MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

8805416

CLIENT: Genwal Coal Company
P.O. Box 1201
Huntington, Utah 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-19

LAB NO: 5416
GROUP NO: 364
DATE SAMPLED: 07/31/88
TIME SAMPLED:
DATE RECEIVED: 08/02/88
DATE REPORTED: 08/11/88

FIELD DATA: Temp. 6.8°C; Cond. 490 umhos/cm; pH 8.41 Units; Flow 4 GPM

CHEMICALS	RESULT AS RECEIVED	
Alkalinity, Bicarbonate	307	mg/lHCO_3
Alkalinity, Carbonate	0	mg/l$CaCO_3$
Solids, Total Dissolved	284	mg/l
Hardness, Total	295	mg/l$CaCO_3$
Nitrogen, Nitrite	<0.05	ml/lN
Nitrogen, Nitrate	<0.05	mg/lN
Nitrogen, Ammonia	<0.5	mg/lN
Chloride	5.7	mg/l
Phosphorus, Total	0.05	mg/lP
Sulfate	26.6	mg/l
Sulfide	<0.1	mg/l
Fluoride	0.20	mg/l
Total Cations	6.22	meq/l
Total Anions	5.76	meq/l

METALS	RESULT AS RECEIVED	
Aluminum	<0.10	mg/l
Arsenic	<0.004	mg/l
Barium	<0.10	mg/l
Boron	<0.20	mg/l
Cadmium	<0.005	mg/l
Calcium	46.0	mg/l
Chromium	<0.05	mg/l
Copper	<0.03	mg/l
Iron	<0.05	mg/l
Lead	<0.05	mg/l
Magnesium	43.8	mg/l
Manganese	0.02	mg/l
Mercury	<1.0	ug/l
Molybdenum	<0.10	mg/l
Nickel	<0.05	mg/l
Potassium	1.7	mg/l
Selenium	<0.004	mg/l
Sodium	6.4	mg/l
Zinc	0.01	mg/l

Reviewed and approved by,

David A. Janusz
Supervisor, Inorganic Division

Respectfully submitted by,

William O. Moellmer, Ph.D
Technical Manager

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

QA 1B

850225

CLIENT: Genwal Coal Co.
P.O.Box 1201
Huntington, UT 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-19 9/30/88

LAB NO: 6225
GROUP NO: 528
DATE SAMPLED: 09/28/88
TIME SAMPLED:
DATE RECEIVED: 10/09/88
DATE REPORTED: 10/15/88
DISPOSAL DATE: 11/14/88

FIELD DATA: Temp. 8.0 Deg C Cond. 550 umhos/cm
pH 8.00 Flow <1 GPM

ANALYSIS	RESULT AS RECEIVED	METALS	RESULT AS RECEIVED
Alkalinity, Bicarbonate	285 mg/l HCO3	Aluminum	<0.10 mg/l
Alkalinity, Carbonate	16 mg/l CaCO3	Arsenic	<0.004 mg/l
Solids, Total Dissolved	284 mg/l	Barium	<0.10 mg/l
Hardness, Total	305 mg/l Caco3	Boron	0.49 mg/l
Nitrogen, Nitrite	<0.05 mg/l N	Cadmium	<0.005 mg/l
Nitrogen, Nitrate	<0.05 mg/l N	Calcium	50.0 mg/l
Nitrogen, Ammonia	<0.05 mg/l N	Chromium	<0.05 mg/l
Chloride	6.3 mg/l	Copper	<0.03 mg/l
Phosphorus, Total	<0.05 mg/l P	Iron	<0.05 mg/l
Sulfate	37.4 mg/l	Lead	<0.05 mg/l
Sulfide	<0.04 mg/l	Magnesium	43.8 mg/l
Fluoride	0.2 mg/l	Manganese	<0.01 mg/l
		Mercury	<0.001 mg/l
		Molybdenum	<0.10 mg/l
		Nickel	<0.05 mg/l
		Potassium	1.3 mg/l
		Selenium	<0.004 mg/l
		Sodium	7.2 mg/l
		Zinc	<0.01 mg/l

Reviewed and approved by,

David A. Janusz
Inorganic Division

Respectfully submitted,

William O. Moellmer, Ph.D.
Laboratory Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

QA 7/13

8810224

CLIENT: Genwal Coal Co.
P.O.Box 1201
Huntington, UT 84528

ATTN: Mr. Andy King

SAMPLE ID: SP19 08/24/88

LAB NO: 6224
GROUP NO: 528
DATE SAMPLED: 09/28/88
TIME SAMPLED:
DATE RECEIVED: 10/09/88
DATE REPORTED: 10/15/88
DISPOSAL DATE: 11/14/88

FIELD DATA: Temp. Deg C Cond. 510 umhos/cm
pH 7.93 Flow 1 GPM

ANALYSIS	RESULT AS RECEIVED
Alkalinity, Bicarbonate	304 mg/l HCO3
Alkalinity, Carbonate	22 mg/l CaCO3
Solids, Total Dissolved	280 mg/l
Hardness, Total	310 mg/l Caco3
Nitrogen, Nitrite	<0.05 mg/l N
Nitrogen, Nitrate	<0.05 mg/l N
Nitrogen, Ammonia	<0.05 mg/l N
Chloride	6.6 mg/l
Phosphorus, Total	<0.05 mg/l P
Sulfate	37.2 mg/l
Sulfide	1.2 mg/l
Fluoride	0.23 mg/l

METALS	RESULT AS RECEIVED
Aluminum	<0.10 mg/l
Arsenic	<0.004 mg/l
Barium	<0.10 mg/l
Boron	0.36 mg/l
Cadmium	<0.005 mg/l
Calcium	50.0 mg/l
Chromium	<0.05 mg/l
Copper	<0.03 mg/l
Iron	<0.05 mg/l
Lead	<0.05 mg/l
Magnesium	45.0 mg/l
Manganese	<0.01 mg/l
Mercury	<0.001 mg/l
Molybdenum	<0.10 mg/l
Nickel	<0.05 mg/l
Potassium	1.3 mg/l
Selenium	<0.004 mg/l
Sodium	7.6 mg/l
Zinc	<0.01 mg/l

Reviewed and approved by,

David A. Janusz
Inorganic Division

Respectfully submitted,

William O. Moellmer, Ph.D.
Laboratory Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

8804503

QA 7B

CLIENT: Genwal Coal Co.
P.O.Box 1201
Huntington, UT 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-19

LAB NO: 6503
GROUP NO: 616
DATE SAMPLED: 10/31/88
TIME SAMPLED:
DATE RECEIVED: 11/10/88
DATE REPORTED: 11/30/88
DISPOSAL DATE: 12/30/88

FIELD DATA: Temp. 6.1 Deg C Cond. 425 umhos/cm
pH 8.3 Flow 1.5 GPM

ANALYSIS	RESULT AS RECEIVED	METALS	RESULT AS RECEIVED
Alkalinity, Bicarbonate	298 mg/l HCO3	Aluminum	<0.1 mg/l
Alkalinity, Carbonate	0 mg/l CaCO3	Arsenic	<0.01 mg/l
Solids, Total Dissolved	300 mg/l	Barium	<0.1 mg/l
Hardness, Total	290 mg/l Caco3	Boron	0.06 mg/l
Nitrogen, Nitrite	<0.05 mg/l N	Cadmium	<0.005 mg/l
Nitrogen, Nitrate	<0.05 mg/l N	Calcium	48.0 mg/l
Nitrogen, Ammonia	0.24 mg/l N	Chromium	<0.05 mg/l
Chloride	4.8 mg/l	Copper	<0.03 mg/l
Phosphorus, Total	<0.05 mg/l P	Iron	<0.05 mg/l
Sulfate	42.5 mg/l	Lead	<0.05 mg/l
Sulfide	<0.1 mg/l	Magnesium	41.3 mg/l
Fluoride	0.18 mg/l	Manganese	0.01 mg/l
		Mercury	<0.0005 mg/l
		Molybdenum	<0.1 mg/l
Total Cations	6.09 meg/l	Nickel	<0.05 mg/l
Total Anions	5.91 meg/l	Potassium	1.4 mg/l
		Selenium	<0.005 mg/l
		Sodium	6.0 mg/l
		Zinc	<0.01 mg/l

Respectfully submitted,

Warner Woolfenden

Warner R. Woolfenden, Ph.D.
Technical Director

1645 West 2200 South, Salt Lake City, Utah 84119 (801) 973-0050

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

B805417

CLIENT: Genwal Coal Company
P.O. Box 1201
Huntington, Utah 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-22

LAB NO: 5417
GROUP NO: 364
DATE SAMPLED: 07/31/88
TIME SAMPLED:
DATE RECEIVED: 08/02/88
DATE REPORTED: 08/11/88

FIELD DATA: Temp. 6.0°C pH 8.48 Units
Cond. 500 umhos/cm Flow 7.0 GPM

CHEMICALS	RESULT AS RECEIVED	
Alkalinity, Bicarbonate	316	mg/lHCO_3
Alkalinity, Carbonate	0	mg/l$CaCO_3$
Solids, Total Dissolved	296	mg/l
Hardness, Total	295	mg/lCaCO3
Nitrogen, Nitrite	<0.05	ml/l
Nitrogen, Nitrate	<0.05	mg/l
Nitrogen, Ammonia	<0.5	mg/l
Chloride	7.0	mg/l
Phosphorus, Total	<0.05	mg/lP
Sulfate	26.4	mg/l
Sulfide	<0.1	mg/l
Fluoride	0.20	mg/l
Total Cations	6.30	meq/l
Total Anions	5.94	meq/l

METALS	RESULT AS RECEIVED	
Aluminum	<0.10	mg/l
Arsenic	<0.004	mg/l
Barium	<0.10	mg/l
Boron	<0.20	mg/l
Cadmium	<0.005	mg/l
Calcium	44.0	mg/l
Chromium	<0.05	mg/l
Copper	<0.03	mg/l
Iron	<0.05	mg/l
Lead	<0.05	mg/l
Magnesium	45.0	mg/l
Manganese	0.06	mg/l
Mercury	<1.0	ug/l
Molybdenum	<0.10	mg/l
Nickel	<0.05	mg/l
Potassium	2.4	mg/l
Selenium	<0.004	mg/l
Sodium	8.0	mg/l
Zinc	0.04	mg/l

Reviewed and approved by,

David A. Janusz
Supervisor, Inorganic Division

Respectfully submitted,

William O. Moellmer, Ph.D.
Technical Manager

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

3306226

CLIENT: Genwal Coal Co.
P.O.Box 1201
Huntington, UT 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-22 8/24/88

LAB NO:	6226
GROUP NO:	528
DATE SAMPLED:	09/28/88
TIME SAMPLED:	
DATE RECEIVED:	10/09/88
DATE REPORTED:	10/15/88
DISPOSAL DATE:	11/14/88

FIELD DATA: Temp. Deg C Cond. 790 umhos/cm
pH 8.10 Flow 2.5 GPM

ANALYSIS	RESULT AS RECEIVED	METALS	RESULT AS RECEIVED
Alkalinity, Bicarbonate	395 mg/l HCO3	Aluminum	<0.10 mg/l
Alkalinity, Carbonate	0 mg/l CaCO3	Arsenic	<0.004 mg/l
Solids, Total Dissolved	328 mg/l	Barium	<0.10 mg/l
Hardness, Total	375 mg/l Caco3	Boron	0.37 mg/l
Nitrogen, Nitrite	<0.05 mg/l N	Cadmium	<0.005 mg/l
Nitrogen, Nitrate	<0.05 mg/l N	Calcium	58.0 mg/l
Nitrogen, Ammonia	<0.05 mg/l N	Chromium	<0.05 mg/l
Chloride	9.1 mg/l	Copper	<0.03 mg/l
Phosphorus, Total	<0.05 mg/l P	Iron	<0.05 mg/l
Sulfate	42.1 mg/l	Lead	<0.05 mg/l
Sulfide	0.8 mg/l	Magnesium	55.9 mg/l
Fluoride	0.19 mg/l	Manganese	<0.01 mg/l
		Mercury	<0.001 mg/l
		Molybdenum	<0.10 mg/l
		Nickel	<0.05 mg/l
		Potassium	1.8 mg/l
		Selenium	<0.004 mg/l
		Sodium	11.2 mg/l
		Zinc	<0.01 mg/l

Reviewed and approved by,

David A. Janusz
Inorganic Division

Respectfully submitted,

William O. Moellmer, Ph.D.
Laboratory Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

8806227

CLIENT: Genwal Coal Co.
P.O.Box 1201
Huntington, UT 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-22 9/30/88

LAB NO:	6227
GROUP NO:	528
DATE SAMPLED:	09/28/88
TIME SAMPLED:	
DATE RECEIVED:	10/09/88
DATE REPORTED:	10/15/88
DISPOSAL DATE:	11/14/88

FIELD DATA: Temp. 9.2 Deg C Cond. 810 umhos/cm
pH 8.06 Flow 2.0 GPM

ANALYSIS	RESULT AS RECEIVED	METALS	RESULT AS RECEIVED
Alkalinity, Bicarbonate	411 mg/l HCO3	Aluminum	<0.10 mg/l
Alkalinity, Carbonate	0 mg/l CaCO3	Arsenic	<0.004 mg/l
Solids, Total Dissolved	332 mg/l	Barium	<0.10 mg/l
Hardness, Total	385 mg/l Caco3	Boron	0.58 mg/l
Nitrogen, Nitrite	<0.05 mg/l N	Cadmium	<0.005 mg/l
Nitrogen, Nitrate	<0.05 mg/l N	Calcium	54.0 mg/l
Nitrogen, Ammonia	<0.05 mg/l N	Chromium	<0.05 mg/l
Chloride	8.9 mg/l	Copper	<0.03 mg/l
Phosphorus, Total	<0.05 mg/l P	Iron	<0.05 mg/l
Sulfate	41.6 mg/l	Lead	<0.05 mg/l
Sulfide	0.8 mg/l	Magnesium	60.8 mg/l
Fluoride	0.2 mg/l	Manganese	<0.01 mg/l
		Mercury	<0.001 mg/l
		Molybdenum	<0.10 mg/l
		Nickel	<0.05 mg/l
		Potassium	1.8 mg/l
		Selenium	<0.004 mg/l
		Sodium	11.5 mg/l
		Zinc	<0.01 mg/l

Reviewed and approved by,

David A. Janusz
Inorganic Division

Respectfully submitted,

William O. Moellmer, Ph.D.
Laboratory Director

OK

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

8806502

CLIENT: Genwal Coal Co.
P.O.Box 1201
Huntington, UT 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-22

LAB NO:	6502
GROUP NO:	616
DATE SAMPLED:	10/31/88
TIME SAMPLED:	
DATE RECEIVED:	11/10/88
DATE REPORTED:	11/30/88
DISPOSAL DATE:	12/30/88

FIELD DATA: Temp. 7.2 Deg C Cond. 500 umhos/cm
pH 8.6 Flow 3 GPM

ANALYSIS	RESULT AS RECEIVED	METALS	RESULT AS RECEIVED
Alkalinity, Bicarbonate	361 mg/l HCO3	Aluminum	<0.1 mg/l
Alkalinity, Carbonate	0 mg/l CaCO3	Arsenic	<0.01 mg/l
Solids, Total Dissolved	360 mg/l	Barium	<0.1 mg/l
Hardness, Total	350 mg/l Caco3	Boron	0.07 mg/l
Nitrogen, Nitrite	<0.05 mg/l N	Cadmium	<0.005 mg/l
Nitrogen, Nitrate	0.06 mg/l N	Calcium	50.0 mg/l
Nitrogen, Ammonia	<0.05 mg/l N	Chromium	<0.05 mg/l
Chloride	6.9 mg/l	Copper	<0.03 mg/l
Phosphorus, Total	<0.05 mg/l P	Iron	<0.05 mg/l
Sulfate	43.8 mg/l	Lead	<0.05 mg/l
Sulfide	<0.1 mg/l	Magnesium	54.7 mg/l
Fluoride	0.23 mg/l	Manganese	<0.01 mg/l
		Mercury	<0.0005 mg/l
Total Cations	7.47 meg/l	Molybdenum	<0.1 mg/l
Total Anions	7.03 meg/l	Nickel	<0.05 mg/l
		Potassium	1.7 mg/l
		Selenium	<0.005 mg/l
		Sodium	9.9 mg/l
		Zinc	<0.01 mg/l

Respectfully submitted,

Warner Woolfenden

Warner R. Woolfenden, Ph.D.
Technical Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

QA 1/5

8805418

CLIENT: Genwal Coal Company
P.O. Box 1201
Huntington, Utah 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-26

LAB NO: 5418
GROUP NO: 364
DATE SAMPLED: 07/31/88
TIME SAMPLED:
DATE RECEIVED: 08/02/88
DATE REPORTED: 08/11/88

FIELD DATA: Temp. 13.4°C
Cond. 870 umhos/cm
pH 8.63 Units
Flow <.5 GPM

CHEMICALS	RESULT AS RECEIVED	
Alkalinity, Bicarbonate	468	mg/lHCO_3
Alkalinity, Carbonate	40	mg/l$CaCO_3$
Solids, Total Dissolved	492	mg/l
Hardness, Total	495	mg/lCaCO3
Nitrogen, Nitrite	<0.05	ml/l
Nitrogen, Nitrate	<0.05	mg/l
Nitrogen, Ammonia	<0.5	mg/l
Chloride	14.3	mg/l
Phosphorus, Total	<0.05	mg/lP
Sulfate	71.8	mg/l
Sulfide	<0.1	mg/l
Fluoride	0.33	mg/l
Total Cations	10.74	meg/l
Total Anions	9.59	meg/l

METALS	RESULT AS RECEIVED	
Aluminum	<0.10	mg/l
Arsenic	<0.004	mg/l
Barium	<0.10	mg/l
Boron	<0.20	mg/l
Cadmium	<0.005	mg/l
Calcium	48.0	mg/l
Chromium	<0.05	mg/l
Copper	<0.03	mg/l
Iron	<0.05	mg/l
Lead	<0.05	mg/l
Magnesium	91.2	mg/l
Manganese	0.02	mg/l
Mercury	<1.0	ug/l
Molybdenum	<0.10	mg/l
Nickel	<0.05	mg/l
Potassium	5.7	mg/l
Selenium	<0.004	mg/l
Sodium	15.9	mg/l
Zinc	0.01	mg/l

Reviewed and approved by,

David A. Janusz
Supervisor, Inorganic Division

Respectfully submitted,

William O. Moellmer, Ph.D.
Technical Manager

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

8806229

CLIENT: Genwal Coal Co.
P.O.Box 1201
Huntington, UT 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-36 9/30/88

LAB NO:	6229
GROUP NO:	528
DATE SAMPLED:	09/28/88
TIME SAMPLED:	
DATE RECEIVED:	10/09/88
DATE REPORTED:	10/15/88
DISPOSAL DATE:	11/14/88

FIELD DATA: Temp. 12.5 Deg C Cond. 914 umhos/cm
pH 6.97 Flow <1 GPM

ANALYSIS	RESULT AS RECEIVED	METALS	RESULT AS RECEIVED
Alkalinity, Bicarbonate	532 mg/l HCO3	Aluminum	<0.10 mg/l
Alkalinity, Carbonate	18 mg/l CaCO3	Arsenic	<0.004 mg/l
Solids, Total Dissolved	512 mg/l	Barium	<0.10 mg/l
Hardness, Total	535 mg/l Caco3	Boron	0.42 mg/l
Nitrogen, Nitrite	<0.05 mg/l N	Cadmium	<0.005 mg/l
Nitrogen, Nitrate	0.06 mg/l N	Calcium	52.0 mg/l
Nitrogen, Ammonia	<0.05 mg/l N	Chromium	<0.05 mg/l
Chloride	24.9 mg/l	Copper	<0.03 mg/l
Phosphorus, Total	<0.05 mg/l P	Iron	<0.05 mg/l
Sulfate	85.3 mg/l	Lead	<0.05 mg/l
Sulfide	0.4 mg/l	Magnesium	98.5 mg/l
Fluoride	0.20 mg/l	Manganese	0.02 mg/l
		Mercury	<0.001 mg/l
		Molybdenum	<0.10 mg/l
		Nickel	<0.05 mg/l
		Potassium	4.8 mg/l
		Selenium	<0.004 mg/l
		Sodium	20.0 mg/l
		Zinc	<0.01 mg/l

Reviewed and approved by,

David A. Janusz
Inorganic Division

Respectfully submitted,

William O. Moellmer, Ph.D.
Laboratory Director

OK

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

8806228

CLIENT: Genwal Coal Co.
P.O.Box 1201
Huntington, UT 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-36 9/25/88

LAB NO:	6228
GROUP NO:	528
DATE SAMPLED:	09/28/88
TIME SAMPLED:	
DATE RECEIVED:	10/09/88
DATE REPORTED:	10/17/88
DISPOSAL DATE:	11/16/88

FIELD DATA: Temp. 11.7 Deg C Cond. 890 umhos/cm
pH 7.13 Flow <1 GPM

ANALYSIS	RESULT AS RECEIVED	METALS	RESULT AS RECEIVED
Alkalinity, Bicarbonate	537 mg/l HCO3	Aluminum	<0.10 mg/l
Alkalinity, Carbonate	40 mg/l CaCO3	Arsenic	<0.004 mg/l
Solids, Total Dissolved	504 mg/l	Barium	<0.10 mg/l
Hardness, Total	535 mg/l Caco3	Boron	0.70 mg/l
Nitrogen, Nitrite	<0.05 mg/l N	Cadmium	<0.005 mg/l
Nitrogen, Nitrate	0.06 mg/l N	Calcium	52.0 mg/l
Nitrogen, Ammonia	<0.05 mg/l N	Chromium	<0.05 mg/l
Chloride	25.9 mg/l	Copper	<0.03 mg/l
Phosphorus, Total	<0.05 mg/l P	Iron	<0.05 mg/l
Sulfate	83.4 mg/l	Lead	<0.05 mg/l
Sulfide	1.2 mg/l	Magnesium	98.5 mg/l
Fluoride	0.22 mg/l	Manganese	0.02 mg/l
		Mercury	<0.001 mg/l
		Molybdenum	<0.10 mg/l
		Nickel	<0.05 mg/l
		Potassium	4.8 mg/l
		Selenium	<0.004 mg/l
		Sodium	20.1 mg/l
		Zinc	<0.01 mg/l

Reviewed and approved by,

David A. Janusz
Inorganic Division

Respectfully submitted,

William O. Moellmer, Ph.D.
Laboratory Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

8806504

CLIENT: Genwal Coal Co.
P.O.Box 1201
Huntington, UT 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-36

LAB NO:	6504
GROUP NO:	616
DATE SAMPLED:	10/31/88
TIME SAMPLED:	
DATE RECEIVED:	11/10/88
DATE REPORTED:	11/30/88
DISPOSAL DATE:	12/30/88

FIELD DATA: Temp. 7.1 Deg C Cond. 995 umhos/cm
pH 8.45 Flow <1 GPM

ANALYSIS	RESULT AS RECEIVED	METALS	RESULT AS RECEIVED
Alkalinity, Bicarbonate	523 mg/l HCO3	Aluminum	<0.1 mg/l
Alkalinity, Carbonate	0 mg/l CaCO3	Arsenic	<0.01 mg/l
Solids, Total Dissolved	520 mg/l	Barium	<0.1 mg/l
Hardness, Total	480 mg/l Caco3	Boron	0.13 mg/l
Nitrogen, Nitrite	<0.05 mg/l N	Cadmium	<0.005 mg/l
Nitrogen, Nitrate	<0.05 mg/l N	Calcium	48.0 mg/l
Nitrogen, Ammonia	0.07 mg/l N	Chromium	<0.05 mg/l
Chloride	11.8 mg/l	Copper	<0.03 mg/l
Phosphorus, Total	<0.05 mg/l P	Iron	<0.05 mg/l
Sulfate	73.0 mg/l	Lead	<0.05 mg/l
Sulfide	<0.1 mg/l	Magnesium	87.6 mg/l
Fluoride	0.33 mg/l	Manganese	<0.01 mg/l
		Mercury	<0.0005 mg/l
		Molybdenum	<0.1 mg/l
Total Cations	10.46 meg/l	Nickel	<0.05 mg/l
Total Anions	10.42 meg/l	Potassium	2.5 mg/l
		Selenium	<0.005 mg/l
		Sodium	17.1 mg/l
		Zinc	<0.01 mg/l

Respectfully submitted,

Warner Woolfenden

Warner R. Woolfenden, Ph.D.
Technical Director

1645 West 2200 South, Salt Lake City, Utah 84119 (801) 973-0050

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

8805419

CLIENT: Genwal Coal Company
P.O. Box 1201
Huntington, Utah 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-58

LAB NO: 5419
GROUP NO: 364
DATE SAMPLED: 07/31/88
TIME SAMPLED:
DATE RECEIVED: 08/02/88
DATE REPORTED: 08/11/88

FIELD DATA: Temp. 5.2°C pH 7.93 Units
Cond. 490 umhos/cm Flow 3 GPM

CHEMICALS	RESULT AS RECEIVED	
Alkalinity, Bicarbonate	293	mg/lHCO_3
Alkalinity, Carbonate	0	mg/l$CaCO_3$
Solids, Total Dissolved	272	mg/l
Hardness, Total	280	mg/l$CaCO_3$
Nitrogen, Nitrite	<0.05	mg/l
Nitrogen, Nitrate	0.12	mg/l
Nitrogen, Ammonia	<0.5	mg/l
Chloride	4.8	mg/l
Phosphorus, Total	<0.05	mg/l
Sulfate	22.4	mg/l
Sulfide-Direct	<0.1	mg/l
Fluoride	0.13	mg/l
Total Cations	5.82	meq/l
Total Anions	5.41	meq/l

METALS	RESULT AS RECEIVED	
Aluminum	<0.10	mg/l
Arsenic	<0.004	mg/l
Barium	<0.10	mg/l
Boron	<0.20	mg/l
Cadmium	<0.005	mg/l
Calcium	68.0	mg/l
Chromium	<0.05	mg/l
Copper	<0.03	mg/l
Iron, Diss.	<0.05	mg/l
Lead	<0.05	mg/l
Magnesium	26.8	mg/l
Manganese	<0.01	mg/l
Mercury	<1.0	ug/l
Molybdenum	<0.10	mg/l
Nickel	<0.05	mg/l
Potassium	1.0	mg/l
Selenium	<0.004	mg/l
Sodium	4.5	mg/l
Zinc	0.16	mg/l

Reviewed and approved by,

David A. Janusz
Supervisor, Inorganic Division

Respectfully submitted,

William O. Moellmer, Ph.D.
Technical Manager

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

QA/QC

8806231

CLIENT: Genwal Coal Co.
P.O.Box 1201
Huntington, UT 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-58 9/30/88

LAB NO:	6231
GROUP NO:	528
DATE SAMPLED:	09/28/88
TIME SAMPLED:	
DATE RECEIVED:	10/09/88
DATE REPORTED:	10/15/88
DISPOSAL DATE:	11/14/88

FIELD DATA: Temp. 8.8 Deg C; Cond. 590 umhos/cm; pH 7.10; Flow 6 GPM

ANALYSIS	RESULT AS RECEIVED
Alkalinity, Bicarbonate	296 mg/l HCO3
Alkalinity, Carbonate	0 mg/l CaCO3
Solids, Total Dissolved	248 mg/l
Hardness, Total	290 mg/l Caco3
Nitrogen, Nitrite	<0.05 mg/l N
Nitrogen, Nitrate	0.14 mg/l N
Nitrogen, Ammonia	<0.05 mg/l N
Chloride	3.9 mg/l
Phosphorus, Total	<0.05 mg/l P
Sulfate	20.8 mg/l
Sulfide	<0.4 mg/l
Fluoride	0.25 mg/l

METALS	RESULT AS RECEIVED
Aluminum	<0.10 mg/l
Arsenic	<0.004 mg/l
Barium	<0.10 mg/l
Boron	0.95 mg/l
Cadmium	<0.005 mg/l
Calcium	68.0 mg/l
Chromium	<0.05 mg/l
Copper	<0.03 mg/l
Iron	<0.05 mg/l
Lead	<0.05 mg/l
Magnesium	29.2 mg/l
Manganese	<0.01 mg/l
Mercury	<0.001 mg/l
Molybdenum	<0.10 mg/l
Nickel	<0.05 mg/l
Potassium	1.1 mg/l
Selenium	<0.004 mg/l
Sodium	4.9 mg/l
Zinc	<0.01 mg/l

Reviewed and approved by,

David A. Janusz
Inorganic Division

Respectfully submitted,

William O. Moellmer, Ph.D.
Laboratory Director

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

8806230

CLIENT: Genwal Coal Co.
P.O.Box 1201
Huntington, UT 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-58 8/25/88

LAB NO:	6230
GROUP NO:	528
DATE SAMPLED:	09/28/88
TIME SAMPLED:	
DATE RECEIVED:	10/09/88
DATE REPORTED:	10/15/88
DISPOSAL DATE:	11/14/88

FIELD DATA: Temp. 8.9 Deg C Cond. 545 umhos/cm
pH 6.83 Flow 7 GPM

ANALYSIS	RESULT AS RECEIVED
Alkalinity, Bicarbonate	293 mg/l HCO3
Alkalinity, Carbonate	0 mg/l CaCO3
Solids, Total Dissolved	264 mg/l
Hardness, Total	290 mg/l Caco3
(DISS) Nitrogen, Nitrite	<0.05 mg/l N
Nitrogen, Nitrate	0.15 mg/l N
Nitrogen, Ammonia	<0.05 mg/l N
Chloride	3.8 mg/l
Phosphorus, Total	<0.05 mg/l P
Sulfate	23.5 mg/l
Sulfide	0.8 mg/l
Fluoride	0.30 mg/l

METALS	RESULT AS RECEIVED
Aluminum	<0.10 mg/l
Arsenic	<0.004 mg/l
Barium	<0.10 mg/l
Boron	0.53 mg/l
Cadmium	<0.005 mg/l
Calcium	70.0 mg/l
Chromium	<0.05 mg/l
Copper	<0.03 mg/l
Iron	<0.05 mg/l
Lead	<0.05 mg/l
Magnesium	28.0 mg/l
Manganese	<0.01 mg/l
Mercury	<0.001 mg/l
Molybdenum	<0.10 mg/l
Nickel	<0.05 mg/l
Potassium	1.1 mg/l
Selenium	<0.004 mg/l
Sodium	5.0 mg/l
Zinc	<0.01 mg/l

Reviewed and approved by,

David A. Janusz
Inorganic Division

Respectfully submitted,

William O. Moellmer, Ph.D.
Laboratory Director

ok

MOUNTAIN STATES ANALYTICAL

ANALYTICAL REPORT

8801050 5

CLIENT: Genwal Coal Co.
P.O.Box 1201
Huntington, UT 84528

ATTN: Mr. Andy King

SAMPLE ID: SP-58

LAB NO:	6505
GROUP NO:	616
DATE SAMPLED:	10/31/88
TIME SAMPLED:	
DATE RECEIVED:	11/10/88
DATE REPORTED:	11/30/88
DISPOSAL DATE:	12/30/88

FIELD DATA: Temp. 5.2 Deg C Cond. 597 umhos/cm
pH 7.97 Flow 6 GPM

ANALYSIS	RESULT AS RECEIVED	METALS	RESULT AS RECEIVED
Alkalinity, Bicarbonate	294 mg/l HCO3	Aluminum	<0.1 mg/l
Alkalinity, Carbonate	0 mg/l CaCO3	Arsenic	<0.01 mg/l
Solids, Total Dissolved	292 mg/l	Barium	<0.1 mg/l
Hardness, Total	280 mg/l Caco3	Boron	0.05 mg/l
Nitrogen, Nitrite	<0.05 mg/l N	Cadmium	<0.005 mg/l
Nitrogen, Nitrate	0.19 mg/l N	Calcium	68.0 mg/l
Nitrogen, Ammonia	<0.05 mg/l N	Chromium	<0.05 mg/l
Chloride	3.1 mg/l	Copper	<0.03 mg/l
Phosphorus, Total	<0.05 mg/l P	Iron	<0.05 mg/l
Sulfate	28.6 mg/l	Lead	<0.05 mg/l
Sulfide	<0.1 mg/l	Magnesium	26.8 mg/l
Fluoride	0.14 mg/l	Manganese	<0.01 mg/l
		Mercury	<0.0005 mg/l
		Molybdenum	<0.1 mg/l
Total Cations	5.79 meg/l	Nickel	<0.05 mg/l
Total Anions	5.51 meg/l	Potassium	1.2 mg/l
		Selenium	<0.005 mg/l
		Sodium	3.8 mg/l
		Zinc	<0.01 mg/l

Respectfully submitted,

Warner Woolfenden

Warner R. Woolfenden, Ph.D.
Technical Director