.58	1.00	11069
RANGE HIGH		38.80	7.96	0.89	1.30	22.70	7365	12.50	1.40	11482
LOW		34.99	4.28	0.36	0.11	2.20	6718	6.78	0.56	10504
DELIVERED	4876143									
SAMPLED	4843071									

DAILY QUALITY OF COAL TO THE GASIFIERS
ANG LABORATORY
MAY, 1988
PREPARED BY COAL RESOURCES AND MINING

06/13/88

AS RECEIVED								DRY		
DATE	TONS DELIVERED	% MOISTURE	% ASH	% TOTAL SULFUR	% Na2O IN COAL	% Na2O IN ASH	BTU/LB	% ASH	% TOTAL SULFUR	BTU/LB
****	*****	*****	***	*****	*****	*****	*****	***	*****	*****
1	16460	36.69	6.02	0.56	0.63	10.40	7041	9.52	0.89	11122
2	16673	37.06	6.21	0.62	0.55	8.81	7054	9.87	0.98	11207
3	16320	37.25	6.02	0.62	0.63	10.42	6961	9.59	0.99	11093
4	15000	37.60	5.37	0.59	0.59	10.92	6923	8.61	0.95	11094
5	16400	37.18	5.96	0.62	0.65	10.85	7039	9.49	0.98	11205
6	15250	38.07	5.48	0.54	0.54	9.94	6912	8.85	0.88	11161
7	15028	36.67	5.84	0.59	0.63	10.84	7148	9.22	0.93	11287
8	16192	37.33	5.29	0.61	0.63	11.85	7076	8.44	0.97	11292
9	16635	36.34	6.13	0.69	0.65	10.60	7138	9.62	1.09	11213
10	16485	36.81	5.53	0.66	0.69	12.44	7160	8.76	1.05	11331
11	16834	36.81	5.46	0.62	0.63	11.57	7116	8.64	0.97	11261
12	12741	36.95	6.18	0.71	0.66	10.61	7032	9.80	1.12	11153
13	12176	35.97	5.96	0.60	0.65	10.85	7149	9.30	0.93	11165
14	14403	36.63	6.06	0.54	0.55	9.09	7094	9.56	0.85	11195
15	15276	35.95	5.70	0.57	0.76	13.26	7227	8.90	0.89	11283
16	15576	36.23	5.86	0.70	0.77	13.14	7162	9.21	1.11	11246
17	15366	36.95	5.68	0.65	0.76	13.32	7152	9.00	1.04	11343
18	16552	36.68	5.04	0.72	0.73	14.58	7037	7.95	1.13	11113
19	16274	35.81	6.46	0.64	0.43	6.65	7179	10.06	1.00	11184
20	16476	36.72	5.67	0.77	0.37	6.50	7103	8.95	1.22	11225
21	16806	36.51	5.69	0.71	0.46	8.00	7248	8.96	1.12	11417
22	16921	35.79	6.20	0.79	0.60	9.60	7185	9.66	1.24	11190
23	16271	35.90	6.43	0.78	0.54	8.40	7150	10.04	1.21	11154
24	16999	36.97	5.09	0.61	0.42	8.30	7121	8.07	0.97	11298
25	16794	36.48	5.64	0.70	0.32	5.70	7342	8.87	1.11	11559
26	16682	36.62	6.27	0.71	0.38	6.10	7114	9.90	1.12	11224
27	16602	36.82	5.58	0.66	0.46	8.20	7111	8.84	1.04	11255
28	16447	36.89	4.99	0.58	0.42	8.40	7182	7.91	0.92	11381
29	16048	36.40	5.82	0.64	0.61	10.50	7174	9.15	1.01	11281
30	16454	36.32	4.71	0.54	0.42	8.90	7218	7.39	0.85	11336
31	16627	36.58	5.84	0.68	0.48	8.30	7170	9.20	1.07	11306

WEIGHTED AVERAGE		36.68	5.74	0.65	0.56	9.86	7121	9.07	1.02	11246
RANGE HIGH		38.07	6.46	0.79	0.77	14.58	7342	10.06	1.24	11559
LOW		35.79	4.71	0.54	0.32	5.70	6912	7.39	0.85	11093
DELIVERED	494768									
SAMPLED	494768									
FOR FISCAL 1987/1988 TO DATE										
WEIGHTED AVERAGE		36.40	6.06	0.64	0.48	7.90	7049	9.53	1.00	11086
RANGE HIGH		38.80	7.96	0.89	1.30	22.70	7365	12.50	1.40	11559
LOW		34.99	4.28	0.36	0.11	2.20	6718	6.78	0.56	10504
DELIVERED	5370911									
SAMPLED	5337839									

DAILY QUALITY of COAL to the GASIFIERS
ANG LABORATORY
JUNE, 1988
PREPARED BY COAL RESOURCES AND MINING

07/12/88

AS RECEIVED								DRY		

DATE	TONS DELIVERED	% MOISTURE	% ASH	% TOTAL SULFUR	% Na2O IN COAL	% Na2O IN ASH	BTU/LB	% ASH	% TOTAL SULFUR	BTU/LB
****	*****	*****	***	*****	*****	*****	*****	***	*****	*****
1	16200	36.80	5.41	0.60	0.41	7.60	7075	8.55	0.95	11195
2	17426	36.59	5.70	0.64	0.41	7.20	7068	8.99	1.01	11175
3	15760	36.57	5.52	0.81	0.44	7.90	7126	8.70	1.27	11234
4	16315	36.52	5.31	0.72	0.41	7.70	7175	8.37	1.14	11303
5	15862	36.76	5.06	0.69	0.51	10.00	7168	8.01	1.09	11334
6	15896	36.69	5.30	0.68	0.62	11.70	7202	8.38	1.08	11375
7	15864	36.78	5.31	0.82	0.50	9.40	7226	8.40	1.29	11430
8	12687	35.95	5.55	0.64	0.34	6.20	7167	8.67	1.00	11190
9	13233	36.74	5.80	0.59	0.31	5.30	7164	9.16	0.94	11325
10	15760	36.27	5.70	0.63	0.34	6.00	7164	8.94	0.98	11241
11	16420	36.29	5.72	0.57	0.32	5.60	7186	8.98	0.90	11279
12	15976	36.48	5.83	0.67	0.37	6.30	7172	9.18	1.05	11290
13	16352	36.38	5.63	0.65	0.46	8.10	7136	8.85	1.03	11217
14	15458	36.66	5.86	0.52	0.40	6.90	7047	9.25	0.81	11126
15	15891	36.35	5.58	0.66	0.25	4.50	7167	8.76	1.03	11260
16	16847	36.74	6.00	0.67	0.36	6.00	7148	9.49	1.05	11300
17	16440	36.35	5.69	0.63	0.37	6.50	7231	8.94	0.99	11360
18	16538	36.12	6.58	0.67	0.38	5.70	7135	10.30	1.06	11170
19	16581	35.83	5.58	0.54	0.35	6.20	7243	8.70	0.84	11287
20	15854	35.06	6.33	0.60	0.47	7.48	7200	9.75	0.92	11088
21	16000	36.43	5.86	0.72	0.48	8.23	7144	9.23	1.14	11238
22	15410	36.26	6.20	0.65	0.57	9.15	7132	9.72	0.97	11189
23	16151	35.31	6.56	0.90	0.65	9.86	7100	10.14	1.39	10975
24	16025	35.27	6.41	0.78	0.56	8.68	7144	9.90	1.20	11036
25	16664	35.58	6.60	0.81	0.66	9.95	7126	10.25	1.25	11062
26	16898	35.67	6.28	0.78	0.43	6.86	7125	9.76	1.21	11075
27	16185	35.42	6.00	0.74	0.49	8.18	7155	9.29	1.15	11079
28	16290	36.19	5.36	0.74	0.49	9.20	7219	8.40	1.16	11313
29	16077	36.41	6.28	0.80	0.55	8.73	7042	9.88	1.25	11074
30	16991	36.58	5.88	0.69	0.58	9.92	7108	9.27	1.08	11209

WEIGHTED AVERAGE		36.23	5.83	0.69	0.45	7.72	7149	9.15	1.08	11213
RANGE HIGH		36.80	6.60	0.90	0.66	11.70	7243	10.30	1.39	11430
LOW		35.06	5.06	0.52	0.25	4.50	7042	8.01	0.81	10975
DELIVERED		480051								
SAMPLED		480051								
FOR FISCAL 1987/1988 TO DATE										
WEIGHTED AVERAGE		36.39	6.04	0.64	0.48	7.88	7058	9.50	1.01	11096
RANGE HIGH		38.80	7.96	0.90	1.30	22.70	7365	12.50	1.40	11559
LOW		34.99	4.28	0.36	0.11	2.20	6718	6.78	0.56	10504
DELIVERED		5850962								
SAMPLED		5817890								

VOLATILE MATTER AND FIXED CARBON OF COAL TO THE GASIFIERS
ANG LABORATORY
APRIL, 1988

PREPARED BY COAL RESOURCES AND MINING

05/10/88

DATE ****	TONS DELIVERED *****	% AS REC *****		% DRY *****		% MAF *****	
		VOLATILE MATTER *****	FIXED CARBON *****	VOLATILE MATTER *****	FIXED CARBON *****	VOLATILE MATTER *****	FIXED CARBON *****
1	17286	28.04	29.61	44.19	46.67	48.64	51.36
2	15700	0.00	0.00	0.00	0.00	0.00	0.00
3	16800	0.00	0.00	0.00	0.00	0.00	0.00
4	17000	0.00	0.00	0.00	0.00	0.00	0.00
5	15957	0.00	0.00	0.00	0.00	0.00	0.00
6	16356	0.00	0.00	0.00	0.00	0.00	0.00
7	16500	0.00	0.00	0.00	0.00	0.00	0.00
8	16505	27.06	29.93	42.76	47.29	47.49	52.52
9	16573	0.00	0.00	0.00	0.00	0.00	0.00
10	16188	0.00	0.00	0.00	0.00	0.00	0.00
11	16009	0.00	0.00	0.00	0.00	0.00	0.00
12	15927	0.00	0.00	0.00	0.00	0.00	0.00
13	16348	27.43	30.81	42.58	47.83	47.11	52.92
14	16963	0.00	0.00	0.00	0.00	0.00	0.00
15	17315	27.12	30.23	42.38	47.25	47.28	52.72
16	16791	0.00	0.00	0.00	0.00	0.00	0.00
17	17088	0.00	0.00	0.00	0.00	0.00	0.00
18	16700	27.47	29.83	43.41	47.14	47.87	51.99
19	17000	0.00	0.00	0.00	0.00	0.00	0.00
20	16200	0.00	0.00	0.00	0.00	0.00	0.00
21	16829	28.23	29.46	44.41	46.34	48.94	51.06
22	17376	0.00	0.00	0.00	0.00	0.00	0.00
23	16869	27.64	29.36	43.91	46.64	48.51	51.52
24	16846	27.63	30.40	43.64	48.02	48.15	52.98
25	16736	27.88	30.13	43.63	47.14	48.07	51.93
26	16628	0.00	0.00	0.00	0.00	0.00	0.00
27	17243	27.75	29.67	44.19	47.26	48.26	51.61
28	16377	0.00	0.00	0.00	0.00	0.00	0.00
29	16340	28.47	29.26	44.75	45.99	49.36	50.73
30	16364	0.00	0.00	0.00	0.00	0.00	0.00

TOTALS FOR THE MONTH OF	APRIL, 1988					
WEIGHTED AVERAGE:	27.70	29.88	43.62	47.05	48.15	51.94
RANGE HIGH:	28.47	30.81	44.75	48.02	49.36	52.98
LOW:	27.06	29.26	42.38	45.99	47.11	50.73

TONNAGE:
DELIVERED: 498814
SAMPLED : 185017

TOTALS FOR FISCAL YEAR 1987/1988 TO DATE						
WEIGHTED AVERAGE:	27.93	29.76	43.94	46.81	48.44	51.61
RANGE HIGH:	29.40	31.34	46.70	49.44	50.74	53.65
LOW:	26.73	28.20	42.00	45.00	46.51	49.33

TONNAGE:
DELIVERED: 4876143
SAMPLED : 1400424

VOLATILE MATTER AND FIXED CARBON OF COAL TO THE GASIFIERS
ANG LABORATORY
MAY, 1988

PREPARED BY COAL RESOURCES AND MINING

06/13/88

DATE	TONS DELIVERED	% AS REC		% DRY		% MAF	
		VOLATILE MATTER	FIXED CARBON	VOLATILE MATTER	FIXED CARBON	VOLATILE MATTER	FIXED CARBON
1	16460	0.00	0.00	0.00	0.00	0.00	0.00
2	16673	0.00	0.00	0.00	0.00	0.00	0.00
3	16320	0.00	0.00	0.00	0.00	0.00	0.00
4	15000	28.09	29.14	45.01	46.70	49.25	51.10
5	16400	0.00	0.00	0.00	0.00	0.00	0.00
6	15250	26.50	29.94	42.80	48.35	46.96	53.04
7	15028	0.00	0.00	0.00	0.00	0.00	0.00
8	16192	0.00	0.00	0.00	0.00	0.00	0.00
9	16635	0.00	0.00	0.00	0.00	0.00	0.00
10	16485	0.00	0.00	0.00	0.00	0.00	0.00
11	16834	28.29	29.77	44.76	47.12	48.99	51.58
12	12741	0.00	0.00	0.00	0.00	0.00	0.00
13	12176	28.20	29.89	44.04	46.67	48.56	51.46
14	14403	0.00	0.00	0.00	0.00	0.00	0.00
15	15276	0.00	0.00	0.00	0.00	0.00	0.00
16	15576	0.00	0.00	0.00	0.00	0.00	0.00
17	15366	0.00	0.00	0.00	0.00	0.00	0.00
18	16552	28.86	29.42	45.58	46.46	49.52	50.47
19	16274	0.00	0.00	0.00	0.00	0.00	0.00
20	16476	28.65	28.96	45.27	45.77	49.72	50.27
21	16806	0.00	0.00	0.00	0.00	0.00	0.00
22	16921	0.00	0.00	0.00	0.00	0.00	0.00
23	16271	0.00	0.00	0.00	0.00	0.00	0.00
24	16999	0.00	0.00	0.00	0.00	0.00	0.00
25	16794	29.13	29.75	45.86	46.83	50.32	51.39
26	16682	0.00	0.00	0.00	0.00	0.00	0.00
27	16602	27.87	29.74	44.12	47.08	48.40	51.65
28	16447	0.00	0.00	0.00	0.00	0.00	0.00
29	16048	0.00	0.00	0.00	0.00	0.00	0.00
30	16454	27.89	31.09	43.79	48.82	47.28	52.72
31	16627	0.00	0.00	0.00	0.00	0.00	0.00

TOTALS FOR THE MONTH OF

MAY, 1988

WEIGHTED AVERAGE:	28.18	29.74	44.61	47.09	48.80	51.51
RANGE HIGH:	29.13	31.09	45.86	48.82	50.32	53.04
LOW:	26.50	28.96	42.80	45.77	46.96	50.27

TONNAGE:

DELIVERED: 494768
SAMPLED : 142138

TOTALS FOR FISCAL YEAR 1987/1988 TO DATE

WEIGHTED AVERAGE:	27.96	29.76	44.00	46.84	48.47	51.60
RANGE HIGH:	29.40	31.34	46.70	49.44	50.74	53.65
LOW:	26.50	28.20	42.00	45.00	46.51	49.33

TONNAGE:

DELIVERED: 5370911
SAMPLED : 1542562

VOLATILE MATTER AND FIXED CARBON OF COAL TO THE GASIFIERS
ANG LABORATORY

JUNE, 1988

PREPARED BY COAL RESOURCES AND MINING

07/12/88

DATE ****	TONS DELIVERED *****	% AS REC *****		% DRY *****		% MAF *****	
		VOLATILE MATTER *****	FIXED CARBON *****	VOLATILE MATTER *****	FIXED CARBON *****	VOLATILE MATTER *****	FIXED CARBON *****
1	16200	27.40	30.39	43.35	48.09	47.40	52.59
2	17426	27.59	30.10	43.52	47.48	47.82	52.17
3	15760	28.48	29.37	44.90	46.30	49.18	50.71
4	16315	27.81	30.19	43.81	47.55	47.81	51.89
5	15862	0.00	0.00	0.00	0.00	0.00	0.00
6	15896	0.00	0.00	0.00	0.00	0.00	0.00
7	15864	0.00	0.00	0.00	0.00	0.00	0.00
8	12687	28.02	30.49	43.74	47.60	47.89	52.12
9	13233	0.00	0.00	0.00	0.00	0.00	0.00
10	15760	28.16	29.89	44.18	46.89	48.52	51.49
11	16420	0.00	0.00	0.00	0.00	0.00	0.00
12	15976	0.00	0.00	0.00	0.00	0.00	0.00
13	16352	0.00	0.00	0.00	0.00	0.00	0.00
14	15458	0.00	0.00	0.00	0.00	0.00	0.00
15	15891	28.95	29.03	45.48	45.60	49.85	49.98
16	16847	0.00	0.00	0.00	0.00	0.00	0.00
17	16440	28.74	29.21	45.16	45.90	49.59	50.41
18	16538	0.00	0.00	0.00	0.00	0.00	0.00
19	16581	0.00	0.00	0.00	0.00	0.00	0.00
20	15854	0.00	0.00	0.00	0.00	0.00	0.00
21	16000	0.00	0.00	0.00	0.00	0.00	0.00
22	15410	28.57	28.96	44.82	45.44	49.65	50.33
23	16151	0.00	0.00	0.00	0.00	0.00	0.00
24	16025	28.33	29.98	43.76	46.32	48.57	51.41
25	16664	0.00	0.00	0.00	0.00	0.00	0.00
26	16898	0.00	0.00	0.00	0.00	0.00	0.00
27	16185	0.00	0.00	0.00	0.00	0.00	0.00
28	16290	0.00	0.00	0.00	0.00	0.00	0.00
29	16077	27.49	29.82	43.22	46.90	47.96	52.04
30	16991	0.00	0.00	0.00	0.00	0.00	0.00

TOTALS FOR THE MONTH OF JUNE, 1988

WEIGHTED AVERAGE:	28.14	29.76	44.18	46.73	48.57	51.37
RANGE HIGH:	28.95	30.49	45.48	48.09	49.85	52.59
LOW:	27.40	28.96	43.22	45.44	47.40	49.98

TONNAGE:

DELIVERED: 480051
SAMPLED : 173991

TOTALS FOR FISCAL YEAR 1987/1988 TO DATE

WEIGHTED AVERAGE:	27.97	29.76	44.02	46.83	48.48	51.58
RANGE HIGH:	29.40	31.34	46.70	49.44	50.74	53.65
LOW:	26.50	28.20	42.00	45.00	46.51	49.33

TONNAGE:

DELIVERED: 5850962
SAMPLED : 1716553

ULTIMATE ANALYSIS OF COAL TO THE GASIFIERS
ANG LABORATORY
APRIL, 1988
PREPARED BY COAL RESOURCES AND MINING

05/10/88

% AS REC					% DRY			% MAF		

TONS										
DATE	DELIVERED	CARBON	HYDROGEN	NITROGEN	CARBON	HYDROGEN	NITROGEN	CARBON	HYDROGEN	NITROGEN
****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1	17286	43.23	6.92	0.65	68.15	4.46	1.02	75.00	4.91	1.12
2	15700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	16800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	17000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	15957	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	16356	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	16500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	16505	42.84	6.41	1.17	67.69	3.63	1.85	75.18	4.03	2.05
9	16573	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	16188	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	16009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	15927	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	16348	42.95	6.64	0.00	66.67	4.13	0.00	73.76	4.57	0.00
14	16963	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	17315	40.87	6.54	0.00	63.87	3.92	0.00	71.26	4.37	0.00
16	16791	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	17088	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	16700	41.84	7.46	0.58	66.13	5.29	0.93	72.93	5.83	1.03
19	17000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	16200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	16829	43.47	6.72	0.00	68.39	4.16	0.00	75.36	4.57	0.00
22	17376	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	16869	39.97	6.88	0.50	63.51	4.35	0.80	70.16	4.80	0.88
24	16846	40.20	6.81	0.51	63.49	4.28	0.80	70.06	4.72	0.88
25	16736	40.59	6.77	0.74	63.53	4.27	1.15	69.99	4.70	1.27
26	16628	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	17243	40.40	6.77	0.84	64.34	4.15	1.34	70.26	4.53	1.46
28	16377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	16340	42.51	6.99	0.00	66.81	4.59	0.00	73.69	5.06	0.00
30	16364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TOTALS FOR THE MONTH OF		APRIL, 1988								
WEIGHTED AVERAGE:		41.71	6.81	0.71	65.68	4.29	1.13	72.50	4.73	1.24
RANGE HIGH:		43.47	7.46	1.17	68.39	5.29	1.85	75.36	5.83	2.05
LOW:		39.97	6.41	0.50	63.49	3.63	0.80	69.99	4.03	0.88

TONNAGE:
DELIVERED: 498814
SAMPLED : 185017

TOTALS FOR FISCAL YEAR 1987/1988 TO DATE										
WEIGHTED AVERAGE:		42.14	7.00	0.60	66.26	4.61	0.95	73.06	5.08	1.04
RANGE HIGH:		45.43	8.40	1.17	71.11	6.80	1.85	77.87	7.47	2.05
LOW:		39.28	6.40	0.30	62.00	3.56	0.50	68.16	3.90	0.55

TONNAGE:
DELIVERED: 4876143
SAMPLED : 1384590

ULTIMATE ANALYSIS OF COAL TO THE GASIFIERS
ANG LABORATORY
MAY, 1988
PREPARED BY COAL RESOURCES AND MINING

06/13/88

% AS REC					% DRY			% MAF		
*****					*****			*****		
DATE	TONS DELIVERED	CARBON	HYDROGEN	NITROGEN	CARBON	HYDROGEN	NITROGEN	CARBON	HYDROGEN	NITROGEN
****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1	16460	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	16673	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	16320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	15000	40.39	6.82	0.00	64.73	4.19	0.00	70.83	4.58	0.00
5	16400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	15250	40.33	6.83	0.00	65.12	4.15	0.00	71.44	4.56	0.00
7	15028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	16192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	16635	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	16485	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	16834	41.88	7.88	0.71	66.28	5.94	1.13	72.55	6.51	1.24
12	12741	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	12176	42.00	7.13	0.71	65.59	4.85	1.12	72.32	5.35	1.23
14	14403	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	15276	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	15576	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	15366	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	16552	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	16274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	16476	41.23	6.84	0.98	65.15	4.31	1.54	71.56	4.73	1.70
21	16806	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	16921	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	16271	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	16999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	16794	42.76	6.93	1.49	67.32	4.49	2.34	73.88	4.93	2.57
26	16682	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	16602	41.66	6.97	0.57	65.94	4.52	0.90	72.33	4.96	0.99
28	16447	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	16048	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	16454	42.29	6.78	0.66	66.42	4.27	1.03	71.72	4.61	1.12
31	16627	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TOTALS FOR THE MONTH OF	MAY, 1988									
WEIGHTED AVERAGE:	41.58	7.03	0.86	65.85	4.59	1.36	72.10	5.03	1.49	
RANGE HIGH:	42.76	7.88	1.49	67.32	5.94	2.34	73.88	6.51	2.57	
LOW:	40.33	6.78	0.57	64.73	4.15	0.90	70.83	4.56	0.99	

TONNAGE:
DELIVERED: 494768
SAMPLED : 125586

TOTALS FOR FISCAL YEAR 1987/1988 TO DATE										
WEIGHTED AVERAGE:	42.09	7.00	0.62	66.23	4.61	0.98	72.98	5.08	1.08	
RANGE HIGH:	45.43	8.40	1.49	71.11	6.80	2.34	77.87	7.47	2.57	
LOW:	39.28	6.40	0.30	62.00	3.56	0.50	68.16	3.90	0.55	

TONNAGE:
DELIVERED: 5370911
SAMPLED : 1510176

ULTIMATE ANALYSIS OF COAL TO THE GASIFIERS
ANG LABORATORY
JUNE, 1988
PREPARED BY COAL RESOURCES AND MINING

07/12/88

DATE	TONS DELIVERED	% AS REC			% DRY			% MAF		
		CARBON	HYDROGEN	NITROGEN	CARBON	HYDROGEN	NITROGEN	CARBON	HYDROGEN	NITROGEN
1	16200	41.66	7.01	0.67	65.92	4.57	1.06	72.09	5.00	1.16
2	17426	42.93	7.18	0.68	67.71	4.86	1.08	74.40	5.34	1.18
3	15760	42.28	6.79	0.71	66.66	4.26	1.12	73.01	4.67	1.23
4	16315	41.57	7.14	0.65	65.48	4.81	1.03	71.47	5.25	1.12
5	15862	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	15896	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	15864	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	12687	42.37	7.00	0.60	66.15	4.65	0.94	72.43	5.09	1.03
9	13233	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	15760	42.37	6.93	0.69	66.48	4.51	1.09	73.00	4.95	1.20
11	16420	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	15976	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	16352	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	15458	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	15891	42.88	6.94	0.64	67.37	4.52	1.00	73.85	4.95	1.09
16	16847	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	16440	42.95	6.83	0.67	67.47	4.33	1.05	74.10	4.76	1.15
18	16538	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	16581	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	15854	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	16000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	15410	41.92	6.81	0.62	65.76	4.32	0.97	72.85	4.78	1.07
23	16151	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	16025	42.50	6.52	0.00	65.66	3.98	0.00	72.88	4.42	0.00
25	16664	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	16898	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	16185	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	16290	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	16077	41.04	6.73	0.00	64.55	4.17	0.00	71.62	4.63	0.00
30	16991	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TOTALS FOR THE MONTH OF		JUNE, 1988								
WEIGHTED AVERAGE:		42.23	6.90	0.66	66.31	4.45	1.04	72.90	4.90	1.14
RANGE HIGH:		42.95	7.18	0.71	67.71	4.86	1.12	74.40	5.34	1.23
LOW:		41.04	6.52	0.60	64.55	3.98	0.94	71.47	4.42	1.03

TONNAGE:
DELIVERED: 480051
SAMPLED : 173991

TOTALS FOR FISCAL YEAR 1987/1988 TO DATE										
WEIGHTED AVERAGE:		42.10	6.99	0.63	66.24	4.59	0.99	72.97	5.06	1.09
RANGE HIGH:		45.43	8.40	1.49	71.11	6.80	2.34	77.87	7.47	2.57
LOW:		39.28	6.40	0.30	62.00	3.56	0.50	68.16	3.90	0.55

TONNAGE:
DELIVERED: 5850962
SAMPLED : 1684167

ASH FUSION OF COAL TO THE GASIFIERS
ANG LABORATORY
APRIL, 1988
PREPARED BY COAL RESOURCES AND MINING

05/10/88

ASH FUSION (OX)

DATE	TONS DELIVERED	DEFOR	SOFT	HEMIS	FLUID
****	*****	*****	*****	*****	*****
1	17286	0	0	0	0
2	15700	0	0	0	0
3	16800	0	0	0	0
4	17000	0	0	0	0
5	15957	0	0	0	0
6	16356	0	0	0	0
7	16500	0	0	0	0
8	16505	0	0	0	0
9	16573	0	0	0	0
10	16188	0	0	0	0
11	16009	0	0	0	0
12	15927	0	0	0	0
13	16348	0	0	0	0
14	16963	0	0	0	0
15	17315	0	0	0	0
16	16791	0	0	0	0
17	17088	0	0	0	0
18	16700	0	0	0	0
19	17000	0	0	0	0
20	16200	0	0	0	0
21	16829	0	0	0	0
22	17376	0	0	0	0
23	16869	0	0	0	0
24	16846	0	0	0	0
25	16736	0	0	0	0
26	16628	0	0	0	0
27	17243	0	0	0	0
28	16377	0	0	0	0
29	16340	0	0	0	0
30	16364	0	0	0	0

TOTALS FOR THE MONTH OF		APRIL, 1988			
WEIGHTED AVERAGE:		0	0	0	0
RANGE HIGH:		0	0	0	0
LOW:		0	0	0	0

TONNAGE:
DELIVERED: 498814
SAMPLED : 0

TOTALS FOR FISCAL YEAR 1987/1988 TO DATE					
WEIGHTED AVERAGE:		2230	2272	2297	2311
RANGE HIGH:		2310	2392	2400	2410
LOW:		2030	2070	2100	2160

TONNAGE:
DELIVERED: 4876143
SAMPLED : 842688

ANG LABORATORY
MAY, 1988
PREPARED BY COAL RESOURCES AND MINING

06/13/88

ASH FUSION (OX)

DATE	TONS DELIVERED	DEFOR	SOFT	HEMIS	FLUID
****	*****	*****	*****	*****	*****
1	16460	0	0	0	0
2	16673	0	0	0	0
3	16320	0	0	0	0
4	15000	0	0	0	0
5	16400	0	0	0	0
6	15250	0	0	0	0
7	15028	0	0	0	0
8	16192	0	0	0	0
9	16635	0	0	0	0
10	16485	0	0	0	0
11	16804	0	0	0	0
12	12741	0	0	0	0
13	12176	0	0	0	0
14	14403	0	0	0	0
15	15276	0	0	0	0
16	15576	0	0	0	0
17	15366	0	0	0	0
18	16552	0	0	0	0
19	16274	0	0	0	0
20	16476	0	0	0	0
21	16806	0	0	0	0
22	16921	0	0	0	0
23	16271	0	0	0	0
24	16999	0	0	0	0
25	16794	0	0	0	0
26	16682	0	0	0	0
27	16602	0	0	0	0
28	16447	0	0	0	0
29	16048	0	0	0	0
30	16454	0	0	0	0
31	16627	0	0	0	0

TOTALS FOR THE MONTH OF	MAY, 1988				
WEIGHTED AVERAGE:	0	0	0	0	0
RANGE HIGH:	0	0	0	0	0
LOW:	0	0	0	0	0

TONNAGE:
DELIVERED: 494768
SAMPLED : 0

TOTALS FOR FISCAL YEAR 1987/1988 TO DATE				
WEIGHTED AVERAGE:	2230	2272	2297	2311
RANGE HIGH:	2310	2392	2400	2410
LOW:	2030	2070	2100	2160

TONNAGE:
DELIVERED: 5370911
SAMPLED : 842688

ASH FUSION OF COAL TO THE GASIFIERS
ANG LABORATORY
JUNE, 1988
PREPARED BY COAL RESOURCES AND MINING

07/12/88

ASH FUSION (OX)

DATE	TONS DELIVERED	DEFOR	SOFT	HEMIS	FLUID
*****	*****	*****	*****	*****	*****
1	16200	0	0	0	0
2	17426	0	0	0	0
3	15760	0	0	0	0
4	16315	2260	2290	2310	2320
5	15862	0	0	0	0
6	15896	0	0	0	0
7	15864	0	0	0	0
8	12687	0	0	0	0
9	13233	0	0	0	0
10	15760	2220	2290	2300	2310
11	16420	0	0	0	0
12	15976	0	0	0	0
13	16352	0	0	0	0
14	15458	0	0	0	0
15	15891	0	0	0	0
16	16847	0	0	0	0
17	16440	0	0	0	0
18	16538	0	0	0	0
19	16581	0	0	0	0
20	15854	0	0	0	0
21	16000	0	0	0	0
22	15410	0	0	0	0
23	16151	0	0	0	0
24	16025	0	0	0	0
25	16664	0	0	0	0
26	16898	0	0	0	0
27	16185	0	0	0	0
28	16290	0	0	0	0
29	16077	2270	2290	2300	2310
30	16991	0	0	0	0

TOTALS FOR THE MONTH OF		JUNE, 1988			
WEIGHTED AVERAGE:		2250	2290	2303	2313
RANGE HIGH:		2270	2290	2310	2320
LOW:		2220	2290	2300	2310

TONNAGE:
DELIVERED: 480051
SAMPLED : 48152

TOTALS FOR FISCAL YEAR 1987/1988 TO DATE					
WEIGHTED AVERAGE:		2231	2273	2297	2311
RANGE HIGH:		2310	2392	2400	2410
LOW:		2030	2070	2100	2160

TONNAGE:
DELIVERED: 5850962
SAMPLED : 890840

DAILY QUALITY of FINES DELIVERED TO BEPC - AVS
ANG LABORATORY
APRIL, 1988
PREPARED BY COAL RESOURCES AND MINING

05/24/88

AS RECEIVED

DRY

DATE	TONS DELIVERED	***** AS RECEIVED *****						***** DRY *****		
		% MOISTURE	% ASH	% TOTAL SULFUR	% Na2O IN COAL	% Na2O IN ASH	BTU/LB	% ASH	% TOTAL SULFUR	BTU/LB
1	10848	36.26	8.99	0.56	0.46	5.17	6692	14.11	0.88	10499
2	10153	35.70	10.07	0.69	0.57	5.67	6630	15.66	1.08	10310
3	9436	35.77	10.61	0.63	0.43	4.09	6607	16.52	0.97	10286
4	10055	36.14	9.25	0.61	0.48	5.20	6742	14.49	0.96	10558
5	9652	36.08	8.62	0.61	0.45	5.25	6799	13.49	0.96	10636
6	10931	35.85	8.85	0.55	0.50	5.70	6815	13.80	0.86	10624
7	10303	35.95	9.40	0.61	0.38	4.00	6747	14.67	0.95	10534
8	8220	36.02	8.91	0.53	0.45	5.03	6713	13.93	0.83	10493
9	11553	34.95	9.93	0.59	0.51	5.11	6777	15.26	0.91	10418
10	10196	36.02	7.31	0.56	0.54	7.35	6614	11.43	0.88	10337
11	10652	35.78	9.98	0.57	0.43	4.30	6654	15.54	0.89	10362
12	11228	35.48	9.97	0.62	0.31	3.10	6699	15.44	0.97	10383
13	8876	35.76	10.13	0.58	0.36	3.60	6700	15.77	0.91	10430
14	10229	35.63	10.28	0.58	0.39	3.80	6624	15.98	0.90	10290
15	11461	35.63	10.29	0.53	0.32	3.10	6593	15.99	0.82	10242
16	9786	36.67	10.37	0.58	0.25	2.44	6387	16.37	0.92	10006
17	10667	35.73	9.66	0.57	0.32	3.33	6674	15.03	0.89	10384
18	8817	34.94	9.22	0.58	0.44	4.66	6806	14.17	0.88	10481
19	8631	35.43	9.48	0.54	0.44	4.70	6725	14.69	0.84	10415
20	9737	35.66	9.61	0.59	0.45	4.70	6606	14.94	0.91	10267
21	11219	37.22	8.91	0.57	0.39	4.40	6466	14.20	0.91	10299
22	10093	36.06	10.07	0.55	0.45	4.46	6509	15.74	0.86	10179
23	10311	35.71	9.94	0.58	0.44	4.40	6535	15.46	0.90	10165
24	10929	35.86	10.26	0.54	0.38	3.68	6560	16.00	0.84	10227
25	10457	35.60	9.66	0.51	0.52	5.33	6629	15.00	0.79	10293
26	8453	34.85	10.10	0.57	0.44	4.38	6640	15.51	0.87	10192
27	9470	36.02	8.93	0.55	0.53	5.94	6602	13.95	0.86	10319
28	9734	35.85	10.76	0.62	0.46	4.32	6394	16.77	0.96	9967
29	10211	36.28	9.19	0.54	0.62	6.79	6565	14.22	0.85	10302
30	9886	35.93	9.35	0.55	0.79	8.49	6594	14.60	0.87	10292

WEIGHTED AVERAGE		35.84	9.61	0.58	0.45	4.74	6635	14.96	0.90	10339
RANGE HIGH		37.22	10.76	0.69	0.79	8.49	6815	16.77	1.08	10636
LOW		34.85	7.31	0.51	0.25	2.44	6387	11.43	0.79	9967
DELIVERED	302194									
SAMPLED	302194									
FOR FISCAL 1987/1988 TO DATE										
WEIGHTED AVERAGE		35.78	9.20	0.60	0.46	5.07	6682	14.32	0.93	10402
RANGE HIGH		38.97	12.10	0.94	1.20	11.90	7060	18.60	1.50	10769
LOW		32.75	6.70	0.37	0.09	1.40	6350	10.67	0.57	9860
DELIVERED	3221637									
SAMPLED	3197435									

DAILY QUALITY of FINES DELIVERED TO BEPC - AVS
ANG LABORATORY

MAY, 1988

PREPARED BY COAL RESOURCES AND MINING

06/13/88

AS RECEIVED

DRY

*****								*****		
DATE	TONS DELIVERED	% MOISTURE	% ASH	% TOTAL SULFUR	% Na2O IN COAL	% Na2O IN ASH	BTU/LB	% ASH	% TOTAL SULFUR	BTU/LB
****	*****	*****	***	*****	*****	*****	*****	***	*****	*****
1	9428	35.58	9.95	0.70	0.65	6.53	6561	15.45	1.08	10185
2	10418	35.98	9.74	0.60	0.45	4.66	6561	15.21	0.94	10248
3	11106	37.21	9.36	0.62	0.62	6.57	6482	14.91	0.99	10323
4	10397	37.22	9.19	0.61	0.75	6.21	6472	14.64	0.97	10309
5	11426	38.22	8.99	0.55	0.61	6.53	6360	14.56	0.89	10295
6	11235	37.20	8.86	0.58	0.56	6.37	6497	14.11	0.92	10346
7	15566	37.74	8.33	0.69	0.68	8.22	6624	13.37	1.10	10640
8	10180	36.82	9.09	0.63	0.57	6.32	6530	14.39	0.99	10336
9	9275	36.92	8.99	0.66	0.64	7.15	6565	14.25	1.05	10408
10	10201	36.81	8.25	0.58	0.76	9.19	6796	13.05	0.92	10756
11	12322	37.51	7.68	0.58	0.53	6.91	6704	12.29	0.93	10728
12	9484	37.05	7.79	0.56	0.79	10.18	6830	12.37	0.89	10851
13	8385	36.90	8.13	0.59	0.60	7.37	6737	12.88	0.94	10677
14	9983	36.92	8.21	0.54	0.49	5.91	6796	13.02	0.86	10773
15	11525	37.15	8.16	0.51	0.69	8.39	6741	12.99	0.81	10726
16	11802	36.36	8.94	0.63	1.04	11.67	6778	14.05	1.00	10651
17	9508	37.20	8.12	0.73	0.78	9.66	6757	12.94	1.16	10759
18	9529	38.31	8.79	0.59	0.74	8.42	6360	14.25	0.95	10309
19	10435	36.78	8.27	0.64	0.35	4.28	6802	13.08	1.01	10759
20	13467	36.85	7.85	0.74	0.35	4.50	6814	12.44	1.17	10790
21	11964	36.52	8.04	0.62	0.47	5.80	6862	12.66	0.97	10810
22	13958	36.96	8.50	0.69	0.56	6.60	6688	13.49	1.10	10610
23	13518	36.59	9.44	0.74	0.57	6.00	6614	14.89	1.17	10430
24	9794	36.61	8.89	0.66	0.33	3.73	6758	14.02	1.04	10661
25	10644	33.57	8.95	0.61	0.41	4.60	7038	13.47	0.92	10595
26	11684	36.66	8.89	0.57	0.44	4.90	6669	14.03	0.90	10529
27	11446	37.07	8.25	0.53	0.49	6.00	6654	13.11	0.84	10574
28	9147	36.66	8.24	0.55	0.40	4.80	6770	13.00	0.86	10689
29	10860	35.31	10.11	0.71	0.54	5.30	6699	15.63	1.10	10355
30	10013	37.25	8.76	0.60	0.41	4.70	6555	13.96	0.95	10446
31	11244	35.64	8.86	0.62	0.47	5.30	6830	13.77	0.96	10612

WEIGHTED AVERAGE		36.78	8.69	0.62	0.57	6.54	6674	13.74	0.98	10557
RANGE HIGH		38.31	10.11	0.74	1.04	11.67	7038	15.63	1.17	10851
LOW		33.57	7.68	0.51	0.33	3.73	6360	12.29	0.81	10185
DELIVERED	339944									
SAMPLED	339944									
FOR FISCAL 1987/1988 TO DATE										
WEIGHTED AVERAGE		35.87	9.15	0.60	0.47	5.21	6681	14.27	0.94	10417
RANGE HIGH		38.97	12.10	0.94	1.20	11.90	7060	18.60	1.50	10851
LOW		32.75	6.70	0.37	0.09	1.40	6350	10.67	0.57	9860
DELIVERED	3561581									
SAMPLED	3537379									

DAILY QUALITY of FINES DELIVERED TO BEPC - AVS
ANG LABORATORY
JUNE, 1988
PREPARED BY COAL RESOURCES AND MINING

07/12/88

AS RECEIVED

DRY

DATE	TONS DELIVERED	AS RECEIVED						DRY		
		% MOISTURE	% ASH	% TOTAL SULFUR	% Na2O IN COAL	% Na2O IN ASH	BTU/LB	% ASH	% TOTAL SULFUR	BTU/LB
1	11138	35.88	8.68	0.58	0.35	4.00	6761	13.54	0.90	10554
2	11554	36.40	9.27	0.64	0.39	4.20	6675	14.57	1.01	10495
3	11951	34.61	8.49	0.56	0.38	4.50	6864	12.98	0.86	10498
4	11060	34.57	9.04	0.59	0.43	4.80	6873	13.82	0.90	10504
5	11003	35.74	8.19	0.58	0.49	6.00	6852	12.75	0.90	10662
6	10954	34.95	8.72	0.53	0.54	6.20	6895	13.40	0.81	10599
7	10603	35.90	9.60	0.57	0.47	4.90	6708	14.98	0.88	10465
8	10320	35.61	9.06	0.65	0.33	3.60	6714	14.07	1.01	10427
9	6962	35.16	8.72	0.55	0.41	4.70	6933	13.45	0.85	10692
10	9489	35.77	9.60	0.55	0.39	4.10	6737	14.94	0.86	10488
11	10616	35.90	8.71	0.47	0.33	3.80	6815	13.59	0.73	10631
12	10278	36.22	8.80	0.53	0.35	4.00	6767	13.80	0.83	10609
13	10125	35.66	9.58	0.55	0.51	5.30	6661	14.88	0.85	10353
14	11231	35.79	9.88	0.60	0.52	5.30	6691	15.38	0.94	10420
15	10056	35.41	9.42	0.74	0.25	2.70	6814	14.59	1.14	10549
16	11942	36.02	9.94	0.85	0.34	3.40	6687	15.54	1.34	10451
17	10886	35.60	10.15	0.67	0.40	3.90	6740	15.76	1.05	10466
18	11788	35.11	9.96	0.72	0.41	4.10	6796	15.35	1.11	10474
19	10558	35.18	9.93	0.62	0.36	3.60	6767	15.32	0.96	10440
20	10446	35.04	9.39	0.70	0.69	7.40	6771	14.46	1.08	10424
21	9987	35.26	9.84	0.68	0.49	5.50	6949	13.66	1.04	10578
22	10382	35.96	8.81	0.60	0.52	5.90	6776	13.76	0.93	10581
23	13515	35.73	8.79	0.79	0.94	6.86	6708	13.68	1.22	10437
24	12846	35.64	9.87	0.75	0.96	6.25	6694	15.34	1.17	10401
25	12079	35.80	8.69	0.73	1.04	7.68	6776	13.54	1.14	10555
26	11247	36.13	8.93	0.66	0.74	5.29	6711	13.98	1.03	10507
27	11571	35.77	9.23	0.67	0.66	4.59	6669	14.37	1.05	10382
28	10830	35.03	8.71	0.79	0.47	5.40	6883	13.41	1.22	10594
29	10549	35.54	9.73	0.90	0.41	4.18	6751	15.09	1.40	10474
30	11307	36.25	9.10	0.81	0.58	6.34	6744	14.28	1.27	10579

WEIGHTED AVERAGE		35.59	9.23	0.66	0.52	4.99	6769	14.28	1.02	10506
RANGE HIGH		36.40	10.15	0.90	1.04	7.68	6949	15.76	1.40	10692
LOW		34.57	8.19	0.47	0.25	2.70	6661	12.75	0.73	10353
DELIVERED	327273									
SAMPLED	327273									

FOR FISCAL 1987/1988 TO DATE

WEIGHTED AVERAGE		35.85	9.16	0.61	0.48	5.19	6689	14.27	0.95	10424
RANGE HIGH		38.97	12.10	0.94	1.20	11.90	7060	18.60	1.50	10851
LOW		32.75	6.70	0.37	0.09	1.40	6350	10.67	0.57	9860
DELIVERED	3888854									
SAMPLED	3864652									

D. Ash and Hazardous Waste

By agreement, Coteau is providing to ANG transportation for gasifier ash to designated disposal sites. Currently, this service is provided on an "as-needed" basis seven days a week. Coteau supplies the required supervision, labor and ancillary equipment necessary to store the ash in an environmentally acceptable manner.

On May 18, 1988, ANG instructed Coteau to proceed with the concept of a "superpit" for the disposal of gasifier ash from the Great Plains Project. This "superpit" would be designed to meet the gasifier ash disposal needs of the gasification plant, at current production rates, for the balance of the plant's 25 year life. This concept will be incorporated into the mining plan and should result in savings to the Project in capital and operating and maintenance costs.

The assignment of the permit transferring the temporary ash storage area from ANG to Coteau is expected to be approved in late June 1988. Once approvals are received from the North Dakota Public Service Commission and the State Health Department, Coteau will complete the south extension of ANG's ash disposal pit No. 2 by removing overburden and coal and lining the new pit for permanent ash disposal.

E. Raw Material and Energy Consumption

Mining Operation

Electrical power is supplied to the Freedom Mine by Oliver-Mercer Electric Cooperative. The incoming 69kv power is transformed to 23kv and distributed to the various facilities at the mine site. The facilities requiring large amounts of power are the service building complex and the truck dump and coal handling facilities. The draglines and electric loading shovels also consume large amounts of electrical energy.

All of the major mobile equipment utilized to support overburden removal activities, coal handling and haulage activities, and reclamation activities require diesel fuel. Coteau's personnel transport vehicles, field maintenance vehicles, and other auxiliary equipment are powered by gasoline.

Refer to Table 1.9 for energy consumption.

Plant Operation

Coal for gasification is obtained from The Coteau Properties Company's Freedom Mine. Crushed coal is fed from the coal storage facilities and then screened with coal fines transferred to Basin Electric Power Cooperative.

Table 1.8

	April	May	June	4th Quarter Total	1987-1988 Fiscal Year to Date
<u>Gasifier Ash to Disposal Sites (tons):</u>					
Permanent Site	38,940	33,720	34,500	107,160	439,380

Table 1.9

	April	May	June	4th Quarter Total	1987-1988 Fiscal Year to Date
Power (KWH)	4,267,680	3,771,960	3,559,800	11,599,440	54,226,260
Diesel Fuel (gallons)	225,440	235,344	257,194	717,978	2,844,980
Gasoline (gallons)	2,858	2,990	2,659	8,507	54,444

Energy Consumption:

2. SNG PRODUCTION

A. SNG Production Summary

	SNG Net Sales (MM SCF)	Daily Average (MM SCF)	Percent of Construction Design (CD)	Percent of Plant Rated Capacity (PRC)	Lowest Daily (MM SCF)	Highest Daily (MM SCF)
April	4398.265	146.609	106.6	96.1	124.006	153.516
May	4375.636	141.150	102.7	92.6	103.022	152.181
June	4268.191	142.273	103.5	93.3	73.359	152.875
4th Qtr Total	13042.092	143.320	104.2	94.0		
3rd Qtr Total	12922.095	142.001	103.3	93.1		
2nd Qtr Total	12750.401	138.591	100.8	90.9		
1st Qtr Total	12763.589	138.735	100.9	91.0		
Fiscal 1987-1988	38436.085	139.768	101.6	91.7		

B. Plant Operations

1) Process Operations for April

During April 1988, SNG production totaled 4.398 billion standard cubic feet or a daily average of 146.609 million standard cubic feet per day. This equates to 106.6 percent of construction design or 96.1 percent of the plant-rated capacity. The DOE-directed operating target is 145 million standard cubic feet per day.

Activities/problems that impacted plant production during the month included coal fines, a power outage, maintenance work in the Oxygen Plant, an outage of the lock gas holder and high cooling water temperatures.

2) Process Operations for May

During May 1988, SNG production totaled 4.376 billion standard cubic feet or a daily average of 141.150 million standard cubic feet per day. This equates to 102.7 percent of construction design or 92.6 percent of the plant-rated capacity.

Activities/problems that impacted plant production during the month included coal quality problems, a partial failure of the Oxygen Plant control system, an outage of "A" Superheater and high cooling water temperatures.

3) Process Operations for June

During June 1988, SNG production totaled 4.268 billion standard cubic feet or a daily average of 142.273 million standard cubic feet per day. This equates to 103.5 percent of construction design or 93.3 percent of the plant-rated capacity.

Activities/problems that impacted plant production during the month included coal quality problems, Modicon control panel failure in Steam Generation during a two-boiler operation, a compressor failure on the Northern Border pipeline system, high cooling water temperatures, a trip of the Rectisol ammonia refrigeration compressor and a valve failure in Methanation.

C. Limitations to Plant Production

The following is a review of key problem areas/process considerations in the plant.

1) Coal Quality

Wet coal-related problems impacted operations on only one occasion during the quarter.

On five separate occasions production was reduced/limited due to a combination of both high sodium coal and excess coal fines.

2) Oxygen Plant

On April 20, the liquid oxygen backup system was brought on-line to allow a shutdown of the Oxygen Plant "A" Train. This allowed maintenance to be performed on the A-2 and A-3 molecular sieves and the "A" York compressor.

The backup system was used again on April 28. Oxygen Plant "A" Train was shut down to allow the "A" York motor to be replaced.

At 0258 hours on May 12, a failure of part of the control system in the Oxygen Plant occurred. This failure caused a loss of the indication on the TDC screens. The controllers continued to control the process allowing the unit to stay in operation. An electronic card was replaced. At 0347 hours, during powerup of the system, "A" Train tripped. The liquid oxygen backup is on this same control system and did not come on-line. As a result, pressure in the oxygen header dropped. Both trains of Gasification tripped immediately. The downstream gas processing units subsequently tripped causing a total SNG outage.

By 1130 hours, the "A" main air compressor and "A" Train oxygen compressor were back in full operation.

The "B" Train York compressor motor was replaced on May 13. Following this maintenance, the unit was returned to normal operation.

3) Steam Generation

On May 12 during the restart of the "A" steam superheater following the Oxygen Plant outage, a leaking tube was detected. The unit was shut down for tube replacement and repairs. While this superheater was repaired, the "B" Train superheater was restarted but SNG production was limited to 105 MMSCFD. The "A" steam superheater was back on-line at 0330 hours May 15.

An annual inspection and maintenance outage of the "B" Riley boiler began June 5 and was in progress when the "S" Riley boiler tripped at 2008 hours June 8. Extremely high control room air temperatures caused a Modicon control panel failure. Additional problems were encountered while attempting to relight the burner. However, by 0200 hours June 9, the "S" Riley was back in the 1150 PSIG header.

(4) Power Outage

On the afternoon of April 12 at 2:20 p.m. the number one power feeder from Basin Electric tripped resulting in a partial plant outage. The loss of power caused the Oxygen Plant "B" Train to trip out. Also, certain equipment in the Oxygen Plant "A" Train tripped as well as the oxygen circulation pumps. The resulting deterioration of the oxygen header initiated planned sequential trips of several "B" Train gasifiers and then the entire "B" Train in a successful effort to stabilize the header. "A" Train gasifiers were unaffected. All "B" Train gasifiers were shortly restarted at reduced rates. Within 55 minutes, Oxygen Plant "B" Train was restarted and back in the header.

Rectisol "A" Train was also affected by the power outage and was not sending feed to Methanation until 5 hours 40 minutes following the initial trip. However, several hours of this outage in Rectisol "A" Train were attributable to problems with handling of gas samples. During this period, the plant production was limited to approximately one-half capacity.

Given the fact that the "A" Riley boiler was off-line for maintenance and the plant was in a two-boiler operation at the time of the trip, Plant Operations staff did an excellent job of manipulating steam balances throughout the plant. As a result, only the "B" Superheater went off-line.

The power loss was determined to be caused by maintenance work being performed at Basin Electric Power Station. The plant was out of the pipeline for approximately 5 minutes. During this time, no import of gas was required.

5. Lock Gas Holder

The lock gas holder, which was shut down on March 23 to replace the bladder, was returned to service April 18.

While the system was down, the low pressure lock gas could not be recovered and was flared. Medium Btu gas was burned in the boilers to replace this lock gas resulting in a reduction of SNG production of around 2 MMSCF each day.

6. Rectisol Unit

On June 20, the ammonia refrigeration compressor tripped as a result of a bad switch on the second stage high drum level indicator. Thirty minutes later, all feed was out of the "A" Train and in the flare. Efforts to restart the compressor were hindered by high suction pressure and high discharge temperature. The compressor was restarted 4 hours 15 minutes following the trip.

7. Methanation/Compression

On June 20 at 0825 hours, efforts began to back feed out of the Methanation Unit following the shutdown of Rectisol "A" Train. As this was in progress, feed was lost to the Methanation "B" Train due to a bad valve and was not restored to the "B" Train until 0850 hours. At 1600 hours, feed from Rectisol was restored and by 1620 hours, all gas flows to the pipeline resumed.

8. Northern Border Pipeline

SNG rates were reduced to 137.5 MMSCFD on June 13 at the request of Northern Border pipeline under the Interruptible Gas Transportation Agreement. A thrust bearing failure occurred at Compressor Station 8 on their system, thereby limiting pipeline capacity. Repairs were completed and the compressor placed back in service on June 15, at which time full gasification rates were resumed.

9. High Cooling Water Temperature/Venting of Ammonia

Gasifier rates were reduced on numerous days to prevent the venting of ammonia from Rectisol Sulfur Removal. Warm cooling water supply temperatures due to high wet bulb temperatures and heat exchanger limitations in Gas Cooling combined to cause warm feed gas temperature to Rectisol, which can result in ammonia venting. Daytime ambient temperatures in the 95° to 105° range were experienced during the quarter.

D. Attachments

Table 2.1 - SNG Production Measurement, April 1988

Table 2.2 - SNG Production Measurement, May 1988

Table 2.3 - SNG Production Measurement, June 1988

Chart 2.1 - April-June 1988 SNG Rates

Chart 2.2 - SNG Actual Production, April 1988

Chart 2.3 - SNG Actual Production, May 1988

Chart 2.4 - SNG Actual Production, June 1988

TABLE 2.1
SNG PRODUCTION MEASUREMENT (MMSCF)
APRIL 1988

DAY	MIS NET 6 A.M. MDT	TEJAS METER 11 A.M. MDT	24-HR CIRCULAR CHART RECORDER 11 A.M. MDT	SNG IMPORTED 11 A.M. MDT	SNG NET SALES
01	147.673	149.067	150.064	0.000	150.064
02	141.959	141.285	143.266	0.000	143.266
03	147.764	148.123	149.446	0.000	149.446
04	146.145	142.366	143.885	0.000	143.885
05	133.089	134.312	135.863	0.000	135.863
06	138.663	139.820	141.257	0.000	141.257
07	144.535	144.640	146.787	0.000	146.787
08	146.207	147.208	149.335	0.000	149.335
09	144.832	142.849	145.095	0.000	145.095
10	138.628	137.647	139.729	0.000	139.729
11	139.461	141.396	144.405	0.000	144.405
12	122.139	121.400	124.006	0.000	124.006
13	142.848	141.485	144.813	0.000	144.813
14	142.156	143.428	145.474	0.000	145.474
15	145.679	145.707	147.308	0.000	147.308
16	145.329	144.741	148.962	0.000	148.962
17	147.718	148.689	150.709	0.000	150.709
18	149.882	150.735	152.292	0.000	152.292
19	148.383	146.685	148.592	0.000	148.592
20	139.912	139.591	142.958	0.000	142.958
21	147.851	149.889	151.035	0.000	151.035
22	149.818	149.724	151.480	0.000	151.480
23	151.551	150.982	151.974	0.000	151.974
24	151.584	152.294	153.516	0.000	153.516
25	149.933	144.690	150.433	0.000	150.433
26	149.894	148.950	150.822	0.000	150.822
27	149.902	147.139	148.372	0.000	148.372
28	145.739	148.471	147.591	0.000	147.591
29	148.198	146.940	149.458	0.000	149.458
30	147.868	148.380	149.338	0.000	149.338
TOTAL	4345.340	4338.633	4398.265	0.000	4398.265

MIS NET: 6 a.m. reading for net SNG put to the pipeline. Figures are taken from TDC-2000 Instrumentation - Inst. Tag Number 19CFQ501.

Tejas: 11 a.m. readings for SNG exported. These are uncompensated internal meter readings.

24-Hour Recorder: Gross SNG production figures. These figures are obtained from the integration of charts taken from the 24-hour circular chart recorders at the North Meter Station. The charts are changed at 11:00 a.m. Mountain Time every day.

SNG Imported: SNG withdrawn from the line pack during upsets in plant operation. These figures are obtained from the integration of a chart taken from the 24-hour circular chart recorder at the North Meter Station. The chart is changed daily at 11:00 a.m. Mountain Time.

SNG Net Sales: SNG production figures used for billing purposes. These figures are obtained by subtracting the SNG Imported figure from the 24-Hour Circular Chart Recorder figure.

TABLE 2.2
SNG PRODUCTION MEASUREMENT (MMSCF)
MAY 1988

DAY	MIS NET 6 A.M. MDT	TEJAS METER 11 A.M. MDT	24-HR CIRCULAR CHART RECORDER 11 A.M. MDT	SNG IMPORTED 11 A.M. MDT	SNG NET SALES
01	148.395	147.796	148.658	0.000	148.658
02	149.325	149.678	150.596	0.000	150.596
03	145.771	138.991	140.505	0.000	140.505
04	131.735	136.746	136.920	0.000	136.920
05	143.158	140.488	141.745	0.000	141.745
06	132.018	130.831	131.940	0.000	131.940
07	130.124	133.800	134.026	0.000	134.026
08	143.469	143.229	144.380	0.000	144.380
09	149.774	152.129	152.181	0.000	152.181
10	149.518	148.363	149.944	0.000	149.944
11	137.962	109.650	110.181	0.431	109.750
12	91.412	110.430	110.933	0.000	110.933
13	105.586	103.269	103.022	0.000	103.022
14	112.181	122.268	122.693	0.000	122.693
15	143.727	145.891	145.747	0.000	145.747
16	139.691	132.410	131.928	0.000	131.928
17	137.999	144.756	144.979	0.000	144.979
18	149.380	149.265	148.662	0.000	148.662
19	146.675	146.877	147.406	0.000	147.406
20	149.053	147.471	151.137	0.000	151.137
21	149.038	149.972	151.097	0.000	151.097
22	149.929	149.384	151.328	0.000	151.328
23	142.777	141.795	142.785	0.000	142.785
24	143.968	144.413	145.689	0.000	145.689
25	146.43	146.375	146.583	0.000	146.583
26	147.835	145.870	151.091	0.000	151.091
27	149.669	149.673	149.023	0.000	149.023
28	149.736	149.941	149.754	0.000	149.754
29	147.417	151.397	147.334	0.000	147.334
30	147.356	149.968	146.625	0.000	146.625
31	147.827	145.651	147.175	0.000	147.175
TOTAL	4358.908	4358.777	4376.067	0.000	4375.636

MIS NET: 6 a.m. reading for net SNG put to the pipeline. Figures are taken from TDC-2000 Instrumentation - Inst. Tag Number 19CFQ501.

Tejas: 11 a.m. readings for SNG exported. These are uncompensated internal meter readings.

24-Hour Recorder: Gross SNG production figures. These figures are obtained from the integration of charts taken from the 24-hour circular chart recorders at the North Meter Station. The charts are changed at 11:00 a.m. Mountain Time every day.

SNG Imported: SNG withdrawn from the line pack during upsets in plant operation. These figures are obtained from the integration of a chart taken from the 24-hour circular chart recorder at the North Meter Station. The chart is changed daily at 11:00 a.m. Mountain Time.

SNG Net Sales: SNG production figures used for billing purposes. These figures are obtained by subtracting the SNG Imported figure from the 24-Hour Circular Chart Recorder figure.

TABLE 2.3
SNG PRODUCTION MEASUREMENT (MMSCF)
JUNE 1988

DAY	MIS NET 6 A.M. MDT	TEJAS METER 11 A.M. MDT	24-HR CIRCULAR CHART RECORDER 11 A.M. MDT	SNG IMPORTED 11 A.M. MDT	SNG NET SALES
01	146.788	149.863	151.566	0.000	151.566
02	149.897	150.296	152.875	0.000	152.875
03	149.843	149.541	152.252	0.000	152.252
04	147.504	144.253	146.626	0.000	146.626
05	139.440	140.790	142.620	0.000	142.620
06	139.788	139.248	141.854	0.000	141.854
07	139.568	140.203	143.452	0.000	143.452
08	93.591	75.357	75.414	2.055	73.359
09	91.807	106.180	107.788	0.000	107.788
10	135.577	142.122	144.128	0.000	144.128
11	142.466	143.407	144.193	0.000	144.193
12	146.666	147.938	149.613	0.000	149.613
13	144.983	141.995	143.385	0.000	143.385
14	138.847	133.081	139.086	0.000	139.086
15	142.308	144.991	147.028	0.000	147.028
16	148.565	147.961	148.969	0.000	148.969
17	146.547	147.627	148.543	0.000	148.543
18	148.938	149.120	150.194	0.000	150.194
19	149.863	140.680	142.332	0.000	142.332
20	149.863	129.300	130.376	0.000	130.376
21	143.868	137.800	138.621	0.000	138.621
22	137.386	144.720	146.495	0.000	146.495
23	137.123	137.269	139.096	0.000	139.096
24	142.822	145.442	147.988	0.000	147.988
25	147.623	148.216	150.440	0.000	150.440
26	148.955	149.764	151.985	0.000	151.985
27	144.356	145.911	148.439	0.000	148.439
28	145.698	145.179	147.404	0.000	147.404
29	145.521	146.811	148.823	0.000	148.823
30	145.660	148.079	148.661	0.000	148.661
TOTAL	4231.861	4213.144	4270.246	2.055	4268.191

MIS NET: 6 a.m. reading for net SNG put to the pipeline. Figures are taken from TDC-2000 Instrumentation - Inst. Tag Number 19CFQ501.

Tejas: 11 a.m. readings for SNG exported. These are uncompensated internal meter readings.

24-Hour Recorder: Gross SNG production figures. These figures are obtained from the integration of charts taken from the 24-hour circular chart recorders at the North Meter Station. The charts are changed at 11:00 a.m. Mountain Time every day.

SNG Imported: SNG withdrawn from the line pack during upsets in plant operation. These figures are obtained from the integration of a chart taken from the 24-hour circular chart recorder at the North Meter Station. The chart is changed daily at 11:00 a.m. Mountain Time.

SNG Net Sales: SNG production figures used for billing purposes. These figures are obtained by subtracting the SNG Imported figure from the 24-Hour Circular Chart Recorder figure.

GREAT PLAINS GASIFICATION PLANT
JANUARY 1988 - JUNE 1988 SNG RATES
BY OPERATIONS PLANNING, JULY 11, 1988

PEAKING SNG
PROBABLE SNG

LEGEND

ACTUAL SNG

Chart 2.2

GREAT PLAINS GASIFICATION PLANT
SNG ACTUAL PRODUCTION
BY OPERATIONS PLANNING, MAY 02, 1988

LEGEND
ACTUAL SNG

GREAT PLAINS GASIFICATION PLANT
SNG ACTUAL PRODUCTION
BY OPERATIONS PLANNING, JUNE 04, 1988

LEGEND

ACTUAL SNG

GREAT PLAINS GASIFICATION PLANT
ACTUAL SNG PRODUCTION
BY OPERATIONS PLANNING, JULY 11, 1988

LEGEND

ACTUAL SNG

3. SNG GAS QUALITY

The tables in this section show the SNG quality for the fourth fiscal quarter of 1987-1988.

Table 3.1 SNG Quality for April 1988

Table 3.2 SNG Quality for May 1988

Table 3.3 SNG Quality for June 1988

TABLE 3.1
SNG QUALITY
APRIL 1988

<u>DATE</u>	<u>BTU CONTENT</u>	<u>SPECIFIC GRAVITY</u>	<u>PERCENT NITROGEN</u>	<u>PERCENT CARBON DIOXIDE</u>	<u>PERCENT HYDROGEN</u>	<u>PERCENT METHANE</u>	<u>PERCENT CARBON MONOXIDE</u>
01	959.0*	.5514*	.10	1.0	3.25	95.1	LT 0.01
02	959.0*	.5528*	.06	1.01	3.15	95.2	LT 0.01
03	961.0*	.5535*	.05	1.0	3.00	95.5	LT 0.01
04	960.5*	.5505*	.06	.92	3.26	95.4	LT 0.01
05	959.0*	.5519*	.26	.84	3.09	95.3	LT 0.01
06	960.0*	.5522*	.075	.96	3.10	95.4	LT 0.01
07	961.0	.5445	.07	.88	3.11	95.4	LT 0.01
08	960.3	.5441	.085	.86	3.04	95.3	LT 0.01
09	959.9	.5451	.08	.875	2.80	95.6	LT 0.01
10	956.6	.5458	.165	.995	3.17	95.1	LT 0.01
11	962.5	.5448	.105	1.01	2.98	95.5	LT 0.01
12	960.7	.5425	.105	1.02	3.08	95.4	LT 0.01
13	960.8	.5451	.06	.8	3.55	95.9	LT 0.01
14	960.5*	.5535*	.07	1.0	2.96	95.4	LT 0.01
15	961.5	.5457	.08	1.01	2.92	95.5	LT 0.01
16	961.5	.5458	.075	1.11	2.98	95.4	LT 0.01
17	961.9	.5458	.07	1.08	2.80	95.5	LT 0.01
18	961.6	.5461	.10	1.0	2.86	95.6	LT 0.01
19	961.1	.5464	.08	1.15	2.65	95.6	LT 0.01
20	959.7	.5472	.25	1.05	2.65	95.6	LT 0.01
21	961.3	.5460	.075	1.04	2.83	95.5	LT 0.01
22	959.5	.5480	.06	1.26	2.69	95.4	LT 0.01
23	961.0	.5468	.07	1.17	2.75	95.5	LT 0.01
24	962.3	.5460	.07	1.08	2.94	95.4	LT 0.01
25	960.0*	.5555*	.08	1.18	2.75	95.5	LT 0.01
26	961.5*	.5510*	.065	1.11	2.86	95.5	LT 0.01
27	960.0*	.5560*	.10	1.05	3.98	95.4	LT 0.01
28	960.0*	.5557*	.10	1.14	2.71	95.6	LT 0.01
29	961.7*	.5468*	.06	1.05	2.93	95.5	LT 0.01
30	961.7	.5458	.12	1.09	2.98	95.4	LT 0.01

*Based on lab analysis due to malfunction of Tejas Analyzer.

LT - Less Than

Note: The Btu content and specific gravity figures are taken from the analyzer at the North Meter Station. All other figures are taken from daily laboratory samples.

TABLE 3.2
SNG QUALITY
MAY 1988

<u>DATE</u>	<u>BTU CONTENT</u>	<u>SPECIFIC GRAVITY</u>	<u>PERCENT NITROGEN</u>	<u>PERCENT CARBON DIOXIDE</u>	<u>PERCENT HYDROGEN</u>	<u>PERCENT METHANE</u>	<u>PERCENT CARBON MONOXIDE</u>
01	960.9	.5458	.06	1.22	2.74	95.5	LT 0.01
02	961.7	.5456	.055	1.14	2.86	95.5	LT 0.01
03	961.5	.5461	.06	1.1	2.86	95.5	0.02
04	964.0	.5449	.07	1.0	2.94	95.6	LT 0.01
05	962.1	.5461	.09	1.08	2.87	95.6	LT 0.01
06	965.1	.5444	.13	1.04	2.85	95.6	LT 0.01
07	963.5	.5446	.07	1.19	2.72	95.8	0.02
08	962.7	.5447	.065	.965	3.12	95.5	LT 0.01
09	962.1	.5448	.06	1.04	2.99	95.5	LT 0.01
10	961.8	.5452	.06	1.02	2.97	95.5	LT 0.01
11	961.9	.5447	.085	1.1	2.85	95.6	LT 0.01
12	960.5	.5379	.16	.88	2.48	95.2	0.02
13	962.0*	.5489*	.24	.54	3.28	95.3	LT 0.01
14	965.0*	.5453*	.09	.57	3.42	95.7	LT 0.01
15	959.5*	.5502*	.08	.85	2.84	95.5	0.02
16	960.0*	.5590*	.07	.76	3.06	95.4	0.02
17	962.0*	.5504*	.06	.83	3.13	95.4	0.02
18	963.1*	.5435*	.08	.93	3.22	95.5	0.02
19	963.4*	.5545*	.07	1.15	2.92	95.4	0.02
20	961.0*	.5492*	.09	.88	3.32	95.4	LT 0.01
21	961.0*	.5512*	.07	.96	3.17	95.4	LT 0.01
22	959.0*	.5504*	.10	.90	3.37	95.2	LT 0.01
23	962.0*	.5509*	.10	.93	3.09	95.6	LT 0.01
24	961.5*	.5510*	.05	.905	3.12	95.5	LT 0.01
25	961.0*	.5504*	.06	.91	3.17	95.4	LT 0.01
26	960.5*	.5513*	.07	.935	3.11	95.5	LT 0.01
27	960.0*	.5515*	.03	1.01	3.19	95.3	LT 0.01
28	962.0*	.5513*	.10	.96	3.07	95.5	LT 0.01
29	958.5*	.5505*	.13	.90	3.37	95.1	LT 0.01
30	962.0*	.5513*	.07	.72	3.13	95.5	LT 0.01
31	961.5*	.5511*	.06	1.03	3.13	95.5	LT 0.01

*Based on lab analysis due to malfunction of Tejas Analyzer.

LT - Less Than

Note: The Btu content and specific gravity figures are taken from the analyzer at the North Meter Station. All other figures are taken from daily laboratory samples.

TABLE 3.3
SNG QUALITY
JUNE 1988

<u>DATE</u>	<u>BTU CONTENT</u>	<u>SPECIFIC GRAVITY</u>	<u>PERCENT NITROGEN</u>	<u>PERCENT CARBON DIOXIDE</u>	<u>PERCENT HYDROGEN</u>	<u>PERCENT METHANE</u>	<u>PERCENT CARBON MONOXIDE</u>
01	960.0*	.5506*	.1	.84	3.21	95.3	LT 0.01
02	959.7	.5424	.09	.96	3.29	95.1	LT 0.01
03	962.2	.5439	.09	1.025	3.02	95.4	LT 0.01
04	962.5	.5435	.10	.97	2.97	95.4	LT 0.01
05	964.5	.5446	.07	.91	3.23	95.5	LT 0.01
06	964.6	.5424	.10	.94	3.10	95.6	LT 0.01
07	964.8	.5437	.10	1.09	2.89	95.5	LT 0.01
08	962.3	.5438	.14	.51	2.71	96.1	0.02
09	957.6	.5372	.32	.61	3.27	94.8	0.03
10	956.5	.5464	.32	.61	2.94	95.3	LT 0.01
11	959.0	.5535	.17	.93	3.18	95.5	LT 0.01
12	961.0	.5501	.11	.85	3.19	95.4	LT 0.01
13	961.0*	.5525	.105	.95	3.06	95.3	LT 0.01
14	962.0*	.5511	.13	.405	3.05	95.6	LT 0.01
15	963.9	.5524	.12	.91	2.97	95.4	LT 0.01
16	962.9	.5535	.15	1.05	2.95	95.5	LT 0.01
17	962.4	.5499	.17	.84	3.39	95.1	LT 0.01
18	962.1	.5560	.20	.86	3.20	95.3	LT 0.01
19	962.9	.5517	.18	.92	3.20	95.2	LT 0.01
20	963.0	.5483	.30	.79	3.45	95.3	0.02
21	961.0	.5531	.35	.86	3.42	95.0	0.02
22	963.3	.5538	.35	1.0	3.18	94.8	0.02
23	961.8	.5507	.21	.91	3.17	95.3	0.02
24	961.8	.5435	.11	1.03	2.91	95.5	LT 0.01
25	961.2	.5449	.06	1.26	2.53	95.5	LT 0.01
26	960.4	.5419	.065	1.14	3.10	95.0	LT 0.01
27	962.0	.5424	.06	.49	3.11	95.2	LT 0.01
28	961.0	.5415	.19	1.01	3.03	95.3	LT 0.01
29	961.2	.5410	.12	.915	3.18	95.3	LT 0.01
30	961.6	.5415	.09	.765	3.58	95.1	0.02

*Based on laboratory analysis due to malfunction of Tejas analyzer.

LT - Less Than

Note: The Btu content and specific gravity figures are taken from the analyzer at the North Meter Station. All other figures are taken from daily laboratory samples.

4. BY-PRODUCTS PRODUCTION AND INVENTORIES

Tables 4.1, 4.2 and 4.3 in this section report the quantities of by-products produced and inventories for the fourth fiscal quarter of 1987-1988.

Tables 4.4, 4.5, 4.6 and 4.7 report the quality of the ammonia and sulfur produced.

Table 4.8 reports the heating values and sulfur levels for the liquid fuels burned in the main boilers.

Table 4.1 By-product Production for April 1988

Table 4.2 By-product Production for May 1988

Table 4.3 By-product Production for June 1988

Table 4.4 Anhydrous Ammonia Quality

Table 4.5 Sulfur Quality, April 1988

Table 4.6 Sulfur Quality, May 1988

Table 4.7 Sulfur Quality, June 1988

Table 4.8 Heating Values and Sulfur Levels of Liquid Fuels for Fourth Fiscal Quarter 1987-1988.

BY-PRODUCT PRODUCTION
APRIL 1988

DAY	AMMONIA		SULFUR		NAPHTHA		PHENOL		TAR OIL	
	PRODUCED	SHIPPED	INVENTORY	*SHIPPED	PRODUCED	INVENTORY	PRODUCED	INVENTORY	PRODUCED	INVENTORY
	MGALS	TONS	LTONS	LTONS	MGALS	MGALS	MGALS	MGALS	GALS	MGALS
01	29.720	45.55	1220.266		25.04	165.639	44.280	152.139	127,944	580.254
02	27.390	101.48	1107.312		23.37	158.135	43.630	162.688	116,376	584.676
03	27.420	18.69	998.359		24.68	157.799	41.020	162.812	132,420	586.859
04	28.220	145.84	993.016		24.85	157.574	43.430	164.041	139,876	592.816
05	29.800	357.327	1026.359		24.01	162.615	37.400	155.941	110,868	593.926
06	29.680	260.550	952.109	88.750	25.13	164.742	38.370	156.432	141,690	628.563
07	30.380	307.420	944.547		25.48	164.631	40.960	159.990	138,600	606.527
08	31.080	305.49	935.656	86.875	25.16	163.957	42.540	159.254	124,800	615.512
09	28.150	171.87	921.422		25.85	165.639	41.450	158.762	138,082	609.969
10	21.880	86.72	928.984		25.41	163.287	38.140	139.867	122,460	597.657
11	26.540	261.88	940.102	173.348	24.97	135.287	39.530	165.268	104,400	565.047
12	15.500	196.23	960.109		24.56	108.522	37.500	185.020	142,905	569.203
13	16.360	84.480	919.203	166.339	23.68	113.226	40.740	183.916	149,160	565.891
14	23.770	51.85	945.883		25.02	117.704	41.920	185.510	136,320	562.149
15	26.620	79.10	857.391		25.86	127.896	40.420	188.824	125,160	546.937
16	25.350	143.755	819.148		23.55	141.783	43.280	190.174	125,280	536.399
17	17.460	57.06	828.039		24.02	151.189	39.210	181.094	133,944	545.406
18	0.000	19.78	848.492	178.482	23.46	166.760	35.570	180.480	141,504	586.613
19	0.000		867.172		23.47	179.523	36.790	180.850	132,921	625.917
20	0.000	115.71	924.094		24.66	195.988	34.340	180.359	138,666	671.317
21	0.000	34.99	961.000		24.58	205.955	34.000	172.260	126,384	689.609
22	23.220	117.225	905.859	262.031	25.48	219.732	38.690	168.457	130,476	689.168
23	27.590	69.18	939.211		24.59	224.658	40.780	171.400	124,992	672.390
24	26.690	35.27	972.117		24.00	209.652	43.380	195.201	158,400	705.481
25	28.680	71.31	980.125	179.464	23.79	190.387	42.950	226.492	125,631	692.203
26	29.710	96.48	863.172		23.15	167.654	40.680	249.682	149,921	699.308
27	28.690	18.96	787.570		24.84	184.900	43.850	232.869	112,719	689.180
28	27.790	122.14	821.813		25.18	199.014	42.640	217.045	124,742	695.106
29	28.700	94.82	786.688	345.603	24.20	198.676	40.760	215.938	134,357	704.148
30	28.140	37.29	591.445		24.05	203.154	41.390	215.203	124,920	701.996
TOTAL	684.530	3509.447		1480.893	736.09		1,209.640		3,935,918	

MGALS - 1000 Gallons

LTONS - Long Tons

GALS - Gallons

*Represents railcars previously loaded and shipped as a unit that date.

BY-PRODUCT PRODUCTION

MAY 1988

DAY	AMMONIA		SULFUR		NAPHTHA		PHENOL		TAR OIL	
	PRODUCED	SHIPPED	INVENTORY	*SHIPPED	PRODUCED	INVENTORY	PRODUCED	INVENTORY	PRODUCED	INVENTORY
	MGALS	TONS	L TONS	L TONS	MGALS	MGALS	MGALS	MGALS	GALS	MGALS
01	31.980	15.82	617.695		25.470	205.955	41.600	212.137	128,760	696.258
02	24.290	24.51	651.047	345.067	25.710	211.891	37.440	212.625	135,840	702.609
03	24.290		684.398		25.700	202.260	37.440	221.826	103,944	675.290
04	26.850	103.62	707.086		23.240	213.346	42.380	211.768	142,075	688.523
05	27.610	106.73	722.648		25.190	218.947	41.520	214.467	128,491	690.523
06	26.580	89.19	766.227		24.420	221.076	41.160	215.203	105,480	679.270
07	25.270	60.84	809.359		23.060	229.920	36.970	204.037	123,200	668.161
08	26.040		847.164		25.020	240.561	36.070	188.457	124,980	669.262
09	26.120	114.44	881.859		24.490	245.715	41.460	183.672	144,720	688.953
10	23.580	76.12	745.328		24.960	253.553	43.390	178.027	132,495	699.277
11	4.260	55.26	754.219		25.170	224.211	38.230	203.057	101,202	690.246
12	8.700	66.23	789.797		21.600	210.102	32.260	202.756	122,322	708.597
13	20.200	80.44	644.828	171.250	23.530	201.477	36.300	201.707	112,093	694.578
14	25.700	19.90	557.211		22.810	196.966	37.340	194.836	105,667	680.297
15	17.520		581.672		27.330	203.266	38.980	192.383	144,200	667.079
16	15.200	119.37	619.922	260.000	22.590	206.629	33.680	191.277	118,242	660.680
17	16.770	75.00	659.492		24.240	206.289	41.790	189.684	134,844	671.012
18	16.490	21.51	683.516	85.603	26.920	205.619	39.570	187.350	139,800	688.031
19	19.340	83.74	721.754		26.720	198.451	41.130	193.855	107,700	686.329
20	22.440	99.30	762.227		25.960	190.949	41.420	199.498	147,156	708.965
21	23.710	42.21	800.914		25.850	190.051	42.830	198.025	133,944	728.183
22	24.970		838.266		25.700	193.188	42.220	194.592	130,000	724.684
23	23.210	60.34	884.961		25.400	202.596	40.690	200.725	145,535	737.899
24	25.190	42.24	932.102		20.890	207.186	43.160	209.807	117,913	711.641
25	25.520	101.90	895.633		28.270	221.857	43.610	219.131	137,763	715.219
26	24.560	43.41	839.148		27.020	229.697	40.120	220.355	130,000	716.832
27	24.670	62.68	808.477		24.140	231.150	40.340	224.281	148,230	714.609
28	23.160	38.25	662.172		23.070	209.428	40.300	239.867	213,749	721.446
29	23.180		638.594		22.910	244.160	41.650	239.004	130,000	744.508
30	23.520		599.016		24.470	208.643	41.450	222.934	130,000	747.367
31	23.680		583.453		25.170	217.490	42.020	208.945	130,000	749.340
TOTAL	694.600	1603.05		861.920	767.020		1238.520		4,050,345	

MGALS - 1000 Gallons

L TONS - Long Tons

GALS - Gallons

*Represents railcars previously loaded and shipped as a unit that date.

BY-PRODUCT PRODUCTION

JUNE 1988

DAY	AMMONIA		SULFUR		NAPHTHA		PHENOL		TAR OIL	
	PRODUCED	SHIPPED	INVENTORY	*SHIPPED	PRODUCED	INVENTORY	PRODUCED	INVENTORY	PRODUCED	INVENTORY
	MGALS	TONS	LTONS	LTONS	MGALS	MGALS	MGALS	MGALS	GALS	MGALS
01	22.840	78.62	613.688	615.781	24.680	224.547	41.580	193.486	130,000	751.988
02	23.550	38.45	655.938		25.320	230.367	43.700	180.480	131,395	773.610
03	21.850		631.922	84.598	26.090	241.342	44.690	148.947	130,000	772.277
04	22.040		689.297		25.110	216.596	45.130	182.322	130,000	765.660
05	20.670	19.44	668.383		22.400	191.510	40.370	202.320	130,000	739.430
06	19.130		706.195		24.370	193.523	42.680	200.355	130,000	725.762
07	17.950		755.109		24.590	198.564	41.400	194.592	130,000	697.539
08	12.210	20.23	785.789	168.102	23.580	206.738	33.860	183.547	130,000	672.836
09	7.510		818.703		18.530	208.084	31.820	178.518	130,000	630.492
10	24.890	96.13	845.828		24.870	189.268	37.660	204.283	130,000	639.566
11	27.620		741.766		26.330	171.799	39.810	233.979	130,000	634.039
12	28.270		643.047		26.500	190.387	36.550	215.080	130,000	629.172
13	28.910	21.47	611.914		25.610	203.045	37.300	200.232	130,000	623.449
14	31.330	21.58	651.500		25.320	199.236	36.980	202.320	130,000	661.606
15	31.320		700.406	345.669	25.650	196.885	37.220	199.131	114,100	671.066
16	29.520	19.37	732.430		27.220	210.883	36.730	178.887	144,000	695.086
17	27.800		779.570		26.720	228.131	36.720	158.887	137,972	717.375
18	26.470		679.961		25.950	241.791	36.000	141.221	126,905	692.347
19	21.370		580.773		26.580	238.656	38.480	148.088	130,000	689.363
20	21.370		580.773		26.580	238.656	38.480	148.088	130,000	689.363
21	27.450		601.234		23.170	193.523	36.340	189.561	135,135	687.601
22	26.750	59.95	572.781	343.683	24.500	191.732	34.700	190.420	105,000	647.906
23	27.330		542.984		23.960	192.629	32.720	193.730	133,956	656.683
24	28.310		517.633		23.750	172.914	33.880	200.479	128,000	666.883
25	27.520		571.000		25.970	154.104	34.520	205.387	130,000	663.547
26	23.080		623.914		25.620	138.871	35.330	213.975	130,000	668.844
27	27.950		591.898	260.759	24.570	129.129	35.070	221.338	120,800	648.773
28	27.160		568.766		24.820	140.551	35.010	205.756	135,550	651.867
29	28.950	158.80	605.680	254.732	25.060	158.021	34.640	191.033	131,200	634.886
30	28.900	24.88	592.789		25.980	186.244	34.720	186.127	130,300	627.184
TOTAL	740.020	558.92		2073.325	749.400		1124.090		3,884,313	

MGALS - 1000 Gallons

LTONS - Long Tons

GALS - Gallons

*Represents railcars previously loaded and shipped as a unit that date.

TABLE 4.4
ANHYDROUS AMMONIA QUALITY

<u>DATE SHIPPED</u>	<u>RAILCAR INITIALS</u>	<u>ID NUMBER</u>	<u>BILL OF LADING #</u>	<u>FREE AMMONIA WT %</u>	<u>WATER WT %</u>	<u>OIL PPM</u>	<u>COLOR</u>
04/15/88	NATX	35589	8166				
04/20/88	NATX	35588	8170				
04/22/88	NATX	35591	8171				
06/10/88	NATX	34680	8274				
06/29/88	NATX	30073	8294				
06/29/88	NATX	33906	8295	99.5	.40	LT <5.0	Colorless

MT - More Than

LT - Less Than

SULFUR QUALITY

APRIL 1988

Day	Sulfur Produced Lt/D	Decanter Ash ppm	Pit Ash ppm	Sulfur Disposal Lt/D**	Initials	ID Number	Bill of Lading	Amount Lt	Sulfur Wt. %	Arsenic* ppm	Selenium* ppm	Tellurium* ppm	Ash ppm
01	17.4	527	519										
02	77.4	220	380	189.0									
03	51.6			161.9									
04	83.0												
05	122.9	650	650										
06	12.0	690	530		GATX	92098	8142	88.750					
07	77.7	630	590										
08	-5.8	640	580		GATX	93911	8155	86.875					160
09	-14.7	690	570										
10	92.4	309	287										
11	91.7				GATX	92093	8157	87.165					
					GATX	93163	8158	86.183					
12	20.9	640	420										
13	45.0	1774	350		GATX	93504	8163	86.629					180
					GATX	98957	8165	79.710					825
14	27.6	360	480										
15	90.3	710	400										
16	48.1	560	460										
17	96.7												
18	110.6				GATX	98960	8168	87.857					
					GATX	98958	8169	90.625					
19	19.1	1217	478										
20	56.0	502	465										
21	37.8	620	450										
22	34.9	430	400		GATX	93512	8167	87.612					
					GATX	98959	8172	88.103					
					GATX	93520	8173	86.317					
23	30.7	440	338										
24	33.4	450	320										
25	93.2				GATX	10707	8185	89.196					341
					GATX	99772	8186	90.268					
26	-28.0	390	740										
27	10.9	575	463										
28	34.2		420										
29	49.8	430	430		NATX	13716	8197	85.179					
					NATX	13764	8198	87.165		LT<.01	LT<.01	LT<.01	318
					NATX	13718	8195	86.942		LT<.01	LT<.01	LT<.01	322
					GATX	92133	8196	86.317					
30	65.3	220	370										

* - Typical Analysis

MT - More Than

Lt - Long Tons

Wt - Weight

** - This amount is approximate. Sulfur disposed in mine.

LT - Less Than

Lt/D - Long Tons Per Day

SULFUR QUALITY
MAY 1988

Day	Sulfur Produced Lt/D	Decanter Ash ppm	Pit Ash ppm	Sulfur Disposal Lt/D**	Initials	ID Number	Bill of Lading	Amount Lt	Sulfur Wt. %	Arsenic* ppm	Selenium* ppm	Tellurium* ppm	Ash ppm
01	109.9	380	380										
02	35.6	350	310		NATX	13706	8191	85.803					
					GATX	300785	8192	87.700					
					GATX	300775	8193	86.607					
					GATX	300773	8194	84.955					
03	32.5	220	380										
04	23.1	250	610										
05	15.1												
06	42.7	180	144										
07	43.1	330	152										
08	39.1	160	160										
09	34.3	160	160										
10	34.3												
11	8.9	242	471										
12	110.3	422	1140										
13	43.8	292	312		GATX	300777	8213	87.277					
					GATX	300801	8214	83.973					
14	-5.1	230	320										
15	23.6	230	320										
16	37.4	298	168		GATX	300776	8220	87.656					
					GATX	93923	8221	86.786					260
					GATX	93911	8222	85.558					330
17	42.2												
18	22.7	320	200		GATX	300799	8228	85.603					
19	39.1	230	200										
20	40.0	150	360										
21	39.1	200	240										
22	35.1												
23	47.6												
24	50.2												
25	49.8												
26	31.4												
27	57.7												
28	27.0												
29	64.3	520	350										
30	52.0	900	370										
31	68.2	510	410										

* - Typical Analysis

** - This amount is approximate. Sulfur disposed in mine.

MT - More Than

LT - Less Than

Lt - Long Tons

Lt/D - Long Tons Per Day

Wt - Weight

SULFUR QUALITY
JUNE 1988

Day	Sulfur Produced <u>Lt/D</u>	Decanter Ash <u>ppm</u>	Pit Ash <u>ppm</u>	Sulfur Disposal <u>Lt/D**</u>	Initials	ID Number	Bill of Lading	Amount <u>Lt</u>	Sulfur Wt. %	Arsenic* <u>ppm</u>	Selenium* <u>ppm</u>	Tellurium* <u>ppm</u>	Ash <u>ppm</u>
01	29.8				GATX	10707	8258	89.710					
					GATX	99772	8257	87.165					300
					GATX	93512	8256	86.630					450
					GATX	98958	8255	88.482					190
					GATX	98957	8254	88.728					300
					GATX	93520	8253	88.505					440
					GATX	92098	8252	86.563					210
02	42.3												
03	56.0				NATX	13764	8260	84.598					
04	58.3												
05	66.2												
06	37.4												
07	48.9												
08	33.4	1400	400		GATX	93504	8262	86.272					
					NATX	13716	8263	81.830					52
09	30.8	3000	400										
10	106.5	410	380										
11	-19.6												
12	73.7												
13	56.3	1010	775										
14	126.0	1507	195										
15	132.7	2800	360		GATX	98960	8264	87.522					
					GATX	300775	8265	85.379					
					GATX	300785	8275	86.250					
					NATX	13718	8277	86.518					
16	34.7												
17	46.7												
18	-14.4	680	380										
19	-12.7	570	450										
20	129.2	590	760										
21	56.5	1300	310										
22	57.3				NATX	13706	8283	86.428					
					GATX	93923	8284	87.388					
					GATX	300776	8285	85.156					420
					GATX	300777	8287	84.710					

SULFUR QUALITY
JUNE 1988

Day	Sulfur Produced Lt/D	Decanter Ash ppm	Pit Ash ppm	Sulfur Disposal Lt/D**	Initials	ID Number	Bill of Lading	Amount Lt	Sulfur Wt. %	Arsenic* ppm	Selenium* ppm	Tellurium* ppm	Ash ppm
23	59.3												
24	-24.4	6700	310										
25	54.7	944	300										
26	51.1	740	370										
27	56.3	340	320		GATX	300799	8288	84.955					
					GATX	300773	8289	87.120					
					GATX	92093	8290	88.683					
28	63.8	331	546										
29	36.0				GATX	98959	8291	87.478					
					GATX	300801	8292	80.737					430
					GATX	93512	8293	86.518					205
30	71.7												

* - Typical Analysis

MT - More Than

Lt - Long Tons

Wt - Weight

** - This amount is approximate. Sulfur disposed in mine.

LT - Less Than

Lt/D - Long Tons Per Day

TABLE 4.8
HEATING VALUE AND SULFUR LEVELS OF LIQUID FUELS
APRIL 1988

	NAPHTHA		PHENOL		TAR OIL	
<u>Day</u>	<u>BTU/Lb.</u>	<u>SULFUR WT%</u>	<u>BTU/Lb.</u>	<u>SULFUR WT%</u>	<u>BTU/Lb.</u>	<u>SULFUR WT%</u>
26	-----	-----	13175	-----	16402	-----

AVERAGE SPECIFIC GRAVITY

NAPHTHA	NO DATA
PHENOL	1.066
TAR OIL	1.016

HEATING VALUE AND SULFUR LEVELS OF LIQUID FUELS
MAY 1988

	NAPHTHA		PHENOL		TAR OIL	
<u>Day</u>	<u>BTU/Lb.</u>	<u>SULFUR WT%</u>	<u>BTU/Lb.</u>	<u>SULFUR WT%</u>	<u>BTU/Lb.</u>	<u>SULFUR WT%</u>
31	-----	-----	-----	-----	16250	-----

AVERAGE SPECIFIC GRAVITY

NAPHTHA	NO DATA
PHENOL	NO DATA
TAR OIL	1.016

NOTE: No data available for June 1988.

5. ON-STREAM FACTORS

Tables 5.1, 5.2 and 5.3 in this section report the average number of gasifiers operating, the average daily gasification rates, the average daily plant rates and the plant time in the pipeline for the fourth fiscal quarter of 1987-1988.

Table 5.1 On-stream Factors for April 1988

Table 5.2 On-stream Factors for May 1988

Table 5.3 On-stream Factors for June 1988

TABLE 5.1
ON-STREAM FACTORS
APRIL 1988

Day	Average No. Gasifiers Operating	Average Gasification Rate %	Average Daily Plant Rate %	Plant Time in Pipeline	
				Hrs.	Min.
01	13.213	99.661	107.399	24	00
02	13.251	98.973	103.243	24	00
03	13.000	100.385	107.465	24	00
04	12.997	101.414	106.287	24	00
05	12.647	98.103	96.792	24	00
06	13.000	100.181	100.846	24	00
07	13.171	100.647	105.116	24	00
08	13.646	95.868	106.332	24	00
09	13.240	98.874	105.332	24	00
10	13.000	100.864	100.820	24	00
11	13.000	99.725	101.426	24	00
12	12.899	94.182	88.828	24	00
13	13.000	99.897	103.889	24	00
14	13.778	95.015	103.386	24	00
15	14.000	94.015	105.948	24	00
16	14.000	94.090	105.694	24	00
17	14.000	94.082	107.431	24	00
18	14.000	93.089	109.005	24	00
19	14.000	93.212	107.915	24	00
20	14.000	88.396	101.754	24	00
21	13.990	93.550	107.528	24	00
22	14.000	93.606	108.959	24	00
23	14.000	92.364	110.219	24	00
24	14.000	93.487	110.243	24	00
25	14.000	92.774	109.042	24	00
26	14.000	92.131	109.014	24	00
27	13.951	94.114	109.020	24	00
28	13.448	95.082	105.992	24	00
29	13.997	91.623	107.780	24	00
30	13.417	95.861	107.540	24	00
Monthly Average	13.555	95.842	105.342	24	00

OPERATING DEFINITIONS

Average Number of Gasifiers Operating: Calculated by adding the total hours each gasifier is operated each day and dividing by 24 hours.

Average Gasification Rate: Calculated by adding each gasifier's daily percent of capacity performance and dividing by the average number of gasifiers operating that day.

Average Daily Plant Rate: Calculated by dividing the daily MIS net production figure (6 a.m. reading) by 137.5 MMSCF/D.

TABLE 5.2
ON-STREAM FACTORS
MAY 1988

Day	Average No. Gasifiers Operating	Average Gasification Rate %	Average Daily Plant Rate %	Plant Time in Pipeline	
				Hrs.	Min.
01	13.000	100.654	107.924	24	00
02	14.000	100.624	108.600	24	00
03	12.975	100.677	106.015	24	00
04	12.511	97.109	95.807	24	00
05	13.000	100.338	104.115	24	00
06	12.254	98.056	96.013	24	00
07	12.390	96.783	94.636	24	00
08	13.000	98.424	104.341	24	00
09	13.952	93.834	108.927	24	00
10	13.306	98.793	108.740	24	00
11	12.920	98.867	100.336	19	50
12	13.761	68.362	66.481	24	00
13	12.000	82.678	76.790	24	00
14	11.143	91.946	81.586	24	00
15	12.678	100.547	104.529	24	00
16	13.000	96.288	101.593	24	00
17	12.605	97.357	100.363	24	00
18	13.000	101.272	108.640	24	00
19	13.993	91.839	106.673	24	00
20	13.000	98.538	108.402	24	00
21	13.000	98.331	108.391	24	00
22	13.997	93.270	109.039	24	00
23	14.000	91.157	103.838	24	00
24	13.997	91.573	104.704	24	00
25	14.000	91.875	106.475	24	00
26	13.997	92.498	107.516	24	00
27	13.997	91.444	108.850	24	00
28	14.000	90.499	108.899	24	00
29	13.233	95.355	107.212	24	00
30	13.000	96.865	107.168	24	00
31	13.000	98.549	107.511	24	00
Monthly Average	13.184	94.981	102.262	23	52

OPERATING DEFINITIONS

Average Number of Gasifiers Operating: Calculated by adding the total hours each gasifier is operated each day and dividing by 24 hours.

Average Gasification Rate: Calculated by adding each gasifier's daily percent of capacity performance and dividing by the average number of gasifiers operating that day.

Average Daily Plant Rate: Calculated by dividing the daily MIS net production figure (6 a.m. reading) by 137.5 MMSCF/D.

TABLE 5.3
ON-STREAM FACTORS
JUNE 1988

Day	Average No. Gasifiers Operating	Average Gasification Rate %	Average Daily Plant Rate %	Plant Time in Pipeline	
				Hrs.	Min.
01	12.997	99.014	106.755	24	00
02	13.000	99.977	109.016	24	00
03	13.000	99.487	108.977	24	00
04	13.000	99.316	107.276	24	00
05	13.000	94.562	101.411	24	00
06	13.000	94.164	101.664	24	00
07	13.000	94.543	101.504	24	00
08	11.142	82.815	68.066	16	45
09	11.387	93.823	66.769	24	00
10	12.850	93.509	98.601	24	00
11	13.275	92.525	103.612	24	00
12	13.000	96.025	106.666	24	00
13	14.000	88.444	105.442	24	00
14	13.000	90.845	100.980	24	00
15	14.000	87.144	103.497	24	00
16	12.993	98.254	108.047	24	00
17	13.000	97.759	106.580	24	00
18	13.000	100.320	108.319	24	00
19	13.000	99.548	108.991	24	00
20	13.000	99.548	108.991	24	00
21	13.000	96.000	104.631	24	00
22	13.000	94.092	99.917	24	00
23	13.000	93.264	99.726	24	00
24	13.000	97.402	103.871	24	00
25	13.000	100.823	107.362	24	00
26	14.000	93.494	108.331	24	00
27	13.000	95.627	104.986	24	00
28	13.000	98.205	105.962	24	00
29	13.000	99.948	105.833	24	00
30	12.000	96.371	105.935	24	00
Monthly Average	12.955	95.562	102.591	23	45

OPERATING DEFINITIONS

Average Number of Gasifiers Operating: Calculated by adding the total hours each gasifier is operated each day and dividing by 24 hours.

Average Gasification Rate: Calculated by adding each gasifier's daily percent of capacity performance and dividing by the average number of gasifiers operating that day.

Average Daily Plant Rate: Calculated by dividing the daily MIS net production figure (6 a.m. reading) by 137.5 MMSCF/D.

6. RAW MATERIAL, PRODUCT AND BY-PRODUCT CONSUMPTION AND ENERGY CONSUMPTION FOR PLANT OPERATIONS

Tables 6.1, 6.2 and 6.3 report the consumption of fuels for the fourth fiscal quarter of 1987-1988. Tables 6.4, 6.5 and 6.6 report the consumption of water and electricity for the fourth fiscal quarter of 1987-1988. Table 6.6 also reports the total year-to-date amount of water and electricity consumed. Table 6.7 reports the consumption of major chemicals for the fourth fiscal quarter 1987-1988.

Table 6.1 Consumption of Fuels for April 1988
Table 6.2 Consumption of Fuels for May 1988
Table 6.3 Consumption of Fuels for June 1988
Table 6.4 Consumption of Water and Electricity for April 1988
Table 6.5 Consumption of Water and Electricity for May 1988
Table 6.6 Consumption of Water and Electricity for June 1988
Table 6.7 Consumption of Major Chemicals

TABLE 6.1
CONSUMPTION OF FUELS
APRIL 1988

<u>Day</u>	<u>TAR OIL GALLONS</u>	<u>NAPHTHA/ PHENOL GALLONS</u>	<u>MED. BTU GAS MCF</u>	<u>WASTE GAS MCF</u>	<u>SNG MSCF</u>
01	128,441	69,793	22,349	182,548	1,524
02	123,498	65,703	21,782	178,216	1,462
03	141,529	69,140	24,374	185,440	1,522
04	132,914	70,496	27,400	181,154	1,526
05	108,464	71,207	29,944	133,788	1,992
06	117,048	66,539	28,566	155,090	1,526
07	134,346	68,091	25,877	160,653	1,516
08	140,799	72,840	25,809	167,435	1,526
09	135,972	71,213	24,945	174,069	1,526
10	162,988	53,389	26,183	111,809	1,560
11	151,607	49,005	25,624	104,730	1,526
12	149,739	54,237	29,267	99,674	1,525
13	154,228	60,868	26,043	103,991	1,960
14	159,222	60,350	27,247	107,975	4,744
15	161,480	58,076	27,025	107,708	1,908
16	149,423	58,039	26,690	125,199	1,706
17	122,835	65,146	26,714	147,967	2,476
18	87,945	55,345	22,649	168,715	1,586
19	103,817	54,290	23,814	165,668	1,758
20	84,304	54,588	22,293	182,999	1,896
21	123,564	64,087	21,960	185,741	1,938
22	147,897	65,633	23,114	180,529	1,970
23	143,058	63,844	21,065	187,794	1,958
24	136,904	60,437	19,748	186,688	1,986
25	140,455	57,432	19,536	197,047	2,024
26	134,099	61,770	19,093	172,621	2,004
27	136,409	77,260	19,220	177,632	1,716
28	129,195	77,147	18,855	179,283	26
29	134,186	69,620	18,876	176,642	788
30	136,931	68,520	18,580	188,788	1,026
TOTAL	4,013,297	1,914,105	714,642	4,777,593	52,201

TABLE 6.2
CONSUMPTION OF FUELS
MAY 1988

<u>Day</u>	<u>TAR OIL GALLONS</u>	<u>NAPHTHA/ PHENOL GALLONS</u>	<u>MED. BTU GAS MCF</u>	<u>WASTE GAS MCF</u>	<u>SNG MSCF</u>
01	139,977	70,594	18,789	182,549	990
02	136,398	69,071	18,825	181,514	1,380
03	138,450	65,881	19,216	176,985	1,708
04	119,232	69,185	20,522	142,145	2,234
05	117,609	69,086	18,665	173,642	1,798
06	126,297	65,892	16,509	152,623	1,764
07	130,105	70,039	16,895	152,091	1,729
08	131,409	71,491	17,363	163,634	1,692
09	129,041	70,547	16,643	164,331	1,630
10	123,028	72,576	17,595	165,705	1,672
11	120,906	63,712	20,649	118,432	1,932
12	119,274	63,943	21,827	65,148	3,244
13	137,199	69,694	24,073	83,896	1,984
14	146,423	71,558	18,296	122,107	1,562
15	148,849	68,879	16,720	161,557	1,580
16	119,636	60,160	14,454	138,459	1,356
17	136,327	70,111	15,750	158,495	1,514
18	132,378	72,248	16,759	166,529	1,492
19	123,093	70,112	18,184	163,309	1,374
20	122,109	69,740	18,094	163,874	1,354
21	128,496	72,314	19,510	162,244	1,362
22	136,026	72,070	18,473	163,903	1,356
23	155,710	54,868	23,919	97,634	1,702
24	155,989	53,784	25,245	86,651	1,686
25	154,668	51,486	26,030	87,953	1,636
26	136,305	59,738	23,519	126,945	1,974
27	130,753	64,114	18,319	164,123	1,374
28	124,200	65,013	19,594	164,268	1,412
29	119,277	72,394	18,842	162,529	1,358
30	121,523	77,948	18,084	163,393	1,364
31	127,393	76,552	18,065	162,385	1,374
TOTAL	4,088,080	2,094,792	595,428	4,539,053	50,587

TABLE 6.3
CONSUMPTION OF FUELS
JUNE 1988

<u>Day</u>	<u>TAR OIL GALLONS</u>	<u>NAPHTHA/ PHENOL GALLONS</u>	<u>MED. BTU GAS MCF</u>	<u>WASTE GAS MCF</u>	<u>SNG MSCF</u>
01	116,199	78,345	18,391	155,218	1,662
02	129,847	77,003	17,409	158,509	1,654
03	129,578	76,530	17,436	187,620	1,644
04	136,373	58,557	18,125	195,736	1,640
05	150,701	57,326	18,826	127,454	1,666
06	148,455	65,835	19,607	132,818	1,656
07	153,824	66,440	20,163	125,648	1,644
08	136,832	55,785	18,524	90,055	3,690
09	139,438	54,327	17,918	118,167	5,522
10	148,984	51-675	16,785	174,286	1,578
11	131,451	51,689	18,818	161,197	1,792
12	136,688	74,067	15,049	176,545	5,090
13	122,392	71,199	20,904	184,884	1,556
14	103,072	71,235	22,602	195,947	1,506
15	107,107	73,304	18,914	216,054	1,494
16	124,154	77,670	17,679	214,202	1,516
17	139,006	76,908	17,503	214,050	1,708
18	143,062	76,147	17,500	213,785	1,588
19	138,236	68,476	17,525	212,534	1,484
20	146,913	60,342	17,579	196,434	1,653
21	127,339	61,447	16,686	218,875	1,548
22	139,733	65,371	16,457	220,273	1,624
23	127,710	66,196	16,523	215,360	1,542
24	131,997	70,716	17,164	222,953	1,560
25	132,167	71,351	17,618	216,534	1,632
26	140,518	70,727	17,285	216,001	1,656
27	135,312	66,626	16,899	209,362	1,690
28	141,338	71,608	17,809	211,393	1,646
29	150,375	66,223	17,259	215,229	1,688
30	152,621	63,621	16,422	213,132	1,748
TOTAL	4,061,422	2,016,746	537,379	5,610,255	58,077
Third Fiscal Quarter					
Total	12,162,799	6,025,643	1,847,449	14,926,901	160,875
Year To					
Date					
Total	48,977,455	23,422,062	8,750,245	54,254,785	669,865

TABLE 6.4
CONSUMPTION OF WATER AND ELECTRICITY
APRIL 1988

Day	PRIMARY (PW) WATER M GALS	RAW (RW) WATER M GALS	BACKWASH (YW) WATER M GALS	ELECTRICITY KWH
01	6,068	0	1,153	1,626,708
02	6,265	0	1,199	1,560,600
03	6,714	1	1,161	1,634,710
04	6,678	0	1,750	1,650,132
05	6,764	0	1,038	1,684,951
06	6,653	0	1,187	1,688,882
07	6,044	0	911	1,635,919
08	6,067	1	941	1,646,114
09	6,883	0	1,505	1,609,351
10	6,522	0	1,192	1,709,834
11	6,524	0	1,028	1,710,288
12	6,283	0	1,135	1,681,085
13	6,540	0	1,075	1,737,469
14	6,575	0	1,131	1,706,422
15	6,668	1	1,114	1,702,598
16	6,085	0	985	1,678,450
17	5,397	0	1,305	1,668,259
18	6,315	0	1,055	1,690,069
19	6,595	1	1,003	1,687,975
20	6,454	0	1,138	1,689,012
21	6,701	1	1,031	1,709,575
22	6,668	0	1,090	1,644,494
23	6,655	1	1,068	1,671,775
24	6,638	0	1,032	1,651,709
25	6,262	0	852	1,665,468
26	6,093	0	845	1,653,178
27	6,534	0	971	1,656,569
28	6,476	0	993	1,648,210
29	6,649	0	1,104	1,653,178
30	6,683	1	1,106	1,637,345
TOTAL	193,453	7	33,098	49,990,329

MGAL - 1000 Gallons

RW - Untreated water from Lake Sakakawea.

PW - Raw water that is treated in a cold lime softener by Basin Electric and then fed through gravity sand filters by ANG.

YW - Water that has been used to backflush the sand, carbon and other water filters.

TABLE 6.5
CONSUMPTION OF WATER AND ELECTRICITY
MAY 1988

<u>Day</u>	<u>PRIMARY (PW) WATER M GALS</u>	<u>RAW (RW) WATER M GALS</u>	<u>BACKWASH (YW) WATER M GALS</u>	<u>ELECTRICITY KWH</u>
01	6,576	0	990	1,640,347
02	6,592	0	959	1,671,905
03	6,770	0	1,208	1,649,570
04	6,456	0	1,179	1,648,382
05	6,435	0	1,103	1,655,575
06	6,788	0	1,158	1,582,502
07	6,418	0	942	1,575,288
08	6,845	0	1,105	1,626,070
09	6,650	0	1,080	1,670,047
10	6,939	1	983	1,674,065
11	6,709	1	883	1,695,686
12	6,430	0	970	1,600,846
13	5,961	0	1,083	1,494,785
14	5,874	0	940	1,563,754
15	6,467	7	1,078	1,687,867
16	5,285	1	915	1,654,646
17	5,817	0	946	1,677,888
18	6,823	0	1,342	1,682,748
19	6,621	1	1,271	1,657,735
20	6,440	1	1,292	1,658,750
21	6,449	0	1,260	1,675,901
22	6,623	0	1,260	1,695,362
23	6,185	0	1,246	1,733,508
24	6,075	0	1,121	1,835,595
25	5,826	6	1,010	1,732,082
26	5,751	0	958	1,705,925
27	5,881	0	984	1,680,026
28	7,028	1	950	1,696,096
29	6,037	0	1,089	1,666,483
30	6,117	0	903	1,680,307
31	6,483	3	980	1,676,657
TOTAL	197,351	22	33,188	51,546,398

MGAL - 1000 Gallons

RW - Untreated water from Lake Sakakawea.

PW - Raw water that is treated in a cold lime softener by Basin Electric and then fed through gravity sand filters by ANG.

YW - Water that has been used to backflush the sand, carbon and other water filters.

TABLE 6.6
CONSUMPTION OF WATER AND ELECTRICITY
JUNE 1988

Day	PRIMARY (PW) WATER M GALS	RAW (RW) WATER M GALS	BACKWASH (YW) WATER M GALS	ELECTRICITY KWH
01	6,162	0	891	1,676,657
02	6,386	0	919	1,700,100
03	6,417	3	891	1,674,225
04	6,185	2	929	1,693,159
05	7,106	0	1,272	1,682,726
06	6,789	3	944	1,699,142
07	6,580	0	932	1,690,351
08	6,070	0	658	1,667,779
09	5,712	0	851	1,750,183
10	6,741	8	1,071	1,721,477
11	6,427	0	565	1,705,126
12	6,758	0	606	1,716,746
13	6,603	0	595	1,706,854
14	6,323	0	541	1,630,822
15	6,384	4	718	1,637,366
16	6,097	0	545	1,630,498
17	6,319	1	591	1,712,837
18	6,892	0	523	1,707,912
19	6,466	7	540	1,722,146
20	6,345	0	608	1,674,259
21	6,046	0	539	1,665,187
22	6,748	0	738	1,695,082
23	6,338	0	615	1,706,573
24	6,747	0	508	1,690,308
25	6,847	0	551	1,725,840
26	6,741	0	648	1,717,221
27	6,679	0	581	1,746,036
28	7,340	14	1,321	1,697,997
29	6,881	0	932	1,728,454
30	6,505	1	674	1,746,511
TOTAL	195,634	43	22,597	50,919,574
3rd Fiscal Quarter Totals	586,438	72	88,883	152,456,301
Fiscal Year-to-Date Totals	2,294,458	399	332,647	601,719,981

MGAL - 1000 Gallons

RW - Untreated water from Lake Sakakawea.

PW - Raw water that is treated in a cold lime softener by Basin Electric and then fed through gravity sand filters by ANG.

YW - Water that has been used to backflush the sand, carbon and other water filters.

TABLE 6.7
CONSUMPTION OF MAJOR CHEMICALS

Graphic Area #	Chemical Name	Unit	4th Fiscal Quarter 1988	1987-1988 Fiscal Calendar Year to Date
540	Caustic - 50 percent liquid water treatment.	Gal.	121,733	394,420
540	Salt - Sodium Chloride water treating quality.	Ton	1,131	3,693
540	Sulfuric Acid - water treatment.	Gal.	55,877	210,618
190	Triethylene Glycol - product gas drying and compression.	Gal.	0	9,353
140	Methanol - used in Rectisol and refrig.	Gal.	0	0
140	NALCO 8610 - (antifoam) for methanol/water column.	Drum (55 gal.)	0	1
400	ADA - anthraquinone disulfuric acid, used in sulfur recovery.	Kilo	0	13,300
400	SAV - sodium ammonium isopoly vanadate (salt) sulfur recovery.	Drum (190 Kilogram)	0	4
160	Isopropyl Ether - phenol recovery.	Gal.	80,244	328,962
460	Phosphoric Acid - 75 percent used in ammonia recovery.	Gal.	14,390	58,189
550	NALCO 7302 - corrosion dispersant.	Gal.	0	1,679
550	NALCO 7309 - oil dispersant used in cooling water supply.	Gal.	0	4,167
550	NALCO 71-D5 - (antifoam) cooling tower water supply.	Gal.	0	21,665
550	DREW Ed 700 - (antifoam) for methanol/water column.	Gal.	0	13,458
820	Salt - Sodium Chloride Ash System	Ton	0	5,766

7. CAPITAL IMPROVEMENT PROJECTS

JULY 1987 - JUNE 1988 BUDGET

GREAT PLAINS GASIFICATION PROJECT
MAJOR CAPITAL IMPROVEMENTS
STATUS REPORT
JUNE 30, 1988

AFE NUMBER	PROJECT DESCRIPTION	BUDGET VALUE	AFE VALUE	COMMITMENTS TO DATE	FORECAST COST	(OVER)/UNDER AFE	PERIOD COST	PERCENT COMPLETE	FORECAST COMPLETION	DOE APPROVAL DATE
8-820-001	PAVE ASH HANDLING AREA	250,000	325,000	368,600	370,000	(45,000)	100	100%	COMPLETE	13-JUL-87
8-900-001	MODIFY WASTE STORAGE FOR RCRA	50,000	74,000	39,600	50,000	24,000	2,700	55%	31-JUL-88	29-SEP-87
8-820-003	WINTERIZE TRANSFER TOWER #2	50,000	47,000	68,900	69,000	(22,000)	1,300	100%	COMPLETE	29-SEP-87
8-400-001	SULFUR RECOVERY CONVERSION	0	2,413,000	2,255,200	2,413,000	0	35,700	98%	IN TESTING	25-AUG-87
8-550-001	WASH PIPING FOR DRIFT ELIM.	200,000	293,000	249,500	250,000	43,000	0	100%	COMPLETE	28-JUL-87
8-944-001	UPGRADE OF TECH SERVICE FACILITY	0	131,000	106,867	144,100	(13,100)	353	75%	31-JUL-88	NOTE
	TOTAL ACTIVE PROJECTS	\$550,000	\$3,283,000	\$3,088,667	\$3,296,100	(\$13,100)	\$40,153			

**NOTE - THE DUAL SOLVENT PORTION OF THIS PROJECT WAS CANCELLED BY DOE ON 6/1/88
THERE HAVE BEEN APPROXIMATELY \$65,000 IN COMMITMENTS AGAINST THIS PORTION OF THE WORK.

GREAT PLAINS GASIFICATION PROJECT
CAPITAL PROJECT STATUS REPORT

STATUS DATE: JUNE 30, 1988

PROJECT NAME: PAVE ASH HANDLING AREA

PROJECT NUMBER: 8-820-001

BUDGET VALUE: \$250,000

AFE VALUE APPROVED TO DATE: \$325,000

FUNDS COMMITTED: \$368,600

TO GO COST: \$1,400

FORECAST AT COMPLETION: \$370,000

ENGINEERING % COMPLETE: 100%

PROCUREMENT % COMPLETE: 100%

CONSTRUCTION % COMPLETE: 100%

WEIGHTED PROJECT % COMPLETE: 100%

NARRATIVE: This project, which will prevent ash water from entering the plant drainage system, was completed and closed out during the last quarter. The final cost of the project is within the 25% accuracy of the estimate, however, a change order to explain the over-run has been issued to DOE for their information.

GREAT PLAINS GASIFICATION PROJECT
CAPITAL PROJECT STATUS REPORT

STATUS DATE: JUNE 30, 1988

PROJECT NAME: MODIFY WASTE STORAGE AREA FOR RCRA

PROJECT NUMBER: 8-900-001

BUDGET VALUE: \$50,000

AFE VALUE APPROVED TO DATE: \$74,000

FUNDS COMMITTED: \$39,600

TO GO COST: \$10,400

FORECAST AT COMPLETION: \$50,000

ENGINEERING % COMPLETE: 100%

PROCUREMENT % COMPLETE: 50%

CONSTRUCTION % COMPLETE: 15%

WEIGHTED PROJECT % COMPLETE: 55%

NARRATIVE: This project will collect rain water in the waste storage area to prevent it from being contaminated by the stored chemicals. The materials are in the process of being installed and the project should be completed during the next quarter.

GREAT PLAINS GASIFICATION PROJECT
CAPITAL PROJECT STATUS REPORT

STATUS DATE: JUNE 30, 1988

PROJECT NAME: WINTERIZE TRANSFER TOWER #2

PROJECT NUMBER: 8-820-003

BUDGET VALUE: \$50,000

AFE VALUE APPROVED TO DATE: \$47,000

FUNDS COMMITTED: \$68,900

TO GO COST: \$100

FORECAST AT COMPLETION: \$69,000

ENGINEERING % COMPLETE: 100%

PROCUREMENT % COMPLETE: 100%

CONSTRUCTION % COMPLETE: 100%

WEIGHTED PROJECT % COMPLETE: 100%

NARRATIVE: This project will eliminate the icing of the stairs under the Transfer Tower during the winter. The work has been completed and a change order submitted to the DOE which explains the cost over-run has been submitted.

GREAT PLAINS GASIFICATION PROJECT
CAPITAL PROJECT STATUS REPORT

STATUS DATE: JUNE 30, 1988

PROJECT NAME: SULFUR RECOVERY CONVERSION

PROJECT NUMBER: 8-400-001

BUDGET VALUE: \$0

AFE VALUE APPROVED TO DATE: \$2,257,000

FUNDS COMMITTED: \$2,280,500

TO GO COST: \$1,500

FORECAST AT COMPLETION: \$2,282,000

ENGINEERING % COMPLETE: 100%

PROCUREMENT % COMPLETE: 100%

CONSTRUCTION % COMPLETE: 100%

WEIGHTED PROJECT % COMPLETE: 100%

NARRATIVE: The chemical conversion of the Sulfur Recovery unit has been completed. Testing in the Cold Flow model and the 30" Test Absorber will be completed August 1 as per DOE directive.

GREAT PLAINS GASIFICATION PROJECT
CAPITAL PROJECT STATUS REPORT

STATUS DATE: JUNE 30, 1988

PROJECT NAME: WASH PIPING FOR DRIFT ELIMINATORS

PROJECT NUMBER: 8-550-001

BUDGET VALUE: \$200,000

A/E VALUE APPROVED TO DATE: \$293,000

FUNDS COMMITTED: \$249,500

TO GO COST: \$500

FORECAST AT COMPLETION: \$250,000

ENGINEERING % COMPLETE: 100%

PROCUREMENT % COMPLETE: 100%

CONSTRUCTION % COMPLETE: 100%

WEIGHTED PROJECT % COMPLETE: 100%

NARRATIVE: This project installed the necessary piping to wash the Drift Eliminators in the Cooling Tower to reduce the manual effort which had been used previously. The project has been completed at a cost less than originally anticipated.

GREAT PLAINS GASIFICATION PROJECT
CAPITAL PROJECT STATUS REPORT

STATUS DATE: JUNE 30, 1988

PROJECT NAME: UPGRADE OF TECH SERVICES FACILITY

PROJECT NUMBER: 8-944-001

BUDGET VALUE: \$0

A/E VALUE APPROVED TO DATE: \$131,000

FUNDS COMMITTED: \$106,900

TO GO COST: \$37,200

FORECAST AT COMPLETION: \$144,100

ENGINEERING % COMPLETE: 100%

PROCUREMENT % COMPLETE: 100%

CONSTRUCTION % COMPLETE: 75%

WEIGHTED PROJECT % COMPLETE: 92%

NARRATIVE: This project has three elements. First, a Microbiology Lab is being built in the Tech Services building. Second, the east end of the Chemical Lab is being enclosed. And third, a facility to conduct Dual Solvent Testing of plant by-products is being constructed. The Dual Solvent portion of the project was cancelled by DOE in May due to substantial cost over-runs. The other parts of the project are in process. Material associated with the dual solvent part is being returned for credit which should reduce the committed cost of the project.

8.

PLANT MAINTENANCE

A. Summary

During the fourth fiscal quarter of 1987-1988, routine and preventive maintenance was performed throughout the facility as scheduled. Highlights of Maintenance activities for the fourth fiscal quarter 1987-1988 are listed below.

B. Gasification, Shift Conversion, Gas Cooling, Coal and Ash Handling, Oxygen Plant, and Utilities (Areas 1100, 1200, 1300, 2000, 8200, 3000, 5500, 6000, 8100)

1. A 36-month turnaround was completed on Gasifier B-F.
2. A 12-month turnaround was completed on Gasifier A-B.
3. Six (6) month turnarounds were performed on Gasifiers B-D, B-E, A-F and A-C.
4. Installed a replacement bladder in the Lower Pressure Lock Gas Holder, FB-1181.
5. A turnaround of "A" Train in the 1200 Area, Shift Conversion, was completed.
6. Final Gas Coolers, EA-1313 A/B, were installed in Area 1300, Gas Cooling.
7. The belt for the Course Coal Conveyor, JD-2201B, was replaced.

C. Rectisol, Methanation, Gas Compression, Sulfur Recovery, Steam Generation (Areas 1400, 1700, 1900, 4000, 5100, and 1800)

1. A new gearbox was installed on the stink gas blower for the oxidizer basin vapor collection system in Area 4000, Sulfur Recovery.
2. Modification for hollowball packing tests in "D" Absorber of the Sulfur Recovery Unit, 4000 Area, were completed.
3. Performed the annual turnaround on "A" Riley Boiler.

D. Work Orders

During the fourth fiscal quarter 1987-1988, 2933 work orders were placed and 2920 work orders were closed out.

9. ENVIRONMENTAL, SAFETY, MEDICAL AND INDUSTRIAL HYGIENE EXECUTIVE SUMMARY

The following discussion provides a brief synopsis of the status of Environmental, Safety and Medical Programs for the Fourth Fiscal Quarter 1987-1988.

A. Environmental

(1) Permitting Activities

ANG continued permitting activity during the reporting period. These activities include finalizing the revised RCRA Part B permit application; participating in the NDPDES QA/QC program; performing the required integrity tests on the deepwells; initiating a hydrogeologic assessment for the plant site; completing the DOE assigned sections for the modified permit to Construct/Operate application; preparing for the main stack CEM monitor certification test; completing the particle size distribution work on "Donna" coal lock vent; responding to NDSOH concerns about odor complaint followup surveys and lead in the drinking water supply; submitting a renewal application for the construction waste landfill; and requesting approval to dispose of spent shift catalyst in the gasifier ash pit.

(2) Ambient Monitoring

ANG conducted eight (8) monitoring programs in the vicinity of the Great Plains facility. Major activities for these ambient monitoring programs are subsequently summarized.

RAMP Network

The RAMP network consists of five (5) monitoring sites, and it is designed to monitor meteorology and air quality in the vicinity of the Great Plains facility and the Antelope Valley and Coyote electric generating stations. The RAMP network performed well during the reporting period from January through March 1988 with overall data recovery for all parameters averaging 87.4 percent. There was one exceedence of the air quality standards for TSP during the reporting period.

ANG H₂S Monitoring

ANG conducts ambient monitoring for H₂S at one (1) site in the vicinity of the Great Plains facility. During the reporting quarter January through March 1988 total system data recovery was 99 percent. During first quarter 1988, no exceedences of the NDSOH short-term Ambient Air Quality Standard (AAQS) for H₂S (50 ppb) were recorded at ANG's hydrogen sulfide monitoring site.

Sulfur Recovery Unit (SRU) Contingency

ANG conducts additional ambient monitoring for SO₂ at two (2) sites in order to ensure that ambient air quality standards are not violated during periods when H₂S-bearing waste gases are incinerated in the event of temporary SRU shutdown. Data recovery averaged 96.6 percent at Site 1 and 95.8 percent at Site 3 during the period January through March 1988. There were no exceedences of the NDSOH Ambient Air Quality Standard for SO₂ (280 ppb).

Groundwater Monitoring

ANG conducts groundwater monitoring programs on a quarterly basis that are associated with desulfurization-gasifier ash waste disposal, deepwell injection, gasifier ash disposal, and the surge ponds. Major activities on each program are summarized as follows:

- o Desulfurization-Gasifier Ash Waste Disposal SU-049 - As the Sulfur Recovery Unit has been converted to use a Sulfolin solution chemistry without a purge stream, disposal of the desulfurization waste has been discontinued at this site. Groundwater monitoring has, however, continued in the area surrounding this facility. This permit also includes the area for the new gasifier ash disposal pit. The fifteen (15) of the sixteen (16) monitoring wells were sampled on June 2, 1988. Results for reported parameters were within the variability of data seen to date. No parameters such as ADA or vanadium which would indicate a problem with the integrity of the desulfurization disposal site has been detected at high levels for any of the monitoring wells.
- o Deepwell Injection UIC-101 - Due to Coteau mining activity, one (1) monitoring well is now associated with the two (2) deepwells. W03001 was sampled on May 26, 1988. Results were within the normal variability in data seen to date.
- o Surge Pond Compliance - Twelve (12) monitoring wells are associated with the RCRA exempt surge pond area. These wells have continued to be monitored to comply with state regulations. Sampling of these wells occurred in February 1988. The water quality data obtained, including the key parameters of TOC, pH, conductivity, and metals are considered in the normal range of values for these monitoring wells.
- o Gasifier Ash Disposal SU-036 - The first disposal site for gasifier ash, off-spec sulfur and construction wastes was constructed adjacent to the Great Plains facility. This facility is no longer being utilized and a clay cover has been constructed and topsoil added. Sampling of the monitoring wells was conducted on June 23, 1988.

Four (4) of the wells were found to be dry. The water levels in the remaining wells continue in the process of becoming re-established. There continues to be a good margin of distance between the current water levels in the wells and the bottom elevation of the disposal pit floor. The water quality results for the downgradient wells were comparable to the water quality results in the upgradient wells.

- o Surge Ponds - The Surge Pond Area provide surge capacity for process and/or stormwater. This area included six (6) surge ponds which contain oily water, the multi-effect evaporator concentrate, deepwell feed, cooling tower blowdown (i.e., two ponds) and LWI feed. The eighteen (18) surge pond wells were sampled on May 23, 1988. The key indicator parameters indicated a close correlation to the previous range of water quality data.

(3) Plant Discharge Monitoring

ANG conducted six (6) monitoring programs associated with process and effluent streams at the Great Plains facility to satisfy conditions in federal and state permits. Major activities for these programs are subsequently summarized.

Continuous Emission Monitoring (CEM) System

The CEM system is designed to provide for the continuous monitoring of emissions and fuel usage from all major fuel burning sources in the Great Plains facility. The system monitors for SO_2/NO_x and opacity from the main stack and SO_2/NO_x from the superheaters and boilers. The CEM system for the boilers and superheaters operated well but major problems developed with the main stack analyzer which resulted in low data recovery for the second quarter. A spare analyzer has been purchased to increase the availability of the CEM system.

UIC - Deepwell Injection

Inorganic brine from the Wastewater Treatment Area and excess distillate from the multi-effect evaporator are disposed through two (2) deepwells. The injected fluids are monitored on a monthly basis. The quality of injected fluids during the reporting period from April to June 1988 was within the normal variability in the data to date. A program to monitor the oil levels and addition of fluids in the annulus seal pots continued and the results reported to the NDSOH. Mechanical integrity tests for the deepwells were performed to satisfy permit conditions. A workover program was also conducted on Deepwell 1.

NDPDES - Stormwater Pond

Each discharge from Great Plains' stormwater pond is sampled and characterized for compliance with NDPDES regulations. Monitoring reports are submitted on a quarterly basis to the NDS DH. There was one discharge during the quarterly reporting period (February through April 1988). There were no violations of the effluent standards for all parameters except that a QA/QC evaluation noted a discrepancy in the phenol concentrations. NDS DH personnel will obtain split samples with ANG next quarter.

Waste Management

Hazardous wastes are managed off-site by landfill disposal. During the reporting period of April to June 1988, no wastes were disposed off-site. ANG has received a RCRA exemption for the liquid process streams generated at the Great Plains facility. Only the Container Storage and Bulk Storage Facilities will be regulated by the RCRA regulations.

A contract is being prepared for off-site hazardous waste disposal. The RCRA Part B permit application has been revised to reflect the favorable exemption and will be submitted in July 1988. Non-hazardous wastes are disposed of in the on-site gasifier ash landfill.

Odor Monitoring

ANG conducts a comprehensive program to locate, characterize and eliminate objectionable odors that originate at the Great Plains facility. During the reporting period from April to June 1988, a total of eighteen (18) plant boundary surveys and forty-nine (49) off-site surveys were conducted. Odors were detected at levels of two odor units or less approximately 91.8 percent of the time at distances up to 6 miles downwind during the off-site surveys and 11.1 percent for boundary odor surveys. A total of twenty-three (23) odor complaints were received.

(4) Pollution Control Unit Emissions

During the quarter, ANG conducted an emission test to determine a particle size distribution of the coal fines and total reduced sulfur emitted from "Donna" coal lock vent. Also, preparations were made to re-certify the main stack portion of the CEM system.

(5) Surface Mining and Reclamation

ANG reviews monthly status reports prepared by Coteau on the reclamation and environmental activities associated with the Freedom Mine. No violations of permit conditions were received by Coteau during the reporting period from April to June 1988.

(6) Environmental Incident Summary

ANG implements an internal incident reporting system to document all outages, spills or upsets that have the potential to result in exceedences of allowable permit conditions. Thirty-one (31) environmental incidents occurred during the reporting period from April to June 1988. All incidents were reported to the NDSOH, as required. Six (6) of the incidents occurred during a period when an odor complaint was received.

B. Safety

The plant experienced eleven (11) recordable injuries resulting in a Total Case Incident Rate of 5.1 for second quarter. A total of 25 First Aid Cases were also reported. One lost-time accidents occurred during the second quarter.

C. Medical Services

During the second quarter 1988, 1299 separate evaluations, treatments, and procedures were performed on 547 persons. These included 75 ANG employee occupational visits and revisits, 13 contractor personnel injuries, 131 health screening evaluations, 36 preplacement examinations, and 230 nonoccupational health visits. There were no significant chemical exposures. All medical examination data has been entered into the computerized data base.

10. QUALITY ASSURANCE/QUALITY CONTROL ACTIVITIES

A. Statement of Policy

It is the policy of ANG Coal Gasification Company to establish, ensure and maintain a high standard of quality in all aspects of Plant Operations activities.

ANG Management considers the concept of Quality Assurance to be a working attitude and a positive management tool. The Quality Assurance Program has been developed to establish procedures, assign responsibilities and identify planning, control and implementation guidelines to ensure safe, economical and reliable operation.

Each Department Manager at the Great Plains Project is responsible for identifying, documenting, ensuring and reviewing quality control needs within his/her respective area of responsibility.

B. Overall Plant Quality Assurance Program

A comprehensive Great Plains Plant Operations Quality Assurance Program was submitted to the DOE June 13, 1985, by the former owners. ANG Coal Gasification Company's Management has adopted and endorsed this program.

Within this document, each department's QA/QC program is delineated. Reference is then made to the specific document that details each program, i.e., operational manuals, procedures, etc.

C. Plant Inspection Group

(1) Failure Evaluations

- (a) Leaks/cracks in weld heat affected zones of 4-inch 304 stainless steel gasifier oxygen lines were due to chloride stress corrosion cracking. The source of chlorides was the coal/ash contaminated water used to break up clinkers. New Sandvik SAF 2005 stainless sections will be used.
- (b) Leaks in GA-4002/52 solution pumps were caused by severe erosion/corrosion of the carbon steel casings. A combination of stainless steel overlays and ceramic lining was used to refurbish the pumps.
- (c) Preferential coal dust erosion led to holes in 45° and 90° elbows on small diameter (<6") ducting located in the Coal Handling Areas. Solid rubber elbows will be evaluated.
- (d) Tube leaks in BF-5601 start-up boiler were due to oxygen pitting. Selective tube replacements and oxygen scavenger usage should minimize future problems.

(2) Corrosion Control

- (a) Tests showed a modified oil resistant PVC material to be an ideal choice for AD-8116 cooling tower pond floor. The liner will mate with the existing Hypalon on the sides.
- (b) Installed a polymeric lining system on "B" ash sump concrete to reduce sticking, abrasion and frequent cleanouts.
- (c) Repaired the badly attacked 8100 Area acid/caustic dikes using an epoxy liner and acrylic sealer.
- (d) Corrosion coupon data from DA-4051B absorber showed an increase in corrosion rates since the Sulfolin changeover.
- (e) Inspection methodology and frequency were issued for the ammonia sphere and deaerators after an extensive literature review and industry survey.

(3) Cathodic Protection

- (a) Completed the annual soil potential surveys for the plant underground piping systems.
- (b) Ten new cathodic protection replacement systems were designed using mixed metal oxide anodes.

(4) Materials Consultation

- (a) HV-17006/206 valve bearings.
- (b) Coal feed chute internals.
- (c) Shackle screw pin material specifications.
- (d) Ash sluiceway slide gate valve coating.
- (e) LV-46008 sticking problem.
- (f) Gasifier manway plug.

(5) Major Inspection Activities

- (a) Eight gasifiers were opened and inspected this quarter. One for 36-month maintenance activity, one for 12-month maintenance activity, four for 6-month maintenance activity and two for emergency shutdown.

- (b) The 4-inch O₂ spool piece to Gasifier B-F developed cracks caused by stress corrosion. All O₂ spool pieces are being replaced as the gasifiers are brought down for maintenance.
- (c) FB-1181 - Lock Gas Holder was removed from service to replace the internal bladder and other structural repair.
- (d) Dewatering bins A/B were taken out of service for inspection and maintenance.
- (e) Sluiceways A/B were taken out of service for inspection and rebricking.
- (f) Directed the repair of the burner ring on the Start-up Flare, CB-1182.
- (g) Inspected the following vessels during the 1200 "A" Train turnaround: EA-1202, EA-1203, EA-1204, FA-1201 and FA-1202.
- (h) Main Feed Absorber, DA-4051D - Repaired screen to prevent balls from entering tap gas outlet.
- (i) Provided inspection support for the 4600 turnaround. Externally inspected the superstill from the manways. Tunneled the trays in the ammonia stripper and replaced missing tray hardware and tightened loose hardware and support. Opened manways in the fractionator and inspected all 60 trays. Solution Exchanger, EA-4602, retubed with 304L tubes, hydrotested and no leakers found. Fractionator Overhead Condenser plugged and seal welded 3 tubes, no other leakers found. EA-4605A, EA-4606A, EA-4606B were hydroblasted. Pressure tested EA-4607B. No leaking tubes found.
- (j) Internally inspected the Riley "A" and "B" boilers. Riley "A" developed a tube leak in the generating section. Plugged 2 tubes and pressure tested; no other leaky tubes found.
- (k) Internally inspected Fired Superheater, BF-5002A. Tube in the rear pendant section ruptured as the unit was being brought up. Replaced 2 sections of tube.
- (l) Internally inspected number one, two and three zeolite softeners, BG-5410 polishers, and BG-5623B polisher.
- (m) EA-1727 - Found tube leaks caused by vibration in the exchanger. Pulled 2 tubes and plugged other leakers.
- (n) Internally inspected the evaporators in the 8100 Area.

- (o) 3000 Area - Internally inspected the "B" Train molesieves in the Oxygen Plant. A procedure was submitted for Freon leak testing the molesieve heaters in the Oxygen Plant.

(6) Weld Quality Assurance

- (a) Specified weld procedures and assured weld quality on GB-1181 Lock gas Holder repairs.
- (b) Radiographed piping (Process Liquors) in 1600 area for H.A.Z. cracking. None were found except for the original leak.
- (c) Radiographed 4-inch S/S O₂ line spools on all gasifiers for H.A.Z. cracking. Leaks were found on Gasifiers B-F, B-C and B-G. Remainder were OK.
- (d) Prepared written weld procedure for joining Sandvik Duplex stainless steel piping.
- (e) Assured weld quality on north start-up flare halo ring repairs.
- (f) Witnessed and verified weld repair performed on start-up boiler (Sub 1) tubes.
- (g) Developed and implemented welder qualification roster for computer reprint.
- (h) Upgraded 3 Field Technicians for flux core arc welding. Qualified for depositing fillet welds on plate grooves.

(7) Status of Goals for Third Fiscal Quarter 1987-88

- (a) Provide inspection support for May turnaround to change Methanation catalyst.

Status: Complete.

- (b) Complete the paper study on the potential of stress corrosion cracking in our ammonia storage sphere.

Status: Complete.

- (c) Assist in determining frequency of rotating equipment inspection.

Status: Complete.

- (d) Complete 25 percent of on-stream inspections scheduled for this year.

Status: Complete.

(7) Goals for First Fiscal Quarter

- (a) Provide inspection support for turnaround of equipment during plant outage.
- (b) Direct the partial replacement of a gasifier jacket.
- (c) Reassess our program for on-stream monitoring of process piping and equipment.