

**STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONVERSATION COMMISSION**

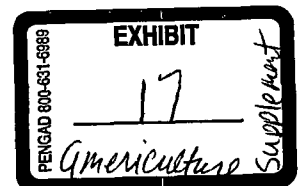
CASE NO. 14948

**APPLICATION OF LOS LOBOS RENEWABLE POWER, LLC
(FORMS G-112) FOR APPROVAL TO INJECT INTO A
GEOTHERMAL AQUIFER THROUGH TWO PROPOSED
GEOTHERMAL INJECTION WELLS AT THE SIDE OF THE
PROPOSED LIGHTNING DOCK GEOTHERMAL POWER
PLANT, HIDALGO COUNTY, NEW MEXICO.**

AMERICULTURE'S SUPPLEMENTAL EXHIBIT No. 17

17. AmeriCulture Federal Well Chemistry

- A. PowerPoint slide – “AmeriCulture Federal Well Chemistry” –
supplement to Exhibit 3 *PowerPoint Presentation*, James C. Witcher.
- B. Analytical Report (8 pages)



AMERICULTURE FEDERAL WELL CHEMISTRY

SAMPLE	SITE	TEMP	pH	COND	ALK-HCO3	DATE
AM4	Americulture Fed	118	7.47	1661	158	1/16/2003

SAMPLE	SITE	pH	Na	K	Ca	Mg	Sr	Cl	SO4	HCO3	F	SiO2	B	Br	Li	TDS
AM4	Americulture Fed	8.00	314	10.6	43.6	0.831	1.16	90.2	444	195	5.58	55.2	0.082	0.37	0.927	1000

SAMPLE	SITE	D/H	18O/16O	13C/12C	34S/32S	87Sr/86Sr
AM4	Americulture Fed	-70	-10.1	-10.0	8.84	0.728861

Analytical Report *Final data report*

Customer: MHenrie Land Water Law

Contact: Michelle Henrie

Phone:



New Mexico Bureau of Geology
and Mineral Resources
801 Leroy Place
Socorro, NM 87801
(575) 835-5160
(575) 835-5416

Laboratory sample number: 120801-09

Order Number: 120801

Customer sample number: AC Cold 02292012

Receive Date: 2012-08-08 21:44:00

Matrix: Water

Project: Hildalgo County

Method EPA 120.1			Test	Specific Conductance	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Specific Conductance	728	uS/cm	1		2012-08-08

Method EPA 150.1			Test	pH	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
pH	8.2	ph Units	1		2012-08-08

Method EPA 200.7			Test	Cations by ICPOES	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Calcium	62.7	mg/L	1	0.05	2012-08-10
Iron	ND	mg/L	1	0.02	2012-08-10
Magnesium	6.39	mg/L	1	0.05	2012-08-10
Potassium	2.46	mg/L	1	0.05	2012-08-10
Sodium	82.0	mg/L	1	0.05	2012-08-10

Method EPA 200.8			Test	Trace Metals by ICPMS	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Aluminum	ND	mg/L	1	0.0005	2012-09-06
Antimony 121	ND	mg/L	1	0.0005	2012-09-06
Arsenic	0.0015	mg/L	1	0.0005	2012-09-06
Barium	0.030	mg/L	1	0.001	2012-09-06
Beryllium	ND	mg/L	1	0.0005	2012-09-06
Boron 11	0.093	mg/L	1	0.005	2012-09-06
Cadmium 111	ND	mg/L	1	0.0005	2012-09-06
Chromium	0.0013	mg/L	1	0.0005	2012-09-06
Cobalt	ND	mg/L	1	0.0005	2012-09-06
Copper 65	ND	mg/L	1	0.0005	2012-09-06
Lead	ND	mg/L	1	0.0005	2012-09-06
Lithium	0.078	mg/L	1	0.001	2012-09-06
Manganese	ND	mg/L	1	0.001	2012-09-06
Molybdenum 95	0.001	mg/L	1	0.001	2012-09-06
Nickel	0.0009	mg/L	1	0.0005	2012-09-06
Selenium	0.002	mg/L	1	0.001	2012-09-06
Silicon	19.2	mg/L	5	0.02	2012-09-06
Silver 107	ND	mg/L	1	0.0005	2012-09-06

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Strontium	0.575	mg/L	1	0.001	2012-09-06
Thallium	ND	mg/L	1	0.0005	2012-09-06
Thorium	ND	mg/L	1	0.0005	2012-09-06
Tin	ND	mg/L	1	0.0005	2012-09-06
Titanium	0.002	mg/L	1	0.001	2012-09-06
Uranium	0.0091	mg/L	1	0.0005	2012-09-06
Vanadium	0.0041	mg/L	1	0.0005	2012-09-06
Zinc 66	ND	mg/L	1	0.0005	2012-09-06

Method EPA 300.0			Test	Anions by IC	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Bromide	0.19	mg/L	1	0.1	2012-08-10
Chloride	43.2	mg/L	1	1	2012-08-10
Fluoride	1.77	mg/L	1	0.1	2012-08-10
Nitrate	2.76	mg/L	1	0.1	2012-08-10
Nitrite	ND	mg/L	1	0.1	2012-08-10
Ortho Phosphate	ND	mg/L	1	0.5	2012-08-10
Sulfate	220	mg/L	4	1	2012-08-10

Method EPA 310.1			Test	Alkalinity	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Alkalinity as CaCO3	69	mg/L	1	5	2012-08-08
Bicarbonate (HCO3)	84	mg/L	1	5	2012-08-08
Carbonate (CO3)	ND	mg/L	1	5	2012-08-08

Method EPA 350.3			Test	Ammonia	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Ammonia	ND	mg/L	1	0.6	2012-08-15

Method SM 1030E			Test	Checking correctness	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Anions total	7.33	meq/L	1		
Cations total	7.28	meq/L	1		
Percent difference	-0.30	%	1		
SiO2	41.1	mg/L	1	0.05	
TDS calc	501	mg/L	1		

Method SM 2340B			Test	Hardness by calculation	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Hardness	183	mg CaCO3/ L	1		

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(575) 835-5416

Laboratory sample number: 120801-10
Customer sample number: AC Hot 02292012
Matrix: Water

Order Number: 120801
Receive Date: 2012-08-08 21:44:00
Project: Hildalgo County

Method	EPA 120.1			Test	Specific Conductance	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date	
Specific Conductance	747	uS/cm	1		2012-08-08	

Method	EPA 150.1			Test	pH	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date	
pH	8.7	ph Units	1		2012-08-08	

Method	EPA 200.7			Test	Cations by ICPOES	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date	
Calcium	21.5	mg/L	1	0.05	2012-08-10	
Iron	0.135	mg/L	1	0.02	2012-08-10	
Magnesium	0.090	mg/L	1	0.05	2012-08-10	
Potassium	6.71	mg/L	1	0.05	2012-08-10	
Sodium	140	mg/L	1	0.05	2012-08-10	

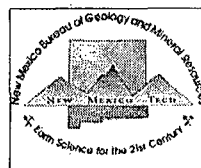
Method	EPA 200.8			Test	Trace Metals by ICPMS	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date	
Aluminum	0.0700	mg/L	1	0.0005	2012-09-06	
Antimony 121	0.0008	mg/L	1	0.0005	2012-09-06	
Arsenic	0.0083	mg/L	1	0.0005	2012-09-06	
Barium	0.077	mg/L	1	0.001	2012-09-06	
Beryllium	0.0006	mg/L	1	0.0005	2012-09-06	
Boron 11	0.278	mg/L	10	0.005	2012-09-06	
Cadmium 111	ND	mg/L	1	0.0005	2012-09-06	
Chromium	0.0011	mg/L	1	0.0005	2012-09-06	
Cobalt	ND	mg/L	1	0.0005	2012-09-06	
Copper 65	0.0235	mg/L	1	0.0005	2012-09-06	
Lead	0.0017	mg/L	1	0.0005	2012-09-06	
Lithium	0.269	mg/L	10	0.001	2012-09-06	
Manganese	0.007	mg/L	1	0.001	2012-09-06	
Molybdenum 95	0.010	mg/L	1	0.001	2012-09-06	
Nickel	ND	mg/L	1	0.0005	2012-09-06	
Selenium	ND	mg/L	1	0.001	2012-09-06	
Silicon	47.2	mg/L	10	0.02	2012-09-06	
Silver 107	ND	mg/L	1	0.0005	2012-09-06	

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Strontium	0.437	mg/L	1	0.001	2012-09-06
Thallium	ND	mg/L	1	0.0005	2012-09-06
Thorium	ND	mg/L	1	0.0005	2012-09-06
Tin	ND	mg/L	1	0.0005	2012-09-06
Titanium	0.005	mg/L	1	0.001	2012-09-06
Uranium	0.0031	mg/L	1	0.0005	2012-09-06
Vanadium	0.0242	mg/L	1	0.0005	2012-09-06
Zinc 66	0.0095	mg/L	1	0.0005	2012-09-06

Method EPA 300.0			Test	Anions by IC	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Bromide	0.12	mg/L	1	0.1	2012-08-10
Chloride	34.4	mg/L	1	1	2012-08-10
Fluoride	8.92	mg/L	1	0.1	2012-08-10
Nitrate	4.24	mg/L	1	0.1	2012-08-10
Nitrite	ND	mg/L	1	0.1	2012-08-10
Ortho Phosphate	ND	mg/L	1	0.5	2012-08-10
Sulfate	212	mg/L	4	1	2012-08-10

Method EPA 310.1			Test	Alkalinity	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Alkalinity as CaCO3	63	mg/L	1	5	2012-08-15
Bicarbonate (HCO3)	76	mg/L	1	5	2012-08-15
Carbonate (CO3)	ND	mg/L	1	5	2012-08-15

Method EPA 350.3			Test	Ammonia	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Ammonia	ND	mg/L	1	0.6	2012-08-15

Method SM 1030E			Test	Checking correctness	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Anions total	7.17	meq/L	1		
Cations total	7.36	meq/L	1		
Percent difference	1.24	%	1		
SiO2	101	mg/L	1	0.05	
TDS calc	568	mg/L	1		

Method SM 2340B			Test	Hardness by calculation	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Hardness	54.1	mg CaCO3/ L	1		

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(575) 835-5160
(575) 835-5416

Laboratory sample number: 120801-17
Customer sample number: AC Cold 08072012
Matrix: Water

Order Number: 120801
Receive Date: 2012-08-08 21:44:00
Project: Hidalgo County

Method EPA 120.1			Test	Specific Conductance	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Specific Conductance	996	uS/cm	1		2012-08-08

Method EPA 150.1			Test	pH	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
pH	7.8	ph Units	1		2012-08-08

Method EPA 200.7			Test	Cations by ICPOES	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Calcium	85.4	mg/L	1	0.05	2012-08-10
Iron	ND	mg/L	1	0.02	2012-08-10
Magnesium	9.06	mg/L	1	0.05	2012-08-10
Potassium	3.66	mg/L	1	0.05	2012-08-10
Sodium	120	mg/L	1	0.05	2012-08-10

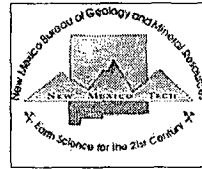
Method EPA 200.8			Test	Trace Metals by ICPMS	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Aluminum	ND	mg/L	1	0.0005	2012-09-10
Antimony 121	ND	mg/L	1	0.0005	2012-09-10
Arsenic	0.0021	mg/L	1	0.0005	2012-09-10
Barium	0.062	mg/L	1	0.001	2012-09-10
Beryllium	ND	mg/L	1	0.0005	2012-09-10
Boron 11	0.136	mg/L	5	0.005	2012-09-10
Cadmium 111	ND	mg/L	1	0.0005	2012-09-10
Chromium	0.0022	mg/L	1	0.0005	2012-09-10
Cobalt	ND	mg/L	1	0.0005	2012-09-10
Copper 65	0.0005	mg/L	1	0.0005	2012-09-10
Lead	ND	mg/L	1	0.0005	2012-09-10
Lithium	0.118	mg/L	5	0.001	2012-09-10
Manganese	ND	mg/L	1	0.001	2012-09-10
Molybdenum 95	0.001	mg/L	1	0.001	2012-09-10
Nickel	0.0012	mg/L	1	0.0005	2012-09-10
Selenium	0.002	mg/L	1	0.001	2012-09-10
Silicon	19.4	mg/L	5	0.02	2012-09-10
Silver 107	ND	mg/L	1	0.0005	2012-09-10

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Strontium	0.728	mg/L	1	0.001	2012-09-10
Thallium	ND	mg/L	1	0.0005	2012-09-10
Thorium	ND	mg/L	1	0.0005	2012-09-10
Tin	ND	mg/L	1	0.0005	2012-09-10
Titanium	0.002	mg/L	1	0.001	2012-09-10
Uranium	0.0109	mg/L	1	0.0005	2012-09-10
Vanadium	0.0049	mg/L	1	0.0005	2012-09-10
Zinc 66	0.0005	mg/L	1	0.0005	2012-09-10

Method EPA 300.0

Parameter	Result	Units	Test Dilution	Anions by IC Reporting limit	Analysis Date
Bromide	0.28	mg/L	1	0.1	2012-08-10
Chloride	64.2	mg/L	1	1	2012-08-10
Fluoride	2.02	mg/L	1	0.1	2012-08-10
Nitrate	4.20	mg/L	1	0.1	2012-08-10
Nitrite	ND	mg/L	1	0.1	2012-08-10
Ortho Phosphate	ND	mg/L	1	0.5	2012-08-10
Sulfate	270	mg/L	4	1	2012-08-10

Method EPA 310.1

Parameter	Result	Units	Test Dilution	Alkalinity Reporting limit	Analysis Date
Alkalinity as CaCO ₃	144	mg/L	1	5	2012-08-08
Bicarbonate (HCO ₃)	176	mg/L	1	5	2012-08-08
Carbonate (CO ₃)	ND	mg/L	1	5	2012-08-08

Method EPA 350.3

Parameter	Result	Units	Test Dilution	Ammonia Reporting limit	Analysis Date
Ammonia	ND	mg/L	1	0.6	2012-08-15

Method SM 1030E

Parameter	Result	Units	Test Dilution	Checking correctness Reporting limit	Analysis Date
Anions total	10.50	meq/L	1		
Cations total	10.31	meq/L	1		
Percent difference	-0.89	%	1		
SiO ₂	41.5	mg/L	1	0.05	
TDS calc	686	mg/L	1		

Method SM 2340B

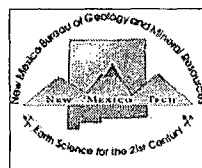
Parameter	Result	Units	Test Dilution	Hardness by calculation Reporting limit	Analysis Date
Hardness	250	mg CaCO ₃ /L	1		

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Socorro, NM 87801
(575) 835-5160
(575) 835-5416

Laboratory sample number: 120801-18

Order Number: 120801

Customer sample number: AC Hot 08072012

Receive Date: 2012-08-08 21:44:00

Matrix: Water

Project: Hidalgo County

Method EPA 120.1

Parameter	Result	Units	Test Dilution	Specific Conductance Reporting limit	Analysis Date
Specific Conductance	1440	uS/cm	1		2012-08-08

Method EPA 150.1

Parameter	Result	Units	Test Dilution	pH Reporting limit	Analysis Date
pH	8.7	ph Units	1		2012-08-08

Method EPA 200.7

Parameter	Result	Units	Test Dilution	Cations by ICPOES Reporting limit	Analysis Date
Calcium	12.9	mg/L	1	0.05	2012-08-10
Iron	0.057	mg/L	1	0.02	2012-08-10
Magnesium	0.105	mg/L	1	0.05	2012-08-10
Potassium	13.9	mg/L	1	0.05	2012-08-10
Sodium	285	mg/L	5	0.05	2012-08-10

Method EPA 200.8

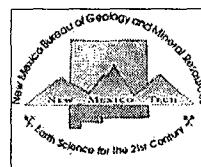
Parameter	Result	Units	Test Dilution	Trace Metals by ICPMS Reporting limit	Analysis Date
Aluminum	0.0442	mg/L	5	0.0005	2012-08-21
Antimony 121	ND	mg/L	5	0.0005	2012-08-21
Arsenic	0.0137	mg/L	5	0.0005	2012-08-21
Barium	0.061	mg/L	5	0.001	2012-08-21
Beryllium	ND	mg/L	5	0.0005	2012-08-21
Boron 11	0.385	mg/L	5	0.005	2012-08-21
Cadmium 111	ND	mg/L	5	0.0005	2012-08-21
Chromium	ND	mg/L	5	0.0005	2012-08-21
Cobalt	ND	mg/L	5	0.0005	2012-08-21
Copper 65	0.0086	mg/L	5	0.0005	2012-08-21
Lead	ND	mg/L	5	0.0005	2012-08-21
Lithium	0.525	mg/L	5	0.001	2012-08-21
Manganese	ND	mg/L	5	0.001	2012-08-21
Molybdenum 95	0.022	mg/L	5	0.001	2012-08-21
Nickel	ND	mg/L	5	0.0005	2012-08-21
Selenium	ND	mg/L	5	0.001	2012-08-21
Silicon	52.5	mg/L	20	0.02	2012-08-21
Silver 107	ND	mg/L	5	0.0005	2012-08-21

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Strontium	0.398	mg/L	5	0.001	2012-08-21
Thallium	ND	mg/L	5	0.0005	2012-08-21
Thorium	ND	mg/L	5	0.0005	2012-08-21
Tin	ND	mg/L	5	0.0005	2012-08-21
Titanium	0.006	mg/L	5	0.001	2012-08-21
Uranium	ND	mg/L	5	0.0005	2012-08-21
Vanadium	0.0360	mg/L	5	0.0005	2012-08-21
Zinc 66	0.0035	mg/L	5	0.0005	2012-08-21

Method EPA 300.0			Test	Anions by IC	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Bromide	0.28	mg/L	1	0.1	2012-08-10
Chloride	74.4	mg/L	1	1	2012-08-10
Fluoride	9.59	mg/L	1	0.1	2012-08-10
Nitrate	7.68	mg/L	1	0.1	2012-08-10
Nitrite	ND	mg/L	1	0.1	2012-08-10
Ortho Phosphate	ND	mg/L	1	0.5	2012-08-10
Sulfate	433	mg/L	5	1	2012-08-10

Method EPA 310.1			Test	Alkalinity	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Alkalinity as CaCO ₃	118	mg/L	1	5	2012-08-15
Bicarbonate (HCO ₃)	129	mg/L	1	5	2012-08-15
Carbonate (CO ₃)	8	mg/L	1	5	2012-08-15

Method EPA 350.3			Test	Ammonia	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Ammonia	ND	mg/L	1	0.6	2012-08-15

Method SM 1030E			Test	Checking correctness	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Anions total	14.10	meq/L	1		
Cations total	13.40	meq/L	1		
Percent difference	-2.55	%	1		
SiO ₂	112	mg/L	1	0.05	
TDS calc	1020	mg/L	1		

Method SM 2340B			Test	Hardness by calculation	
Parameter	Result	Units	Dilution	Reporting limit	Analysis Date
Hardness	32.6	mg CaCO ₃ /L	1		