

NEICO Coal Leases
Genwal Coal Company

Seep and Spring Inventory
November 17, 1989

APPENDIX A

CHEMTECH

CHEMICAL AND BACTERIOLOGICAL ANALYSES

CERTIFICATE OF ANALYSIS

SAMPLE IDENTIFICATION	PARAMETER	DETECTED	
CLIENT: Earthfax Engineering	Conductivity, umhos/cm.....	537	
7324 South 1300 East #100	Copper as Cu, mg/l.....	<.01	
Midvale, UT 84047	Fluoride as F, mg/l.....	<.1	
LAB NO: U045417	Hardness as CaCO ₃ , mg/l.....	293	
DATE SAMPLED: 10-13-89	Hydroxide as OH, mg/l.....	0	
TIME SAMPLED:	Iron as Fe (Diss), mg/l.....	<.01	
SAMPLED BY: R.B.G.	Iron as Fe (Tot), mg/l.....	0.025	
LOCATION: Genwal SP 58	Lead as Pb, mg/l.....	<.01	
COMMENTS:	Magnesium as Mg, mg/l.....	40.2	
.....	Manganese as Mn, mg/l.....	<.01	
.....	Mercury as Hg, mg/l.....	<.0002	
.....	Nickel as Ni, mg/l.....	<.01	
PARAMETER	DETECTED		
Alkalinity as CaCO ₃ , mg/l.....	240	Nitrate as NO ₃ -N, mg/l.....	0.292
Ammonia as NH ₃ -N, mg/l.....	0.36	Nitrite as NO ₂ -N, mg/l.....	0.019
Arsenic as As, mg/l.....	0.032	Ortho Phosphate as PO ₄ -P, mg/l	<.01
Barium as Ba, mg/l.....	<.01	Potassium as K, mg/l.....	0.9
Bicarbonate as HCO ₃ , mg/l.....	288	Selenium as Se, mg/l.....	<.002
Boron as B, mg/l.....	0.118	Silver as Ag, mg/l.....	<.01
Cadmium as Cd, mg/l.....	<.01	Sodium as Na, mg/l.....	3.7
Calcium as Ca, mg/l.....	75.9	Sulfate as SO ₄ , mg/l.....	59.2
Carbonate as CO ₃ , mg/l.....	2.7	Total Dissolved Solids, mg/l..	303
Chloride as Cl, mg/l.....	13.8	Turbidity, NTU.....	0.67
Chromium as Cr (Hex), mg/l....	<.01	Zinc as Zn, mg/l.....	<.01
Chromium as Cr (Tot), mg/l....	<.01	pH Units.....	8.17
Acidity as CaCO ₃ , mg/l.....	<10	TSS, mg/l.....	<1
Aluminum as Al, mg/l.....	<.1	Cation, meq/l.....	6.24
Molybdenum as Mo, mg/l.....	<.01	Anion, meq/l.....	6.34
Sulfide as H ₂ S, mg/l.....	<.1		



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SAMPLE IDENTIFICATION	PARAMETER	DETECTED	
CLIENT: Earthfax Engineering	Conductivity, umhos/cm.....	306	
7324 South 1300 East #100	Copper as Cu, mg/l.....	<.01	
Midvale, UT 84047	Fluoride as F, mg/l.....	<.1	
LAB NO: U045416	Hardness as CaCO ₃ , mg/l.....	151	
DATE SAMPLED: 10-13-89	Hydroxide as OH, mg/l.....	0	
TIME SAMPLED:	Iron as Fe (Diss), mg/l.....	<.01	
SAMPLED BY: R.B.G.	Iron as Fe (Tot), mg/l.....	0.070	
LOCATION: Genwal SP 1-3	Lead as Pb, mg/l.....	<.01	
COMMENTS:	Magnesium as Mg, mg/l.....	10.6	
.....	Manganese as Mn, mg/l.....	<.01	
.....	Mercury as Hg, mg/l.....	<.0002	
.....	Nickel as Ni, mg/l.....	<.01	
PARAMETER	DETECTED		
Alkalinity as CaCO ₃ , mg/l.....	156	Nitrate as NO ₃ -N, mg/l.....	0.412
Ammonia as NH ₃ -N, mg/l.....	0.68	Nitrite as NO ₂ -N, mg/l.....	0.019
Arsenic as As, mg/l.....	<.01	Ortho Phosphate as PO ₄ -P, mg/l	<.01
Barium as Ba, mg/l.....	0.020	Potassium as K, mg/l.....	0.2
Bicarbonate as HCO ₃ , mg/l.....	190	Selenium as Se, mg/l.....	<.002
Boron as B, mg/l.....	0.112	Silver as Ag, mg/l.....	<.01
Cadmium as Cd, mg/l.....	<.01	Sodium as Na, mg/l.....	3.7
Calcium as Ca, mg/l.....	52.4	Sulfate as SO ₄ , mg/l.....	9.2
Carbonate as CO ₃ , mg/l.....	0	Total Dissolved Solids, mg/l..	163
Chloride as Cl, mg/l.....	12.4	Turbidity, NTU.....	1.6
Chromium as Cr (Hex), mg/l....	<.01	Zinc as Zn, mg/l.....	0.025
Chromium as Cr (Tot), mg/l....	<.01	pH Units.....	7.49
Acidity as CaCO ₃ , mg/l.....	<10	TSS, mg/l.....	<1
Aluminum as Al, mg/l.....	<.1	Cation, meq/l.....	3.70
Molybdenum as Mo, mg/l.....	<.01	Anion, meq/l.....	3.66
Sulfide as H ₂ S, mg/l.....	<.1		


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SAMPLE IDENTIFICATION	PARAMETER	DETECTED	
CLIENT: Earthfax Engineering	Conductivity, umhos/cm.....	375	
7324 South 1300 East, Suite 100	Copper as Cu, mg/l.....	0.032	
Midvale, UT 84047	Fluoride as F, mg/l.....	<.1	
LAB NO: U045972	Hardness as CaCO ₃ ,mg/l.....	246	
DATE SAMPLED: 11-2-89	Hydroxide as OH, mg/l.....	0	
TIME SAMPLED:	Iron as Fe (Diss), mg/l.....	<.01	
SAMPLED BY:	Iron as Fe (Tot), mg/l.....	<.01	
LOCATION: SP1-25	Lead as Pb, mg/l.....	<.01	
	Magnesium as Mg, mg/l.....	16.9	
COMMENTS:	Manganese as Mn, mg/l.....	<.01	
.....	Mercury as Hg, mg/l.....	<.0002	
	Nickel as Ni, mg/l.....	<.01	
PARAMETER	DETECTED		
Alkalinity as CaCO ₃ , mg/l.....	210	Nitrate as NO ₃ -N, mg/l.....	0.67
Ammonia as NH ₃ -N, mg/l.....	0.81	Nitrite as NO ₂ -N, mg/l.....	<.005
Arsenic as As, mg/l.....	<.01	Phosphate as PO ₄ -P, mg/l.....	<.01
Barium as Ba, mg/l.....	<.01	Potassium as K, mg/l.....	0.3
Bicarbonate as HCO ₃ , mg/l.....	256	Selenium as Se,mg/l.....	<.002
Boron as B, mg/l.....	0.24	Silica as SiO ₂ (Diss), mg/l...	12.4
Cadmium as Cd, mg/l.....	<.01	Silver as Ag, mg/l.....	<.01
Calcium as Ca, mg/l.....	54.7	Sodium as Na, mg/l.....	6.8
Carbonate as CO ₃ , mg/l.....	0	Sulfate as SO ₄ , mg/l.....	9.8
Chloride as Cl, mg/l.....	10.1	Total Dissolved Solids, mg/l..	247
Chromium as Cr (Hex), mg/l.....	<.01	Turbidity, NTU.....	0.9
Chromium as Cr (Tot), mg/l.....	<.01	Zinc as Zn, mg/l.....	<.01
Aluminum as Al, mg/l.....	<.1	pH Units.....	7.90
Molybdenum as Mo, mg/l.....	<.01	Cation, meq/l.....	4.48
Sulfide as H ₂ S, mg/l.....	<.1	Anion, meq/l.....	4.69
TSS, mg/l.....	3.0		



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CERTIFICATE OF ANALYSIS

SAMPLE IDENTIFICATION	PARAMETER	DETECTED
CLIENT: Earthfax Engineering	Conductivity, umhos/cm.....	310
7324 South 1300 East, Suite 100	Copper as Cu, mg/l.....	0.032
Midvale, UT 84047	Fluoride as F, mg/l.....	<.1
LAB NO: U045974	Hardness as CaCO ₃ , mg/l.....	208
DATE SAMPLED: 11-2-89	Hydroxide as OH, mg/l.....	0
TIME SAMPLED:	Iron as Fe (Diss), mg/l.....	<.01
SAMPLED BY:	Iron as Fe (Tot), mg/l.....	0.020
LOCATION: SP2-9	Lead as Pb, mg/l.....	<.01
	Magnesium as Mg, mg/l.....	16.6
COMMENTS:	Manganese as Mn, mg/l.....	<.01
.....	Mercury as Hg, mg/l.....	<.0002
	Nickel as Ni, mg/l.....	<.01
PARAMETER	DETECTED	
Alkalinity as CaCO ₃ , mg/l.....	167	Nitrate as NO ₃ -N, mg/l..... 1.86
Ammonia as NH ₃ -N, mg/l.....	0.36	Nitrite as NO ₂ -N, mg/l..... <.005
Arsenic as As, mg/l.....	<.01	Phosphate as PO ₄ -P, mg/l..... <.01
Barium as Ba, mg/l.....	<.01	Potassium as K, mg/l..... 0.6
Bicarbonate as HCO ₃ , mg/l.....	204	Selenium as Se, mg/l..... <.002
Boron as B, mg/l.....	0.23	Silica as SiO ₂ (Diss), mg/l... 13.8
Cadmium as Cd, mg/l.....	<.01	Silver as Ag, mg/l..... <.01
Calcium as Ca, mg/l.....	43.1	Sodium as Na, mg/l..... 7.3
Carbonate as CO ₃ , mg/l.....	0	Sulfate as SO ₄ , mg/l..... 7.4
Chloride as Cl, mg/l.....	11.1	Total Dissolved Solids, mg/l.. 200
Chromium as Cr (Hex), mg/l....	<.01	Turbidity, NTU..... 1.2
Chromium as Cr (Tot), mg/l....	<.01	Zinc as Zn, mg/l..... 0.022
Aluminum as Al, mg/l.....	<.1	pH Units..... 7.69
Molybdenum as Mo, mg/l.....	<.01	Cation, meq/l..... 3.87
Sulfide as H ₂ S, mg/l.....	<.1	Anion, meq/l..... 3.84
TSS, mg/l.....	5.0	



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CHEMICAL AND BACTERIOLOGICAL ANALYSES

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COURT, SUITE 100
MIDVALE, UT 84047

CERTIFICATE OF ANALYSIS

SAMPLE IDENTIFICATION	PARAMETER	DETECTED
CLIENT: Earthfax Engineering	Conductivity, umhos/cm.....	459
7324 South 1300 East, Suite 100	Copper as Cu, mg/l.....	0.045
Midvale, UT 84047	Fluoride as F, mg/l.....	<.1
LAB NO: U045973	Hardness as CaCO ₃ , mg/l.....	292
DATE SAMPLED: 11-2-89	Hydroxide as OH, mg/l.....	0
TIME SAMPLED:	Iron as Fe (Diss), mg/l.....	0.10
SAMPLED BY:	Iron as Fe (Tot), mg/l.....	0.59
LOCATION: SP2-33a	Lead as Pb, mg/l.....	<.01
	Magnesium as Mg, mg/l.....	37.4
COMMENTS:	Manganese as Mn, mg/l.....	<.01
.....	Mercury as Hg, mg/l.....	<.0002
PARAMETER	Nickel as Ni, mg/l.....	<.01
DETECTED	Nitrate as NO ₃ -N, mg/l.....	0.71
Alkalinity as CaCO ₃ , mg/l.....	Nitrite as NO ₂ -N, mg/l.....	0.0051
292	Phosphate as PO ₄ -P, mg/l.....	<.01
Ammonia as NH ₃ -N, mg/l.....	Potassium as K, mg/l.....	0.6
0.50	Selenium as Se, mg/l.....	<.002
Arsenic as As, mg/l.....	Silica as SiO ₂ (Diss), mg/l.....	14.4
<.01	Silver as Ag, mg/l.....	<.01
Barium as Ba, mg/l.....	Sodium as Na, mg/l.....	8.2
<.01	Sulfate as SO ₄ , mg/l.....	34.6
Bicarbonate as HCO ₃ , mg/l.....	Total Dissolved Solids, mg/l.....	276
356	Turbidity, NTU.....	28
Boron as B, mg/l.....	Zinc as Zn, mg/l.....	0.13
0.26	pH Units.....	8.05
Cadmium as Cd, mg/l.....	Cation, meq/l.....	6.84
<.01	Anion, meq/l.....	6.85
Calcium as Ca, mg/l.....		
67.1		
Carbonate as CO ₃ , mg/l.....		
0		
Chloride as Cl, mg/l.....		
10.1		
Chromium as Cr (Hex), mg/l.....		
<.01		
Chromium as Cr (Tot), mg/l.....		
<.01		
Aluminum as Al, mg/l.....		
<.1		
Molybdenum as Mo, mg/l.....		
<.01		
Sulfide as H ₂ S, mg/l.....		
<.1		
TSS, mg/l.....		
70		


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