0022

Ford Chemical LABORATORY, INC.

Bacteriological and Chemical Analysis

40 WEST LOUISE AVENUE
SALT LAKE CITY, UTAH 84115
PHONE 485-5761

DATE: 04/28/80

CERTIFICATE OF ANALYSIS

SOLDIER CREEK COAL
HIDDEN VALLEY MINE
BOX A.S.
PRICE, UTAH 84501

80-009398

SAMPLE: WATER SAMPLES DATED 4-2-80 RECEIVED 4-4-80 FOR QUARTERLY ANALYSIS UNDER P.O. 11032.

	WEST BOUNDARY	EAST BOUNDARY	DH-1	DH-3	DH-7
Acidity as CaCO3 mg/l	6.0	10.0	4.0	2.0	4.0
Arsenic as As mg/l	<.001	<.001	<.001	.001	<.001
Barium as Ba mg/l	.020	.060	.060	.020	.020
Bicarbonate as HCO3 mg/l	305.00	368.56	292.80	237.92	302.56
Boron as B mg/l	.280	.760	.220	.220	.220
Cadmium as Cd mg/l	<.001	<.001	<.001	<.001	<.001
Calcium as Ca mg/l	129.60	280.40	28.00	29.60	30.40
Carbonate as CO3 mg/l	<.01	<.01	<.01	<.01	<.01
Chloride as Cl mg/l	86.0	210	14.0	14.0	12.0
Chromium as Cr mg/l	<.001	.002	<.001	<.001	<.001
Conductivity umhos/cm	1,240	4,750	710	920	94[illegible]
Copper as Cu mg/l	<.001	.010	<.001	<.001	<.001
Fluoride as F mg/l	.30	.36	.68	.60	.60

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CERTIFICATE OF ANALYSIS
80-009398

	WEST BOUNDARY	EAST BOUNDARY	DH-1	DH-3	DH-7
Hardness as CaCO3 mg/l	748	2,096	142	152	154
Iron as Fe (Dissolved) mg/l	.010	.650	.880	.010	.040
Iron as Fe (Total) mg/l	36.700	3.800	1.470	.070	.400
Lead as Pb mg/l	<.001	<.001	<.001	<.001	<.001
Magnesium as Mg mg/l	101.76	264.80	17.28	18.72	18.72
Manganese as Mn mg/l	.012	.110	.020	.006	.025
Mercury as Hg mg/l	<.00020	<.00020	<.00020	<.00020	<.00020
Nickel as Ni mg/l	<.001	.013	<.001	<.001	<.001
Nitrate as NO3-N mg/l	.14	.03	.02	<.01	<.01
Oil and Grease mg/l	49.20	10.60	<1.00	<1.00	<1.00
Potassium as K mg/l	2.90	6.90	3.65	2.95	3.20
Selenium as Se mg/l	<.001	.005	<.001	<.001	<.001
Silica as SiO2 mg/l	16.00	13.00	14.50	16.00	18.00
Silver as Ag mg/l	.002	.002	.001	.002	.001
Sodium as Na mg/l	134.00	375.00	156.00	157.00	160.00
Sulfate as SO4 mg/l	630	1,810	210	228	228
Suspended Solids mg/l	2,486	340	182	18.0	19.0

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	WEST BOUNDARY	EAST BOUNDARY	DH-1	DH-3	DH-7
Total Dissolved Solids mg/l	1,240	3,100	458	598	608
Turbidity NTU	1,000.00	170.00	120.00	.87	65.00
Zinc as Zn mg/l	.012	.015	.011	.013	.010
pH Units	8.00	8.00	7.90	8.00	7.90

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PHONE 485-5761

DATE: 05/22/80

CERTIFICATE OF ANALYSIS

SOLDIER CREEK COAL
HIDDEN VALLEY MINE
BOX A.S.
PRICE, UTAH 84501

80-009750

SAMPLE: WATERS FROM HIDDEN VALLEY MINE DATED 5-1-80 RECEIVED 5-5-80 UNDER P.O. 11032.

	EAST PROPERTY BOUNDARY IVIE CR.	WEST PROPERTY BOUNDARY IVIE CR.	HVM DH-1	HVM DH-3	HVM DH-7
Acidity as CaCO3 mg/l	10.0	2.0	8.0	8.0	6.0
Conductivity umhos/cm	4,000	4,750	1,100	920	1,100
Iron as Fe (Dissolved) mg/l	1.300	1.400	.310	.260	3.700
Iron as Fe (Total) mg/l	7.330	10.600	.410	.300	3.400
Manganese as Mn (Tot) mg/l	.140	.210	.020	.010	.100
Oil and Grease mg/l	2.20	2.60	1.60	.40	4.40
Sulfate as SO4 mg/l	1,725	2,220	240	221	230
Suspended Solids mg/l	408	760	64.5	18.0	10.0
Total Dissolved Solids mg/l	2,600	3,100	705	608	702
pH Units	7.90	8.00	8.10	7.90	8.00

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SALT LAKE CITY, UTAH 84115
PHONE 485-5761

DATE: 06/23/80

CERTIFICATE OF ANALYSIS

SOLDIER CREEK COAL
HIDDEN VALLEY MINE
BOX A.S.
PRICE, UTAH 84501

80-000157

SAMPLE: WATERS DATED 5-30-80 RECEIVED 6-4-80 FROM HIDDEN VALLEY MINE UNDER P.O. 11032.

	DH-1	DH-3	DH-7
Alkalinity as CaCO3 mg/l	252.00	254.00	272.00
Ammonia as NH3-N mg/l	<.01	<.01	<.01
Arsenic as As mg/l	<.001	<.001	<.001
Barium as Ba mg/l	.155	.210	.200
Bicarbonate as HCO3 mg/l	287.92	285.48	307.44
Boron as B mg/l	.225	.235	.320
Cadmium as Cd mg/l	<.001	<.001	<.001
Calcium as Ca mg/l	36.00	33.60	25.60
Carbon Dioxide as CO2 mg/l	<.01	<.01	<.01
Carbonate as CO3 mg/l	9.60	12.00	12.00
Chloride as Cl mg/l	18.0	16.0	14.0
Chromium as Cr (Hex.) mg/l	<.001	<.001	<.001
Chromium as Cr (Tot) mg/l	<.001	<.001	<.001

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SALT LAKE CITY, UTAH 84115
PHONE 485-5761

CERTIFICATE OF ANALYSIS

80-000157

	DH-1	DH-3	DH-7
Conductivity umhos/cm	950	960	965
Copper as Cu mg/l	.006	.015	.016
Fluoride as F mg/l	.56	.66	.83
Hardness as CaCO3 mg/l	156	148	128
Hydroxide as OH mg/l	<.01	<.01	<.01
Iron as Fe (Dissolved) mg/l	.074	.065	.100
Iron as Fe (Total) mg/l	.185	.188	.210
Lead as Pb mg/l	<.001	<.001	<.001
Magnesium as Mg mg/l	15.84	15.36	15.36
Manganese as Mn mg/l	.016	.014	.020
Mercury as Hg mg/l	<.00020	<.00020	<.00020
Nickel as Ni mg/l	<.001	<.001	<.001
Nitrate as NO3-N mg/l	.05	.02	.03
Nitrite as NO2-N mg/l	<.01	<.01	<.01
Phosphate PO4-P Ortho mg/l	<.001	<.001	<.001
Potassium as K mg/l	23.10	26.80	21.70
Selenium as Se mg/l	<.001	<.001	<.001

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CERTIFICATE OF ANALYSIS

80-000157

	DH-1	DH-3	DH-7
Silica as SiO2 Dissolved mg/l	12.50	23.40	15.40
Silver as Ag mg/l	<.001	<.001	<.001
Sodium as Na mg/l	146.00	152.00	170.00
Sulfate as SO4 mg/l	228	240	237
Total Dissolved Solids mg/l	615	626	635
Turbidity NTU	1.00	1.20	3.00
Zinc as Zn mg/l	.025	.014	.016
pH Units	8.00	8.00	8.10

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DATE: 06/23/80

CERTIFICATE OF ANALYSIS

SOLDIER CREEK COAL
HIDDEN VALLEY MINE
BOX A.S.
PRICE, UTAH 84501

80-000158

SAMPLE: WATERS DATED 5-30-80 RECEIVED 6-4-80 FROM HIDDEN VALLEY MINE UNDER P.O. 11032.

	DH-1	DH-3	DH-7
2, 4, D ug/l	<.001	<.001	<.001
2,4,5 -TP (Silvex) ug/l	<.001	<.001	<.001
Endrin ug/l	<.001	<.001	<.001
Lindane ug/l	<.001	<.001	<.001
Methoxychlor ug/l	<.001	<.001	<.001
Toxaphene ug/l	<.001	<.001	<.001

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DATE: 06/10/80

CERTIFICATE OF ANALYSIS

SOLDIER CREEK COAL
HIDDEN VALLEY MINE
BOX A.S.
PRICE, UTAH 84501

80-016618

SAMPLE: WATERS RECEIVED 6-4-80 FROM HIDDEN VALLEY MINE UNDER P.O. 11032.

		MPN COLIFORM /100 ML	
1	DH-1 5-30-80 2:50 P.M.	<2.2	SATISFACTORY
2	DH-3 5-30-80 2:10 P.M.	<2.2	SATISFACTORY
3	DH-7 5-30-80 9 A.M.	<2.2	SATISFACTORY

Kyle S. Ford/DO

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PHONE 485-5761

DATE: 08/06/80

CERTIFICATE OF ANALYSIS

SOLDIER CREEK COAL
HIDDEN VALLEY MINE
BOX A.S.
PRICE, UTAH 84501

80-000623

SAMPLE: WATERS DATED 6-27-80 RECEIVED 7-9-80 FOR QUARTERLY ANALYSIS UNDER P.O. 11032.

	DH-1	DH-3	DH-7	WEST BOUNDARY IVIE CR.	EAST BOUNDARY
Acidity as CaCO3 mg/l	2.0	10.0	2.0	10.0	2.0
Alkalinity as CaCO3 mg/l	242.00	242.00	236.00	250.00	246.00
Arsenic as As mg/l	<.001	.003	.002	<.001	<.001
Barium as Ba mg/l	.030	.025	.020	.031	.040
Bicarbonate as HCO3 mg/l	295.24	295.24	287.92	305.00	300.12
Boron as B mg/l	.130	.010	.010	.940	.500
Cadmium as Cd mg/l	<.001	<.001	<.001	<.001	<.001
Calcium as Ca mg/l	33.60	34.40	34.40	360.00	200.00
Carbonate as CO3 mg/l	<.01	<.01	<.01	<.01	<.01
Chlorine as Cl mg/l	12.0	10.0	14.0	220	1.0
Chromium as Cr (Dissolved) mg	<.001	<.001	<.001	.002	.001
Chromium as Cr (Hex.) mg/l	<.001	<.001	<.001	<.001	<.00
Conductivity umhos/cm	940	970	1,000	7,300	4,00

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PHONE 485-5761

CERTIFICATE OF ANALYSIS

	DH-1	DH-3	DH-7	80-000623 WEST BOUNDARY IVIE CR.	EAST BOUNDARY
Copper as Cu mg/l	.060	.062	.050	.001	<.00
Fluoride as F mg/l	.87	.88	.85	.48	.70
Hardness as CaCO3 mg/l	140	150	150	2,480	1,250
Iron as Fe (Dissolved) mg/l	.960	.886	.370	.020	.150
Iron as Fe (Total) mg/l	1.200	.180	.370	.110	.210
Lead as Pb mg/l	<.001	.003	.002	<.001	<.00
Magnesium as Mg mg/l	1.44	15.34	15.36	379.20	180.0
Manganese as Mn mg/l	.020	.015	.020	.025	.040
Mercury as Hg mg/l	.00060	<.00020	<.00020	.00030	.0003
Nickel as Ni mg/l	<.010	<.010	<.010	.013	.0
Nitrate as NO3-N mg/l	.03	.02	.02	<.01	<.0
Oil and Grease mg/l	1.20	1.20	<.10	.20	<.
Potassium as K mg/l	4.23	3.77	4.10	11.60	8.
Selenium as Se mg/l	<.001	<.001	<.001	<.001	<.0
Silica as SiO2 Dissolved mg/l	15.00	15.50	14.00	9.30	11.
Silver as Ag mg/l	.001	.001	.001	<.00	.0
Sodium as Na mg/l	164.00	168.00	174.00	579.00	37

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	DH-1	DH-3	DH-7	80-000623 WEST BOUNDARY IVIE CR.	EAST BOUNDARY
Sulfate as SO4 mg/l	241	259	271	3,040	1,573
Suspended Solids mg/l	85.0	4.0	1.0	13.0	8.0
Total Dissolved Solids mg/l	612	631	658	4,750	2,600
Turbidity NTU	46.00	1.40	1.00	.64	1.00
Zinc as Zn mg/l	.001	.020	.045	.038	.050
pH Units	7.40	7.20	7.40	7.60	8.00

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Acidity
Carbonate
Chloride
Conductivity
Flouride
Hardness
Total Dissolved Solids
Turbidity
pH

?

DATE: 11/03/80

CERTIFICATE OF ANALYSIS

SOLDIER CREEK COAL
HIDDEN VALLEY MINE
BOX AF
PRICE, UTAH 84501

80-002860

SAMPLE: WATERS RECEIVED 9-30-80 FOR QUARTERLY ANALYSIS UNDER P.O. #12782.

	EAST BOUNDARY	DH-1	DH-3	DH-7	UNLABELLED SAMPLE
Alkalinity as CaCO3 mg/l	286.00	266.00	254.00	268.00	330.00
Arsenic as As mg/l	<.001	<.001	<.001	<.001	<.001
Barium as Ba mg/l	.049	.032	.021	.022	[illegible]
Bicarbonate as HCO3 mg/l	348.92	324.52	309.08	317.20	671.00
Boron as B mg/l	.120	.150	.043	.025	[illegible]
Cadmium as Cd mg/l	<.001	<.001	<.001	<.001	<.001
Calcium as Ca mg/l	240.00	29.20	[illegible]	30.40	360.00
Chromium as Cr mg/l	.002	<.001	<.001	<.001	[illegible]
Copper as Cu mg/l	.002	.066	[illegible]	[illegible]	.004
Iron as Fe (Dissolved) mg/l	.154	[illegible]	[illegible]	[illegible]	[illegible]
Iron as Fe (Total) mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lead as Pb mg/l	<.001	<.001	<.001	[illegible]	[illegible]
Magnesium as Mg mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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CERTIFICATE OF ANALYSIS

80-011040

	EAST BOUNDARY	DH-1	DH-3	DH-7	[illegible] SAMPLE
Manganese as Mn (Tot) mg/l	.046	.022	.019	.023	.020
Mercury as Hg mg/l	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel as Ni mg/l	.030	<.001	<.001	<.001	.002
Nitrate as NO3-N mg/l	.22	<.01	<.01	<.01	.17
Oil and Grease mg/l	1.00	1.40	.20	1.00	1.40
Potassium as K mg/l	8.70	3.60	3.70	3.91	10.70
Selenium as Se mg/l	<.001	<.001	<.001	<.001	<.001
Silica as SiO2 Dissolved mg/l	12.50	15.50	15.00	16.70	11.20
Silver as Ag mg/l	.004	.003	.002	.002	.002
Sodium as Na mg/l	447.00	152.00	161.00	162.00	144.00
Sulfate as SO4 mg/l	1,500	250	250	257	1,100
Suspended Solids mg/l	10.0	4.0	2.0	4.0	12.0
Zinc as Zn mg/l	.040	.006	.002	.009	.030

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