STATE OF NEVADA
DIVISION OF WATER RESOURCES
WELL DRILLER'S REPORT

PRINT OR TYPE IN BLACK INK ONLY
DO NOT WRITE ON BACK

Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340

OFFICE USE ONLY
Log No.
Permit No.
Basin No. [redacted] 143

NOTICE OF INTENT NO.
WELL NAME (If applicable): CV-1

1. OWNER/CLIENT NAME: Pure Energy Minerals
MAILING ADDRESS: 355 Burrard Street, Suite 1780
Vancouver, BC, V6G 2GB Canada

DETAILED ADDRESS AT WELL LOCATION: Clayton Valley near Silver Peak Nevada
Subdivision Name:
County: Esmeralda

2. PLS LOCATION: NW ¼ SE ¼ 29 Sec 2 N/S 40 E
PERMIT/WAIVER NO. MM-205 (Issued by Water Resources) Current Parcel No.

Latitude 37.690342 UTM E
Longitude -117.605476 UTM N
☒ NAD 27 ☐ NAD 83/WGS 84

3. WORKED PERFORMED
☒ New Well ☐ Deepen: Orig WL#
☐ Replacement: Original well log #
☐ Recondition: Original well log #

4. PROPOSED USE
☐ Domestic ☐ Irrigation ☐ Monitor
☐ Mining / Dewater ☐ Com / Ind ☐ Stock
☒ Test / Other ☐ Mun / QM ☐ Rec

5. WELL TYPE
☐ Auger ☒ Rotary ☐ RVC
☐ Air ☒ Mud ☐ Sonic
☐ Other

6. LITHOLOGIC LOG

Material Encountered	Lost Circ.	Water Strata	From	To
Caliche/Sand			0	50
Mixed Gravel		X	50	60
Coarse gravel and Sand			60	340
clay and Sand			340	370
Gravel and Sand			370	400
Coarse gravel and Sand			400	500
Sandy clay			500	540
Gravel and Sand		X	540	600
clay			600	640
clay and gravel			640	660
clay			660	690
gravel sand and clay		X	690	730
clay and Gravel			730	780
clay/sand			780	820
clay occasiona sand			820	900
NOTE:				
See attachment CV-1				
Bentonite Chips			605	635

Date started: Feb 6-2015, 20 15
Date completed: Fev 25-2015, 20 15

7. WATER QUALITIES
Static water level: 55 Feet below land surface
Artesian Flow: NA G.P.M. NA P.S.I.
Water Temperature: Cold ° Fahrenheit
Water Quality: High Salt Concentration (brine)

8. WELL TEST DATA
Test Method: ☐ Bailer ☐ Pump ☒ Air Lift

	G.P.M.	Draw Down (Feet Below Static)	Recorded Time (Hours)
Air	250+	830	24 Hrs

9. WELL CONSTRUCTION
Depth Drilled: 900 Feet Depth Cased: 900 Feet

HOLE DIAMETER (BIT SIZE)

		From		To	
14.75	Inches	0	Feet	900	Feet
	Inches		Feet		Feet
	Inches		Feet		Feet

CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
8.625	24	.25	+1.5	900

ANNULAR MATERIALS
Sanitary Seal ☒ Yes ☐ No

☒ Neat Cement	0	to	100	☒ Pumped	☐ Poured
☐ Cement Grout		to		☐ Pumped	☐ Poured
☐ Concrete Grout		to		☐ Pumped	☐ Poured
☒ Bentonite Chips	100	to	110	☒ Pumped	☐ Poured
☒ Gravel Pack [> 0.2 in.]	510to605	to	635to900	☒ Pumped	☐ Poured
☐ Sand Pack [< 0.2 in.]		to		☐ Pumped	☐ Poured
☒ Other, explain: Bentonite Chips See Attachment	340	to	510	☒ Pumped	☐ Poured

PERFORATIONS:
Type of perforation: 8" PSX340 Mesh X20 Feet 304SS
Size of perforation: 0.04

From	520	Feet	To 600	Feet
From	640	Feet	To 900	Feet
From		Feet	To	Feet
From		Feet	To	Feet
From		Feet	To	Feet

10. DRILLER'S CERTIFICATION
This well was drilled under my supervision. This report is true to the best of my knowledge.

Name: Harris Exploration Drilling and Associates Inc. (Contractor)
Address: PO Box 81805 San Diego CA 92138 (Contractor)
Phone: 760-822-7886
Nevada contractor's license number as issued by the State Contractor's Board: 0026000A A-6
Nevada well driller's license number as issued by the Nevada Division of Water Resources (on-site driller): 1793

Signed: See Attachment letter (By driller performing actual drilling on site or contractor)
Date: Sept 20th 2016

(Rev. 04-16)

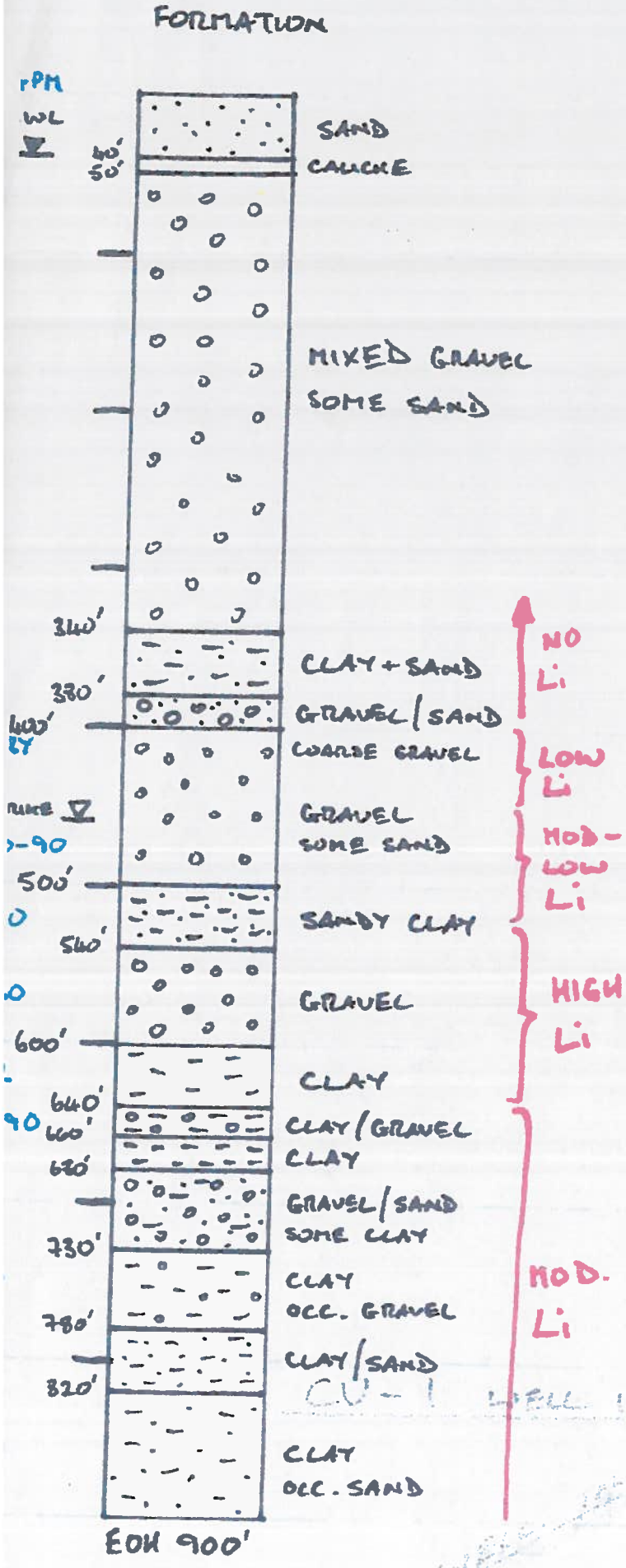
USE ADDITIONAL SHEETS IF NECESSARY

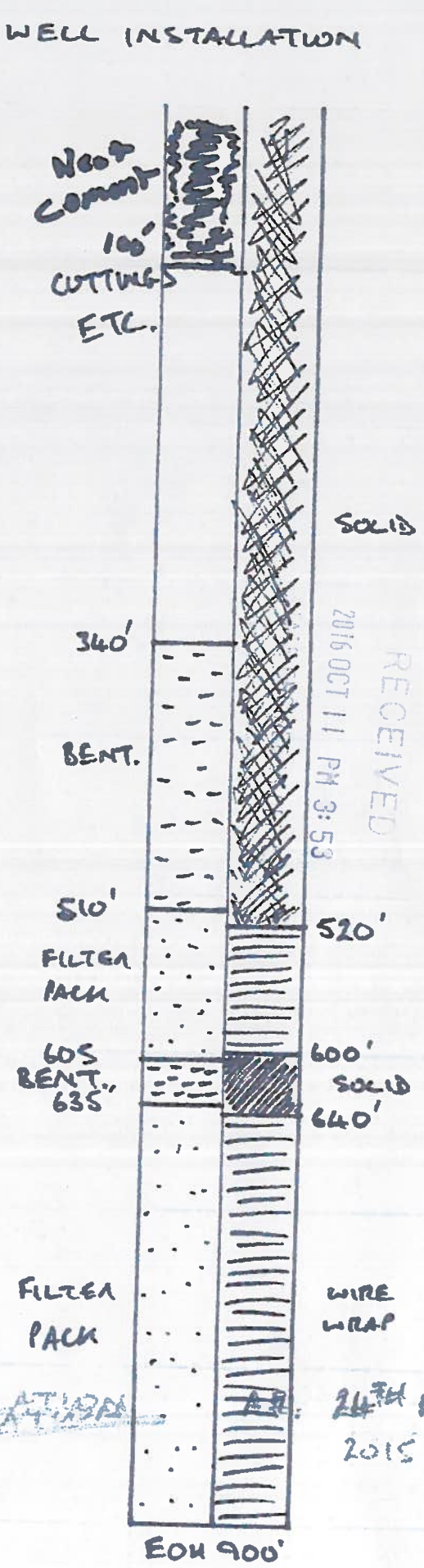
pg. of pg.

Patrick Harris Sept 20 2016

CV-1 WELL INSTALLATION

A.R. 24TH FEB 2015





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CV-1 WELL INSTALLATION
A.R. 24TH FEB 2015

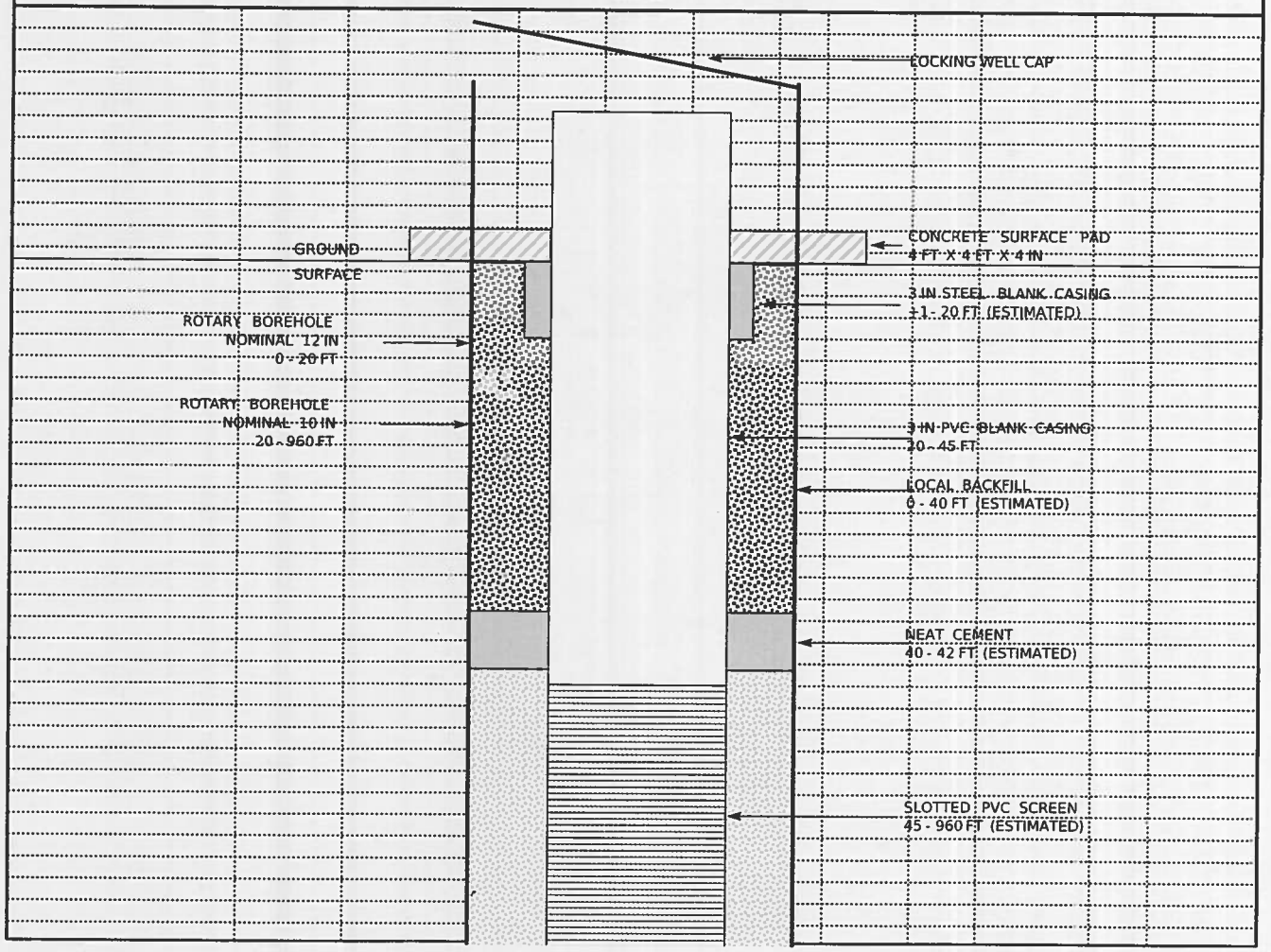
Well ID	CV-2
Owner/Client Name	Pure Energy Minerals
Mailing Address	355 Burrard Street, Suite 1780
	Vancouver, BC V6C 2G8 Canada
Detailed Address at Well Location	Unincorporated
County	Esmerelda
Latitude	37.70409
Longitude	-117.585419
UTM E (WGS84)	450,539
UTM N	4,175,966
Well Type	test
Drilling Type	mud rotary
Start Date	3/20/2015
Complete Date	4/18/2015
Drilled Depth (ft)	960
Hole Diameter (in)	10
Well Depth (ft)	960
Casing Type	steel, pvc sch 40
Casing Diameter (in)	6, 3
Screen Type	slotted pvc
Screen Diameter (in)	3
Sanitary Seal Depth (ft)	na
Sanitary Seal Material	na
Gravel Pack Material	unknown
Gravel Pack Interval (ft)	42-960 (estimated)
Well Driller	na
Drill Rig	Schramm T685 rotary
Static Water Level (ft)	25.4
Static Water Level Reading Date	4/18/2016
Airlift Development Start Date	
Airlift Development Complete Date	
Average Airlift Development Flow Rate (gpm)	
Water Volume Pumped By Airlifting (gal)	
Pumping Water Level (ft)	
Pumping Test Date	
Volume Water Pumped (gal)	
Date Abandoned	na

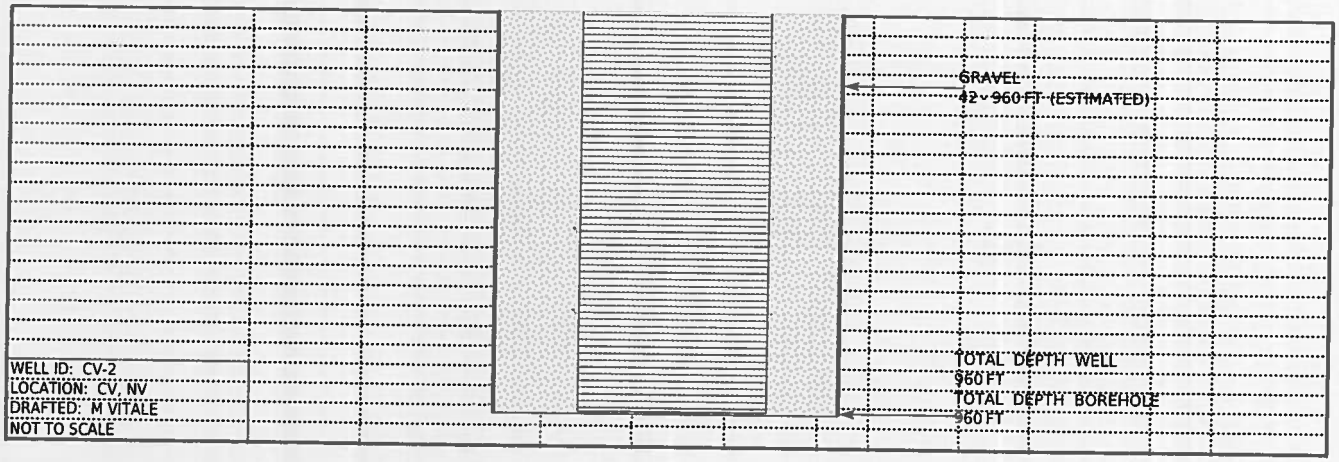
ft = feet
in = inch
gpm = gallons per minute
gal = gallon

Lithologic Log	Top (ft)	Bottom (ft)
lithic tuff with lenses of silty clay	0	424
lithic tuff with silty sand	424	509
clay with thin ash beds and interbedded silty clay	509	960

AS-BUILT WELL CONSTRUCTION

CV-2




GRAVEL
42 - 960 FT (ESTIMATED)
TOTAL DEPTH WELL
960 FT
TOTAL DEPTH BOREHOLE
960 FT
WELL ID: CV-2
LOCATION: CV, NV
DRAFTED: M VITALE
NOT TO SCALE

PURE ENERGY MINERALS DRILL HOLE CV – 2

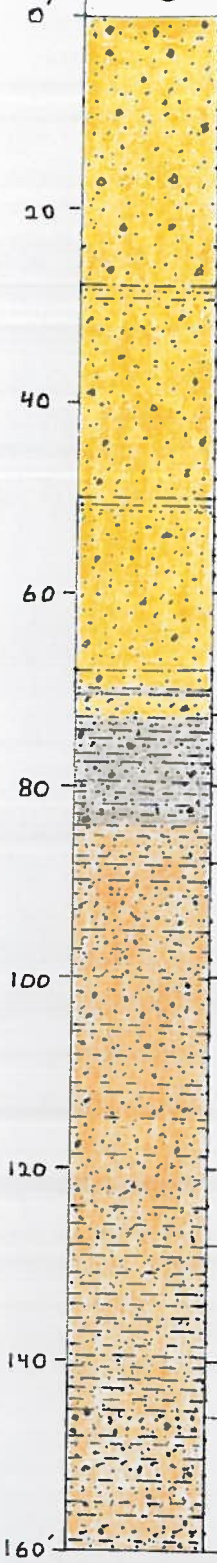
Clayton Valley, Esmeralda Co., NV

CU-2

collar elev.
page 1 of 11
logged by: N. BARR

Drilling Summary:
Core, (HQ), start 4/12/16
finish 4/30/16 @ 1370' T.D.
12 ¼" Tricone,
T.D. @ 2000' 6/21/2016

Graphic log	Notes	Lithology	Core water infiltration test (field) weak moderate strong	% Recovery



0-228' Unconsolidated Alluvial Fan Deposit:
Medium brown, poorly sorted silt to cr sand, with local pebble to fn cobble gravels. Pale silty fines, mostly derived from close proximity devitrified ash beds, are composed of feldspar, euhedral to ang. clear quartz, and minor biotite. Sand and gravels, in order of relative abundance, include pale yellow-brown lithic tuff, dark, silic. chert and mixed meta-sediments, and lessor green, indurated, (epidotized?) tuff, med. gr. volcanoclastic sandstone, fn. gr., pale, siliceous sinter, and rare obsidian. Scattered thin intervals of crudely bedded, silty fn., to vy fn sand, and rare silty clay.

% Recovery: 5%, 0, 4, 0, 13, 0, 0, 2, 18, 2, 3, 18, 11, 15, 23, 70, 30, 8, 31, 43, 6, 28, 28, 8, 15, 51, 2, 36, 86, 18, 6, 10

PURE ENERGY MINERALS DRILL HOLE CV – 2

Clayton Valley, Esmeralda Co., NV

collar elev.

page 2 of 11

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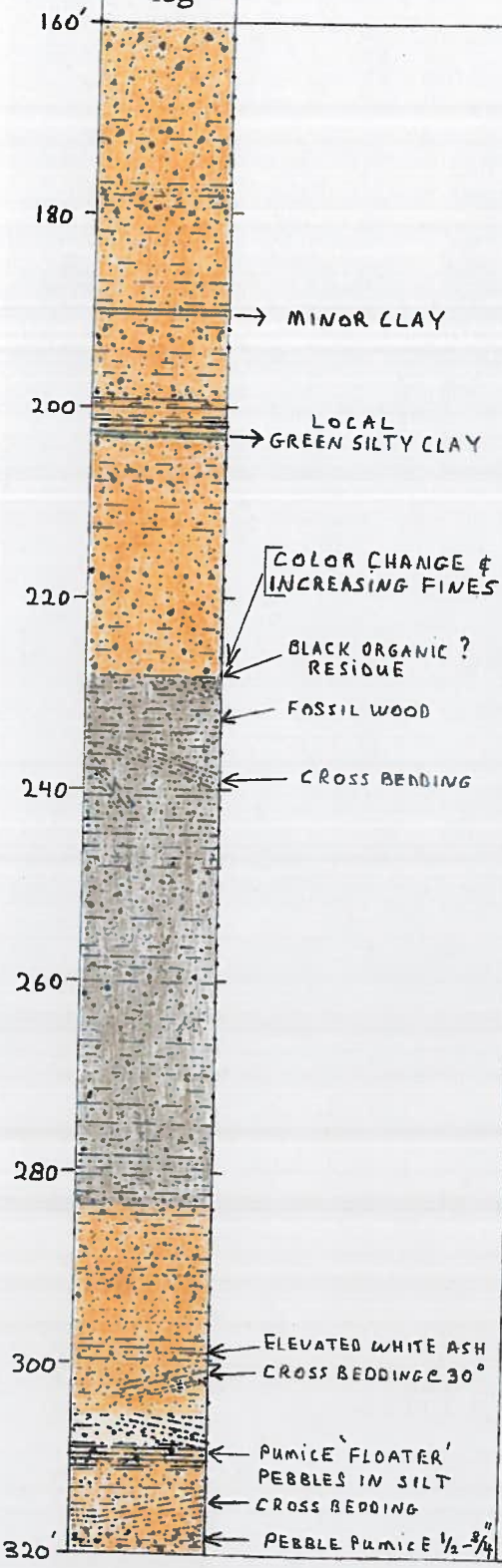

Graphic log	Notes	Lithology	Core water infiltration test (field) weak moderate strong	% Recovery
		0-228' Unconsolidated Alluvial Fan Deposit:		13%
				3
				56
				63
				32
				73
				60
				19
				46
				20
				92
				98
				8
				20
				11
		228-311' Alluvial Fan/Paludal Deposition: (interpreted as transitional from terrestrial to lacustrine environment). Medium brown to grey-brown, similar composition. Increase in sorting and bedding evidence. Overall decrease in gravels. Local cross bedding, scour and channel fill. Sparse, isolated pebble pumice in silts/silty clays.		100
				25
				58
				28
				13
				0
				2
				15
				5
				0
				91
				16
				100
				0?
				100
				95
		311'- T.D. Lacustrine (& local near shore) Deposition:		72
				100

66 →

PURE ENERGY MINERALS DRILL HOLE CV – 2

Clayton Valley, Esmeralda Co., NV

collar elev.
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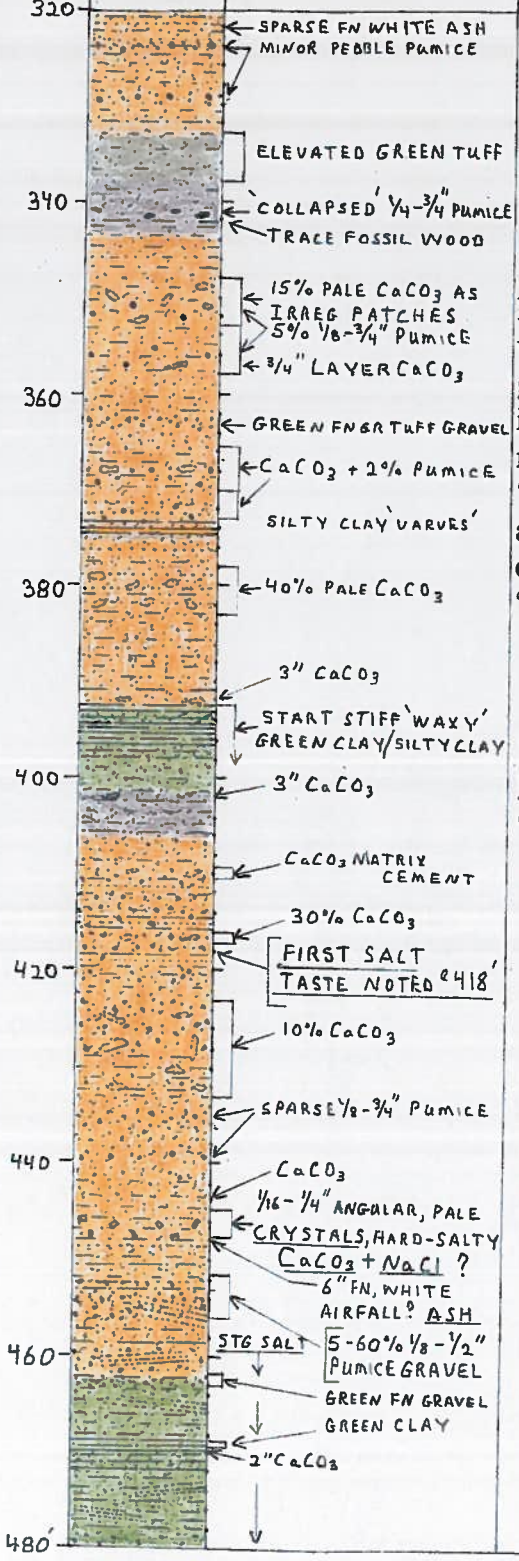

Lithology

311'- T.D. Lacustrine (& local near shore) Deposition:

320 – 393'
Dominantly poorly sorted, medium stiff, silty fine to very fine sand. Sparse, med to cr sand, and fn to med gr gravels are mostly matrix supported. Minor thin interbeds of stiff silty clay. Widely scattered, sub rounded pebble pumice occurs within gravels or as 'floaters' within fn gr sediments. Pumice is interpreted as being 'washed in' from a terrestrial source. CaCO3 occurs as 1 to 4", slightly hardened, irregular pale 'blebs' starting at 348', and yields a strong acid response.

394 – 399'
Green, mostly stiff to medium stiff, 'waxy' texture silty clay. Silt fraction typically composed of angular, clear, ash derived quartz.

400 –
(Note), starting at a depth of 400 ft., core was field tested for relative rate of water infiltration. In general, loose silts and sand were found to be better sorted, show greater open space between grains, and are thus considered to be more permissive for allowing movement of brine aquifers.

Depth	Core water infiltration test (field) (weak / moderate / strong)	% Recovery
		100%
		88
		90
		100
		100
		100
		100
		100
		85
		66
		71
		96
		97
		100
		100
		100
		96
	W	98
		94
413 wk stiff-loose med-fn gravel 418	W	92?
		100
wk stiff-loose fn gravel 428	W	23
		83
		98
434 loose fn gravel 436	M	
438 loose sand-grav 440	M	100
444 local loose fn sand + 6" Ash 448	W	70
		98
wk stiff 453 cr sand-fn grav 458	W	96
		100
loose fn 461.5 - cr sand 463	W	100
		83
		100
		78
		85

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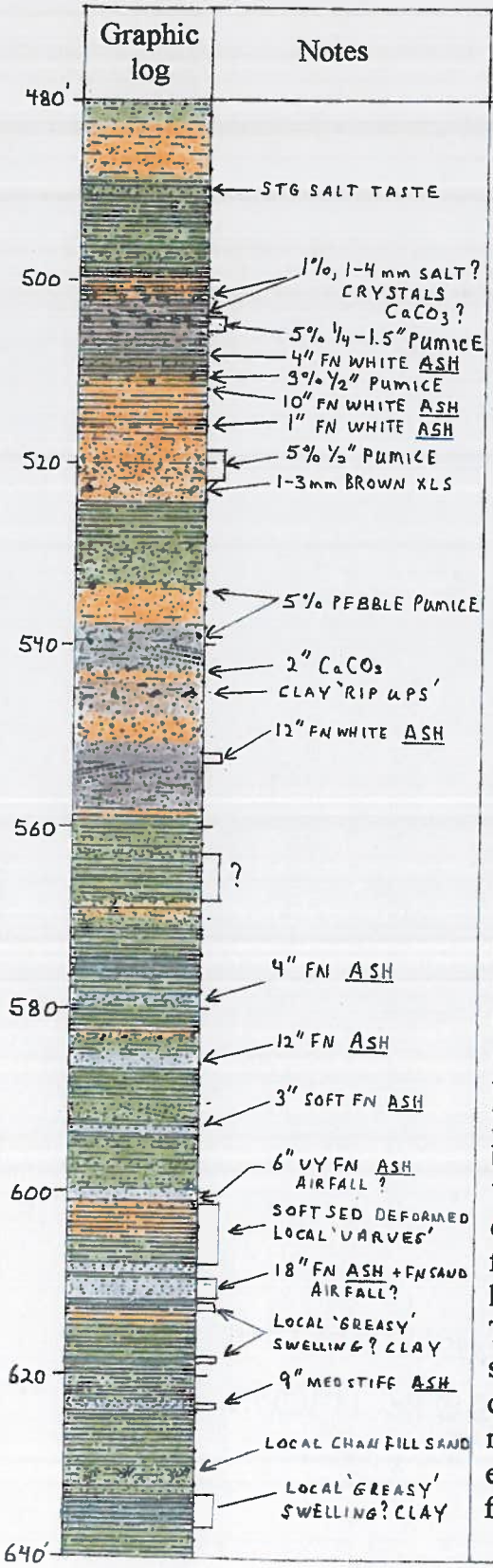


Lithology

399 – 490'

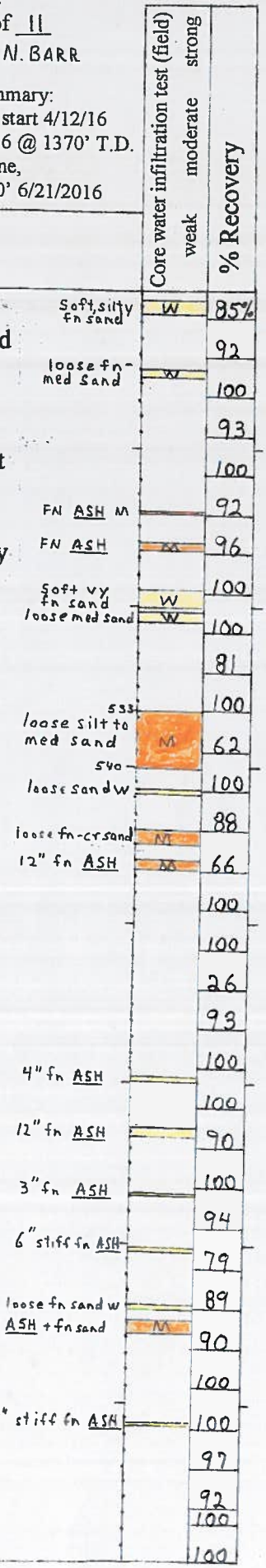
Dominantly poorly sorted, lessor well sorted fn sand, silty fn sand and silt. Decreasing local interbeds of med-cr sand/fn gravel. First evidence of brine noted at 418 ft. Sparse, crystalline CaCo3 and NaCl (?) first noted at 445 ft. First evidence of off-white, fn gr, airfall (?) ash logged at 448 ft. Transition to increasing green clay/silty clay clearly evident between 460-490 ft.

490 – 1370 ft. (core T.D.)

Dominantly green to grey-green, stiff to moderately stiff silty clay/clay, with interbeds of variably sorted silt/fn sand, and local med to cr sand. Ash layers typically off white to pale gray, range in gr size from silt to distinctive fn to med gr, spherical 'pellets'. Airfall ash is characterized by sharp basal contacts. 'Pellet' ash is mostly very loose and porous, and significant intervals may have not been recovered during coring. This ash also yielded the strongest water infiltration rates measured. Significant sections of silty clay/clay are marked by a pale 'marbled' texture, representing elevated, silt size ash derived from terrestrial erosion events.

Randomly oriented fault breaks, shear breccia and granulated zones start at 765 ft., and increase in frequency with depth. Soft sediment deformation, in the form of wavy or contorted bedding, is locally evident.

The presence of deep water deposited silty clays, interspersed with local scour, channel fill and clay 'rip up' features, represents changing deposition environments associated with rising and falling lake levels.



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Clayton Valley, Esmeralda Co., NV

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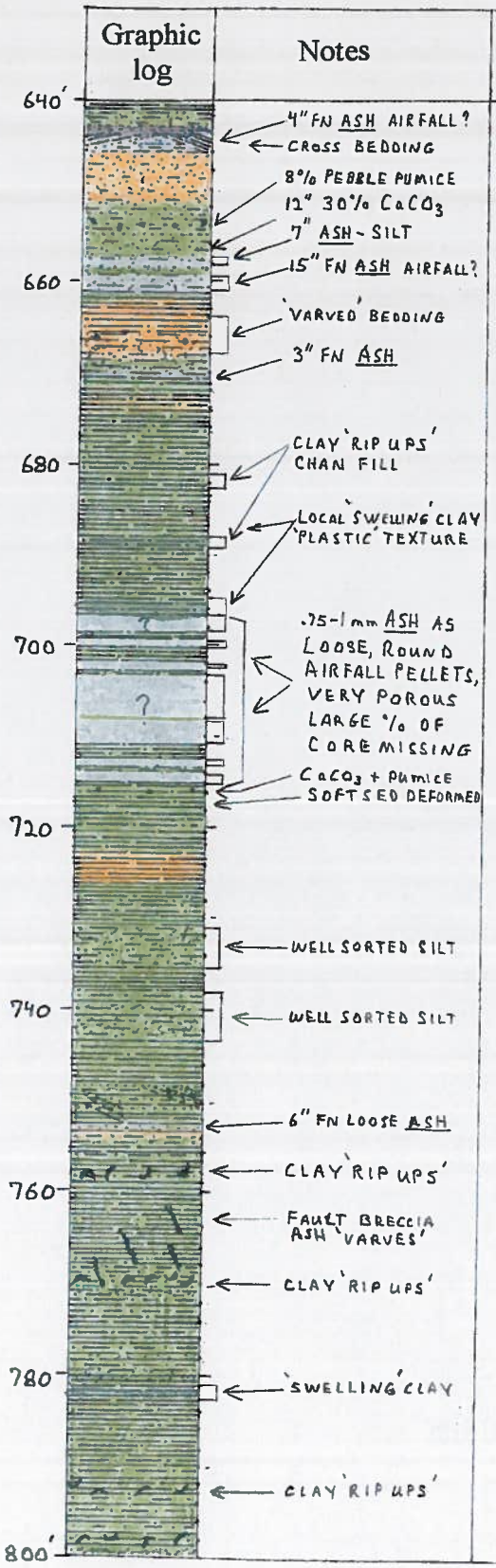

Lithology

loose fn sand

7" Ash - silt

15" vy fn Ash

3" fn Ash

18"? pellet Ash

6" " Ash

7.5' pellet Ash

? core missing

16" pellet Ash

silt well sorted

silt well sorted

6" loose Ash

loose silt

fn loose sand

Core water infiltration test (field): strong / moderate / weak

% Recovery: 97%, 100, 100, 93, 100, 87, 95, 100, 100, 83, 100, 75, 91, 0, 46, 97, 100, 91, 100, 96, 100, 99, 100, 100, 100, 87, 100, 100, 100, 98, 92, 100

PURE ENERGY MINERALS DRILL HOLE CV – 2

Clayton Valley, Esmeralda Co., NV

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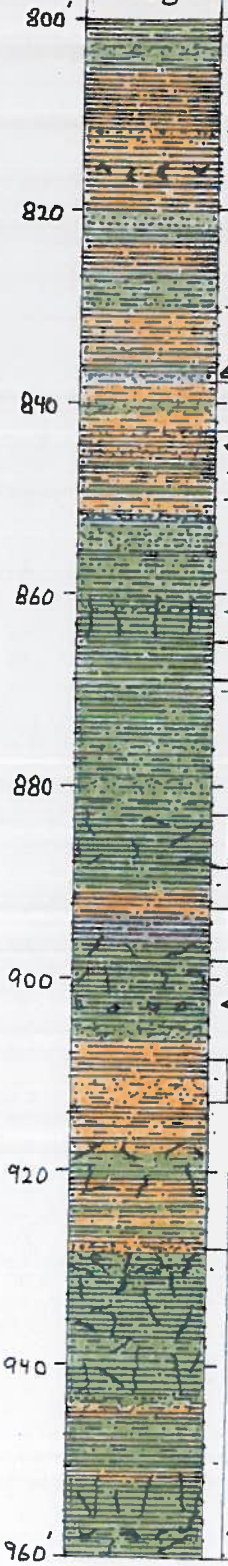

Notes	Lithology	Core water infiltration test (field) (weak / moderate / strong)	% Recovery
	14" loose silt	W	100%
CaCO3 WITH PUMICE			83
CLAY 'RIP UPS'			100
			94
	5" loose fn sand	W	100
			72
			89
LOOSE FN ASH	6" loose fn Ash		100
? NO RECOVERY LOOSE MATERIAL			0?
HACKLY FRACTURE – LITHIFICATION EVIDENCE – INTO MUDSTONE – SILTSTONE			100+
	6" well sorted silt	W	97
	2.5' silt-fn sand	W	100
HEALED FAULT BREAKS			100
PALE 'MARBLED' TEXTURE DUE TO ABUND. FN ASH			83
			100
			66
			100
FAULT SLIP			73
			88
LOCAL 'GREASY' CLAY			100
VERY POOR RECOVERY ?			8
CaCO3 + NaCl? XLS			100
ASH 'MARBLED' TEXTURE			100
TR 1" PUMICE			83
50% MED STIFF ⅛-2" INTERBEDDED SILT			81
			100
4" MED-CR SAND			95
	well sorted faulted silts	W	100
STG HEALED FLT BRECCIA EVIDENCE ≈ 15% THIN SILT INTER BEDS			100
			75
			100
	wk stiff, well sorted silts	W –	92
			63
CLAY 'RIP UPS'			100

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960'				97%
	LOCAL STG FAULT SLIP, BRECCIA, SLICKENSIDES			98
				100
	1" FN CARBON ?			99
980	15% SILT - SAND INTERBEDS			100
				91
	SOOTY FN CARBON ?			
	ELEV DK CARBONATE MED - CR SAND	30% thin interbeds wk stiff to loose silt to med sand	W-	97
	30% SILT - SAND INTERBEDS			100
1000	6" SOOTY FN CARBON ?			100
				95
				66
	½ - 1" PEBBLE PUMICE	70% loose fn sand	W	100
1020	MINOR MED-CR SAND	wk stiff silt-fn sand	W-	100
		80% loose fn sand	W	
	WK CHAN SCOUR			100
				88
	WK LITHIFICATION EVIDENSE	50% ¼-2" silt - fn sand interbeds	W-	100
1040				100
	SILT - FN-MED SAND MINOR CLAY 'RIP UPS'	wk stiff-loose silt-med sand	W	99
				100
				92
1060				100
	LOCAL FAULT SLIP, BRECCIA, CHAN FILL AND CLAY 'RIP UPS'			82
				100
				91
1080				90
	SILT - MED SAND	60% wk stiff - loose silt - med sand	W	100
				98
				93
1100				93
	LOCAL FAULT SLIP, X BEDDING, CHAN FILL AND CLAY 'RIP UPS'			100
				100
		50% wk stiff - loose silt-fn sand	W	100
1120'				100

PURE ENERGY MINERALS DRILL HOLE CV – 2

Clayton Valley, Esmeralda Co., NV

collar elev.

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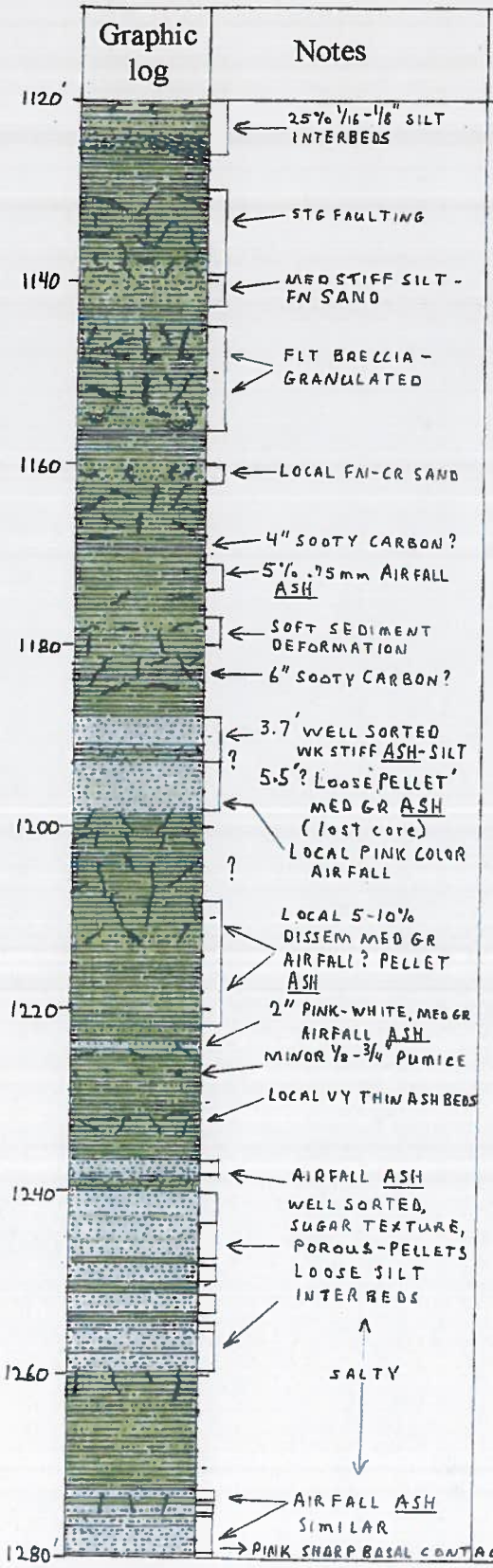

Lithology

Core water infiltration test (field): weak, moderate, strong

% Recovery

Lithology	Core water infiltration test (field)	% Recovery
		100%
		87
		54
wk stiff-loose silt-med sand	W	97
		84
		94
		100
		100
		72
		95
		95
		100
		100
ASH-silt	M	94
loose pellet ASH med gr., some core missing ?	S	100
		72
		100
		53
		100
		98
soft silt-fn ASH	W	100
		100
		80
		100
ASH-silt porous airfall	M	100
		100
		100
		100
		100
ASH-silt pourous airfall	M	75
		100

PURE ENERGY MINERALS DRILL HOLE CV – 2

Clayton Valley, Esmeralda Co., NV

collar elev.

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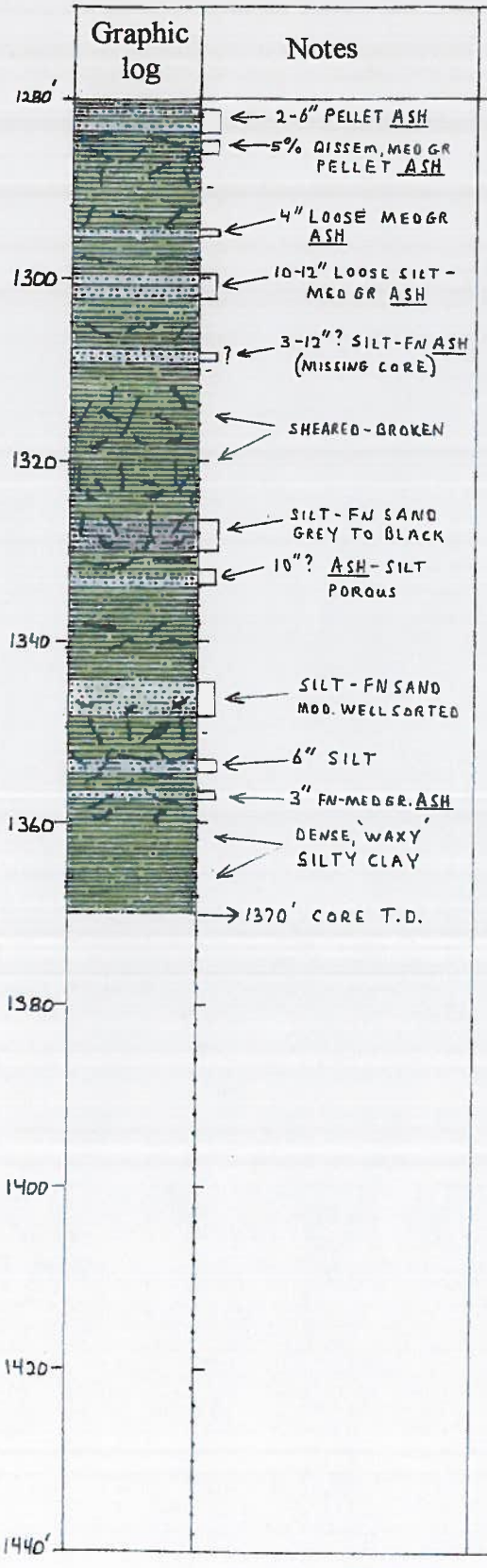

Notes	Lithology	Core water infiltration test (field) weak moderate strong	% Recovery
2-6" PELLET ASH	ASH airfall	W	100%
5% DISSEM, MED GR PELLET ASH			98
4" LOOSE MEDGR ASH	ASH	W	97
			95
10-12" LOOSE SILT - MED GR ASH	ASH - silt	M	87
3-12"? SILT-FN ASH (MISSING CORE)	ASH - silt	W	100 / 83
			82
SHEARED - BROKEN			85
			100
SILT - FN SAND GREY TO BLACK	wk stiff silt-fn sand	W	71
10"? ASH - SILT POROUS	ASH - silt	M	100 / 81
			75
SILT - FN SAND MOD. WELL SORTED	silt-fn sand	W	100 / 93
6" SILT	silt	M	100
3" FN-MED GR. ASH	ASH	M	100
DENSE, 'WAXY' SILTY CLAY			100
1370' CORE T.D.			93 / 100

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finish 4/30/16 @ 1370' T.D.
12 ¼" Tricone,
T.D. @ 2000' 6/21/2016

Graphic log	Notes	Lithology	drill rate min/20 ft.	% weakly lithified, siltstone/claystone	% med-cr gr sand (?)
		(See core log)			
1300'					
			21		
			16		
1350	HQ CORE; 12¼" TRICONE		18		
	12¼" TRICONE	1370 – 2000 ft. (T.D.)	40	tr	tr
		90 % + Silty Clay/Clay, soft to weakly lithified.		5-10%	1%
1400		Color gradational from med green, to gray-green,	30	5-10	–
		to med. gray to gray black at T.D. All cuttings		10	1-2
		interpreted as quiet water, lacustrine deposition.	23	5	2
		Silt fraction mostly composed of off-white to		tr	1
		pale gray fn ash, angular clear quartz, and minor	23	–	2
1450	1-2% ASH AS MED-CR GR 'BLEBS'	biotite. (Capture of fines limited due to high		–	1
		viscosity of drilling mud returns). Medium to	18	–	2-3
		cr sand fraction is composed of pale lithic tuff,		–	1
	3-4% SOFT, FN ASH	black chert/ dark siliceous meta-sediments, and	33	–	tr
		lessor green, fn gr lithified tuff. (Much of the		–	tr
1500	SWELLING? CLAY	sand fraction may be contamination from up	30	–	1
		hole ?). Difficult, high torque drilling at 1520-40		–	tr
	5-8% SOFT, FN ASH	& 1800-20, interpreted as thin intervals of plastic,	32	–	tr
	TRACE ASH	swelling ? clay. Driller's use of Penetrol, a clay		5	1
		cutting agent, was increased at 1800 ft, and led to	34		2
1550		liquification and loss of most clayey cuttings.		2-3	3-4
		% of fn ash in returns was estimated by observing	28	tr	tr
		pale streaks in the return fluids. Airfall (?),		15-20	tr
		.5 to .75 mm 'pellet' ash was locally captured	93	20-30	1
		by screen.		20-30	2
1600'	5-10% ? SAND MED GR WELL SORTED		17	40-50	5-10

PURE ENERGY MINERALS DRILL HOLE CV – 2

Clayton Valley, Esmeralda Co., NV

collar elev.
page 11 of 11
logged by: N. BARR

Drilling Summary:
Core, (HQ), start 4/12/16
finish 4/30/16 @ 1370' T.D.
12 ¼" Tricone,
T.D. @ 2000' 6/21/2016

Notes
→ 5% + .5-.75 mm ROUND ASH PELLETS AIRFALL?
1-2%
1% +
1% ?
TR
1% ?
TR
?
1%
2%
TR
TR-1%? SALT GR ASH
TR .5-1 mm ASH SUBANGULAR
10% FNGR SOFT ASH AS LIGHT GRAY INTERBEDS
← VY STICKY CLAY
VY FN WHITE ASH AS THIN INTERBEDS 2-10% + ??
5-10%??
5-10%? FN WHITE ASH AS THIN INTERBEDS
ELEVATED BLACK CHERT-CARBONATE AS MED-CR SAND
→ TOTAL DEPTH

Lithology

1600 -1720 '
.5 to .75 mm, spherical, airfall (?), off-white Ash pellets collected from drill cuttings. Thickness and distribution of ash beds unknown.

1780 – 1950'
Local increase of fine gr white to pale gray Ash. Logged from color change in drill cutting returns. Thickness and distribution of ash beds unknown.

(Note): Cuttings from entire hole showed positive reaction to a 10 % HCL acid solution.

drill rate min/20 ft.	% weakly lithified, siltstone/claystone	% med-cr gr sand (?)
	5-10%	tr
26	5-7	2
	10-15	1
20	20	2?
	20-25	<1
18	10	1-2
	15	tr
20	<10	tr
	10-15	1
22	15-20	1
	30	1
20	25	1
	10-20	<1
28	10	1-2
	10	1-2
27	10-20	1
	10	1
27	10-20	1
	<10	1
28	5-10	tr
90	tr	–
?	10	tr
	10-15	tr
22?	15	10?
	tr	2-3
25?	50	2-4
	20	1
32	?	tr
	2-3?	5?
30	10	tr
	10	1-2
34	tr	<1
	10?	tr
18	tr	tr
	tr	tr
30	5	1
	–	tr
35	tr	1
	–	<1
35'	5	1-2

STATE OF NEVADA
DIVISION OF WATER RESOURCES
WELL DRILLER'S REPORT

PRINT OR TYPE IN BLACK INK ONLY
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Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340

OFFICE USE ONLY
Log No.
Permit No.
Basin No.

NOTICE OF INTENT NO. *
WELL NAME (if applicable): CV3

1. OWNER/CLIENT NAME: Pure Energy Minerals
MAILING ADDRESS: 355 Burrard Street Suite 1780
Vancouver BC V6C 2G8 CANADA

DETAILED ADDRESS AT WELL LOCATION: Clayton Valley Near Silver Peak
Subdivision Name:
County: Esmeralda

2. PLS LOCATION: se ¼ se ¼ 29 Sec 2 N/S s 40 E
PERMIT/WAIVER NO. MM-207 (Issued by Water Resources) Current Parcel No.

Latitude: 37.736717 x NAD 27
Longitude: -117.559078 NAD 83/WGS 84
UTM E
UTM N

3. WORKED PERFORMED
x New Well ☐ Deepen: Orig WL#
☐ Replacement: Original well log #
☐ Recondition: Original well log #

4. PROPOSED USE
☐ Domestic ☐ Irrigation ☐ Monitor
☐ Mining / Dewater ☐ Com / Ind ☐ Stock
x Test / Other lithium ☐ Mun / QM ☐ Rec

5. WELL TYPE
☐ Auger x Rotary ☐ RVC
☐ Air x Mud ☐ Sonic
☐ Other

6. LITHOLOGIC LOG

Material Encountered	Lost Circ.	Water Strata	From	To
alluvial sands and gravels		x	0	423
silt to fine sand,silty clays			423	468
sandy silts and silty clay,,ash			466	1368
green-gray clay with silt			1368	2000

Date started: 12-Apr , 20 16
Date completed: 29-Jul , 20 16

7. WATER QUALITIES
Static water level: cold Feet below land surface
Artesian Flow: G.P.M. P.S.I.
Water Temperature: 63 ° Fahrenheit
Water Quality: HIGH SALT CONCENTRATION (Brine)

8. WELL TEST DATA
Test Method: ☐ Bailer ☐ Pump X Air Lift

	G.P.M.	Draw Down (Feet Below Static)	Recorded Time (Hours)
TUBE IN TUBE	152	20	24

9. WELL CONSTRUCTION
Depth Drilled: 2000 Feet Depth Cased: 1924 Feet

HOLE DIAMETER (BIT SIZE)

		From		To	
12.75	Inches	0	Feet	2000	Feet
	Inches		Feet		Feet
	Inches		Feet		Feet

CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
8.625	24	.250	+1.5	50
6	flush thread	f 480 pvc sch 80	0	1924

ANNULAR MATERIALS
Sanitary Seal x Yes ☐ No

x Neat Cement	0	to	50	x Pumped	☐ Poured
☐ Cement Grout		to		☐ Pumped	☐ Poured
☐ Concrete Grout		to		☐ Pumped	☐ Poured
x Bentonite Chips	238	to	765	Pumped	x Poured
x Gravel Pack [> 0.2 in.]	765	to	1924	☐ Pumped	☐ Poured
☐ Sand Pack [< 0.2 in.]		to		☐ Pumped	☐ Poured
x Other, explain: bentonite Chips (see attachment)	50	to	56	☐ Pumped	X Poured

PERFORATIONS:
Type of perforation: slotted
Size of perforation: 0.02

From	Feet	To	Feet
824		1884	

10. DRILLER'S CERTIFICATION
This well was drilled under my supervision. This report is true to the best of my knowledge.

Name: HARRIS EXPLORATION DRILLING AND ASSOCIATES INC (Contractor)
Address: P.O. BOX 81805 SAN DIEGO CALIFORNIA 92138 (Contractor)
Phone: 760-822-7886
Nevada contractor's license number as issued by the State Contractor's Board: 0026000A A-6
Nevada well driller's license number as issued by the Nevada Division of Water Resources (on-site driller): 1793
Signed: (Driller performing actual drilling is the contractor)
Date: 10-3-16 Patel Hare Contractor

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(Rev. 04-16) USE ADDITIONAL SHEETS IF NECESSARY

Nevada Division of Water Resources

Shannon Mc Daniels

October 3, 2016

Shannon,

This log for CV-3 was prepared by me, Rick Lewis, License # 1793. However I was only on this well during gravel packing and to oversee the correct placement of cement seal.

This hole was originally started as an RC and core Exploration hole, there is no NOI on file.

Thank you

Rick Lewis

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CU-3

Pure Energy Minerals — **Clayton Valley** — **NAD 83 11S 0450546 E 4175964 N**

Drill Hole CV 3 — **Esmeralda Co. Nevada** — **NAD 27 11S 0450633E 4175764N** — **elev. 4170 ft**

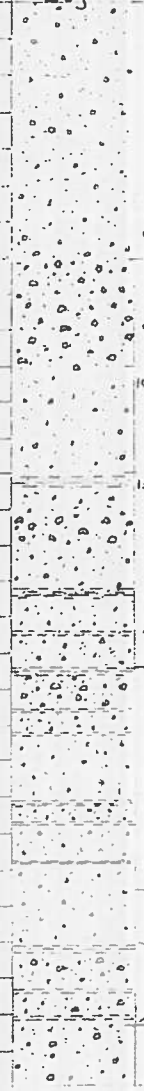
START MARCH 20, 2015 FINISH APRIL 18, 2015

STATIC WATER LEVEL 25.4 ft 68.4°F → (by sound wave monitor)

Logged by N. BARR

Hole from	Depth to	Drilling Time start	Drilling Time stop	Water Samp#	Sample time	Pump Sec/15gal	Flow Test gal/min	pH	Temp °F	TDS g/liter Total Dissolved Salts	Sp. Grav.	Specific Conductivity mS/c	Conductivity mS/c
0	10ft												
10	20												
20	30												
30	40												
40	50												
50	60												
60	70												
70	80	8:55	9:13AM										
80	90	9:18	9:29										
90	100	9:29	9:40										
100	110	9:50	10:02										
110	120	10:02	10:12										
120	130	10:24	10:36										
130	140	10:40	10:50										
140	150	11:01	11:12										
150	160	11:16	11:25										
160	170	11:38	11:52										
170	180	11:52	12:03PM										
180	190	12:12	12:24										
190	200	12:24	12:35										
200	210	12:50	1:03										
210	220	1:03	1:15										
220	230	1:24	1:40										
230	240	1:40	2:03										
240	250	2:16	2:30										
250	260	2:30	2:43										
260	270	2:52	3:04										
270	280	3:04	3:16										
280	290	3:24	3:39										
290	300'	3:39	3:52										

Graphic Log



Lithology

NOTE: Drill collar is on an active, non-draining alluvial fan. Coarse fraction is 75% pebble to small boulder, pale yellow-brown rhyolite comp. Lithic Tuff, 20% pale grey, fngr. tuff comp, siliceous to locally opaline, bulbous, accretionary Sinter and 2-5% dk brown to black, pebble to cobble, Paleozoic chert and meta sediments. Also sparse, silicified matrix med-fngr volcaniclastic sandstone, and pebble size 'Apache Tear' obsidian. Off white to pale yellow fngr sand and silt is composed of devitrified to cloudy arh, glassy angular to euhedral quartz and minor biotite. Fines are often wind deposited as small dunes.

0-70' Lithic Tuff, pale yellow-yellow brown silt to cr sand, to 2cm size pebbles. Lithic Tuff is composed of 10 to 20% partial vesc after cr OSH-Lapilli, 5-10% med to fngr glassy arg to euhedral quartz, and 1-3% biotite. Elastic Rock fragments common. Matrix is fngr. weakly indurated ash.

70-100' Lithic Tuff + increase in cr fraction as olive green mod indurated, (epidotized?) tuff and 3-4% dk silic metasses.

100-130 Lithic Tuff, pale yellow, fn to cr sand, minor fngr gravel, 1-2% green, indurated tuff + dk silic metasts. fragments

130-285' Lithic Tuff, mostly pale yellow to pale yellow brown, silt to cr gr sand to fn gr gravel. Local gravel cobble to small boulder (?) size. Local zones of mod. indurated, (diagenetically silicified?), pale brown-green, fngr, tuff fragments. 1-2% dark silic chert/metasses. Trace obsidian. Includes 1 to 2.5 ft interbeds of pale grey Silty Clay of tuffaceous composition. Silty clay interbeds occur on intervals of 5 to 30 ft

→ Trace silicified plant fossil

Grey-green Silty Clay

→ 5% Obsidian

pale brown Silty Clay

Lithic Tuff, similar pale yellow brown up to 10% green-brown, mod indurated Tuff, 3-5% dk. silic. metasses silt to cr gr sand + mostly pebble gravel

Drilling Notes/Comments

SET 12" Casing 0-20' (3-20-15)

0-400' MUD ROTARY with 9" Tricone Bit

Drill 20-40' (3-22-15)

Drill 40-200' (3-23-15)

STEADY DRILLING 0-70'

70' SLOWER DRILLING 70-100' bit 'chatter' due to local cr rock-gravel, some cobble? & small boulder? size material

100'

STEADY DRILLING 100-140'

→ Flush hole - add polymer

140' SLOWER DRILLING 140-170' bit 'chatter' - increase in coarse rock

170' STEADY DRILLING 170-190'

190' SLOWER DRILLING 190-200' Coarse Rock

200' STEADY DRILLING 200-230'

230' SLOWER DRILLING 230-240'

240' finer drill cuttings to 300'

260' Local Coarse Rock 260-300'

→ 278-280' coarse rock bit 'chatter'

Drill to 300' (3-23-15)

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Pure Energy Minerals **Clayton Valley** **NAD 83 11S 0450546 E 4175964 N**

Drill Hole CV 3 **Esmeralda Co. Nevada** **NAD 27 11S 0450633E 4175764N** **elev. 4170 ft** **Logged by** N. BARR

Hole from	Depth to	Drilling start	Time stop	Water Samp#	Sample time	Pump Sec/5gal	Flow Test gal/min	pH	Temp °F	TDS g/liter	Sp. Grav.	Specific Conductivity mS/c	Conductivity mS/c
300	310ft	9:26AM	9:39										
310	320	9:39	9:57										
320	330	10:11	10:23										
330	340	10:23	10:34										
340	350	10:46	10:57										
350	360	10:57	11:07										
360	370	11:20	11:34										
370	380	11:34	11:44										
380	390	11:56	12:09PM										
390	400	12:09	12:22										
400	410	12:14PM											
410	420		12:23										
420	430	12:40											
430	440		2:22										
440	450	2:40		CV-3 450	3:15PM	24 Sec	37.5 gal	7.61	71.26°	21.91	1.01	33.68	33.25
450	460		2:55										
460	470	3:03		CV-3 470	3:42	31 Sec	29 gal	7.47	68.13°	17.42	1.07	26.79	~~24.28~~
470	480		3:12										
480	490	3:37		CV-3 490	2:40	25 Sec	36 gal	7.27	71.62°	28.02	1.07	43.10	40.62
490	500		4:22										
500	510	2:46PM		CV-3 510	3:10	29 Sec	31 gal	7.61	69.28°	19.14	1.01	29.45	28.14
510	520		2:56										
520	530	3:13		CV-3 530	4:14	27 Sec	33 gal	7.24	70.17°	44.36	1.025	69.84	68.12
530	540		3:45										
540	550	4:06		CV-3 550	4:40	115 Sec	7.8 gal	7.75	69.80°	11.49	1.005	17.67	16.90
550	560		4:30										
560	570	4:51		CV-3 570	5:30	14 Sec	64 gal	7.69	68.63°	73.24	1.09	114.04	109.82
570	580		5:25										
580	590	9:47AM											
590	600'		10:06										

3-29-15
3-30-15

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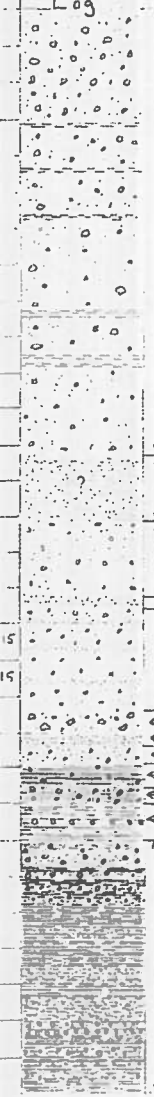
Graphic Log



Lithology

Lithic Tuff, mostly pale yellow to pale yellow-brown, silt to cr gr sand to mostly fngr gravels. local cobble to small bowlder gravel, coarse fraction may locally include distinctive olive-green to green brown indurated Tuff and med gr volcanoclastic Sandstone. Also 1-2' lv of local dk chic quartzite/mitaseds. Local .5 to 2 ft interbeds of light brown Silty Clay

Silty Sand, light brown, vy fngr sand/silt. In place formation? or moved down from up hole? 30-40% fngr angular quartz

Lithic Tuff similar, but includes distinctive pale olive green clasts of mod indurated, (weakly silicified) Tuff → Start Air Lift Water Sampling

Silty Sand, light brown

Lithic Tuff, pale yellow, mostly cr gr sand and gravels, interbeds of light brown Silty sand

→ light greenish-grey color

Coarse Lithic Tuff gravels

Silty Sand, lt brown

Lithic Tuff + Silty Sand → Geology Change

CLAY (80%) grey-green, 20% fn gravels

GREEN GRAVEL 15% CLAY

Silty CLAY, green-brown

local thin interbeds of white ASH spheres/pellets

Interbedded CLAY, silty clay, fngr gravels mostly greenish gray to greenish brown 530 to 580' Three thin interbeds of white ASH spheres/pellets NoTZO

local white ASH

local white ASH

Drilling Notes/Comments

(3-24-15)
Drill 300-400', run Rotary with 9" dia Tricone Bit
> Poor cutting return, local coarse gravel 300-330'
lots of polymer added
> mostly Slower Drilling 330-400' intervals of coarser gravel with cr gr sand/silt
(Drill repairs 3-25→3-28 no drilling)

Rotary mud → RC Air →

At 400' pull rod, install 6" casing 0-400. Set up for reverse circulation using air. Try bladed carbide hammer bit (for clays)
> STEADY DRILLING 400-424' mixed GRAVEL, cr sand/silt difficult getting returns

Difficult Drilling, frequent plugging of inner tube, all lt brown silty fn sand (may have run in from up hole?

(3-29-15)
Drill 400-500' RC/Air with bladed carbide hammer bit mostly difficult drilling frequent plugging/loss of circulation

500' At 500' change to tricone bit with 'skirted' bladder sub STILL DRILLING RC/Air
(3-30-15)
Drill 500-580'
SLOW STEADY DRILLING 500-580'
(Slower in clay interbeds)

Ⓡ Definite increase in groundwater flow

(3-31-15)
Drill 580-598 slow
598' → lose circulation pull drill rods

Pure Energy Minerals **Clayton Valley** **NAD 83 11S 0450546 E 4175964 N**

Drill Hole CV 3 **Esmeralda Co. Nevada** **NAD 27 11S 0450633E 4175764N** **elev. 4170 ft** **Logged by** N BARR

Hole from	Depth to	Drilling Time start	Drilling Time stop	Water Samp#	Sample time	Pump Sec/15gal	Flow Test gal/min	pH	Temp °F	TDS g/liter	Sp. Grav.	Specific Conductivity mS/c	Conductivity mS/c
600	610ft	3:08PM											
610	620		3:40										
620	630	12:20PM											
630	640		12:40										
640	650	12:45											
650	660		1:20										
660	670	1:30											
670	680		2:02										
680	690		2:45										
690	700		3:08										
700	710	3:25											
710	720		4:05										
720	730	9:15AM											
730	740		9:44										
740	750	10:02											
750	760		10:35										
760	770	10:58											
770	780		11:35										
780	790	11:45											
790	800		12:22PM										
800	810	12:32											
810	820		1:35										
820	830	1:55											
830	840		2:25										
840	850	2:38											
850	860		3:13										
860	870	3:25											
870	880		4:05										
880	890	9:06AM											
890	900'		9:38										

Graphic Log

Lithology

Interbedded silty clay, clay with minor fngr gravels. Mostly greenish-gray to locally greenish-brown. Gradational from tuffaceous comp. silty clays to true clays at about 670'. True clays occur as larger slabs in cuttings. Slower drilling, greater rotation pressure and mud pump 'laboring' also noted in clay zones. Local, several inch thick white ash interbeds also noted. local med gray - elevated fngr biotite

Increase of true clay interbeds noted by drillers.

675-900' typically about 30% clay 60% silty clay and 5-10% med gr sand to fngr gravel. Local thin interbeds of white ash pellets. Dominantly greenish-gray. Local med brown or gray interbeds. minor bedded, weakly indurated, silty - tuffaceous sandstone.

Drilling Notes/Comments

(4-2-15)
Re-ream and support hole using mud and tricone bit. Drill 598-620' using mud. Switch to RC/A at 620'. Drill 620-625', but no sample return. Pull rod, 120' of drill string packed with green silty clay.
— Downtime for drill repairs —
(4-16-15)
Resume drilling with mud and modified 'skirted' tricone bit. Drill 620-720'

MOSTLY STEADY DRILLING 620-675'

Drillers report heavier clay intervals and slower drilling starting at ≈675'

≈740-820' mud pump laboring due to clays

(4-17-15)
DRILL 720-880'
Hole completed using bentonite mud, polymer additive and modified 'skirted' tricone bit

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Pure Energy Minerals Clayton Valley NAD 83 11S 0450546 E 4175964 N

Drill Hole CV 3 Esmeralda Co. Nevada NAD 27 11S 0450633E 4175764N elev. 4170 ft Logged by N. BARR page 4 of 4

Hole from	Depth to	Drilling Time start	Drilling Time stop	Water Samp#	Sample time	Pump Flow Test sec/15gal	gal/min	pH	Temp °F	TDS g/liter	Sp. Grav	Specific Conductivity mS/c	Conductivity mS/c
900	910ft	9:58AM											
910	920		10:58										
920	930	11:15											
930	940		11:55										
940	950	12:10PM											
950	960 T.D.		1:18										

Graphic Log

Lithology

Interbedded clay (50%), Silty Sand (45%) and local med-cr gr sand and fn gr gravels. clays and silty sand are med green to green gray. 2-5% local interbeds of dark brown Tuffaceous siltstone. minor white ash at 900-902'

Drilling Notes/Comments

(4-18-15)
Drill 880-960' T.D.

bentonite drilling mud showing evidence of breaking down due to salt in ground water

Drillers report heavy clay and difficult drilling at 909, 932, 949'-954' & 950-960'
Hole Terminated due to increasing rotation resistance

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STATE OF NEVADA
DIVISION OF WATER RESOURCES
WELL DRILLER'S REPORT

OFFICE USE ONLY
Log No.
Permit No.
Basin No.

PRINT OR TYPE IN BLACK INK ONLY
DO NOT WRITE ON BACK

Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340

NOTICE OF INTENT NO. *
WELL NAME (If applicable): CV4

1. OWNER/CLIENT NAME: Pure Energy Minerals
MAILING ADDRESS: 355 Burrard Street Suite 1780
Vancouver BC V6C 2G8 CANADA

DETAILED ADDRESS AT WELL LOCATION
Clayton Valley Near Silver Peak
Subdivision Name: County: Esmeralda

2. PLS LOCATION: se ¼ nw ¼ 6 Sec 3 N/S s 40 E
PERMIT/WAIVER NO. MM-206 (Issued by Water Resources) (Current Parcel No.)

Latitude: 37.729633 UTM E: NAD 27
Longitude: -117.561295 UTM N: x NAD 83/WGS 84

3. WORKED PERFORMED
x New Well ☐ Deepen: Orig WL#
☐ Replacement: Original well log #
☐ Recondition: Original well log #

4. PROPOSED USE
☐ Domestic ☐ Irrigation ☐ Monitor
☐ Mining / Dewater ☐ Com / Ind ☐ Stock
x Test / Other lithium ☐ Mun / QM ☐ Rec

5. WELL TYPE
☐ Auger x Rotary ☐ RVC
x Air x Mud ☐ Sonic
☐ Other

6. LITHOLOGIC LOG

Material Encountered	Lost Circ.	Water Strata	From	To
alluvial sands and gravels brown		x	0	205
silt to fine sand,silty clays grey			205	830
blue green clays and silts			830	1340

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Date started: 8-Dec, 20 15
Date completed: 8-Feb, 20 16

7. WATER QUALITIES
Static water level: 22 Feet below land surface
Artesian Flow: G.P.M. P.S.I.
Water Temperature: 63 ° Fahrenheit
Water Quality: HIGH SALT CONCENTRATION (Brine)

8. WELL TEST DATA
Test Method: ☐ Bailer ☐ Pump X Air Lift

	G.P.M.	Draw Down (Feet Below Static)	Recorded Time (Hours)
air lift	10		1

9. WELL CONSTRUCTION
Depth Drilled: 1340 Feet Depth Cased: 1924 Feet

HOLE DIAMETER (BIT SIZE)

		From		To	
12.75	Inches	0	Feet	50	Feet
5.25	Inches	50	Feet	400	Feet
5.25	Inches	400	Feet	1340	Feet

CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
8.625	24	.250	+1.5	50
3	flush thread	schedule 40 f480	0	1190

ANNULAR MATERIALS
Sanitary Seal x Yes ☐ No

x Neat Cement	0	to 50	x Pumped	☐ Poured
☐ Cement Grout		to	☐ Pumped	☐ Poured
☐ Concrete Grout		to	☐ Pumped	☐ Poured
x Bentonite Chips	50	to 75	Pumped	x Poured
Gravel Pack [> 0.2 in.]		to	☐ Pumped	☐ Poured
☐ Sand Pack [< 0.2 in.]		to	☐ Pumped	☐ Poured
Other, explain:		to	☐ Pumped	Poured

PERFORATIONS:
Type of perforation: slotted
Size of perforation: 0.01
From 250 Feet To 1190 Feet
From Feet To Feet
From Feet To Feet
From Feet To Feet
From Feet To Feet

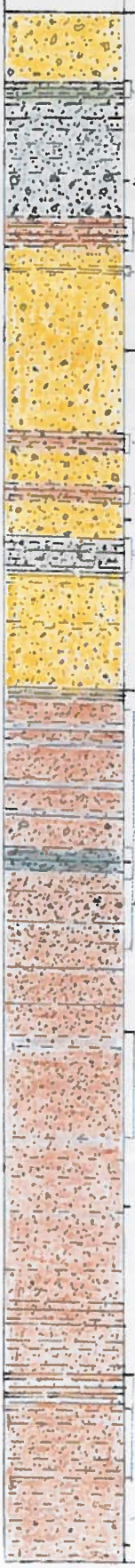
10. DRILLER'S CERTIFICATION
This well was drilled under my supervision. This report is true to the best of my knowledge.
Name: HARRIS EXPLORATION DRILLING AND ASSOCIATES INC (Contractor)
Address: P.O. BOX 81805 SAN DIEGO CALIFORNIA 92138 (Contractor)
Phone: 760-822-7886
Nevada contractor's license number as issued by the State Contractor's Board: 0026000A A-6
Nevada well driller's license number as issued by the Nevada Division of Water Resources (on-site driller): 1793
Signed: (By driller performing actual drilling on site or contractor)
Date: 10-4-2016 Core Borehole

(Rev 04-16) USE ADDITIONAL SHEETS IF NECESSARY

CV 4

PURE ENERGY MINERALS DRILL HOLE CV-4
Clayton Valley, Esmeralda Co., NV

collar elev. 3946'
page 1 of 3
logged by N. Barr



Lithology

0-205 ft. Unconsolidated Alluvium: Fine fraction, (70%), consists of pale yellow-brown, fn to med gr sand, silt and local silty clay, composed of devitrified ash, ang to euhedral qtz, and minor biotite. Cr fraction, (30%), composed of cr sand to pebble clasts of lithic tuff, 1-2% dk, silic meta-sediments, tr to 1% fn gr epidotized, weakly indurated tuff, and tr obsidian. Predom. med brown cuttings return.

20-25' damp green silty clay
60-70' 50% org brown silty clay
75-77 soft zone

125-130' 80% med brown silty clay

140-145' 70% med brown silty clay

155-165' 40% lt green-gray silty clay

decreasing cr fraction

200 → start Lacustrine deposition?

205-245
50% med-dk brown, med to lt gray silty clay
50% fn to med sand (loose)

increasing interbeds of variably colored silty clay/clay

245-255' 40% lt grey silty clay
60% fn to med sand, minor cr

255-275' 15% med brown to grey silty clay
85% fn to med sand (loose)

275-300' 10% 1 to 2' interbeds grey-brown clay
90% fn to cr sand (locally loose) minor fn gravel

300-330' dom. fn to cr sand with local fn to med gravel, minor fines mostly loose

330-400' (sample from hole reaming) med brown to grey brown silt/fn sand, minor silty clay interbeds, 2-5% lithic tuff cr sand, elevated, med brown silt/silty clay at 380-400'

400-410' off white to med brown silt, silty clay (some ash?) 410-430'

410-430' pale to med brown fn sand/silt with off white, chippy, silic sinter? silic ash tuff ? tr gravel

430-455' med brown silt/fn sand, minor cr sand

405-445'? salt residue? noted on chips

Drilling Notes

Harris Buggy air/rotary drill rig RC air-bentonite, 8", close tolerance, cr carbide cutter style teeth with lg diam. bit face return

(12-8-15) casing 0-55'
drill 0-210'

groundwater at ≈ 22', yields 10-15? gal/min

0-205' steady drilling, chip recovery up to 1" diam. to 200', aver. yield? of groundwater approx. 10 gal/min +

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(12-9-15) drill 210 to 330'

210-240' caving of loose sand-clay-silty clay, lost circulation

210-220', 250-255', 263' mud pump 'surge' heavy clay

255-270' caving of loose fn-cr sand interbeds, lg vol. of sand in returns

270-300' local mud pump 'surge'
305' → increase in groundwater noted to ≈ 330'

(12-10-15) lose of circulation at 320' air breach to surface outside casing

(12-11-15) attempt to seal with bentonite, drill 330-332' then bit plugged, modify inner tube with venturi holes, air 'blows out' at surface

(12-13-15) re enter hole to 310', 150' of drill string plugged, breach of air to surface

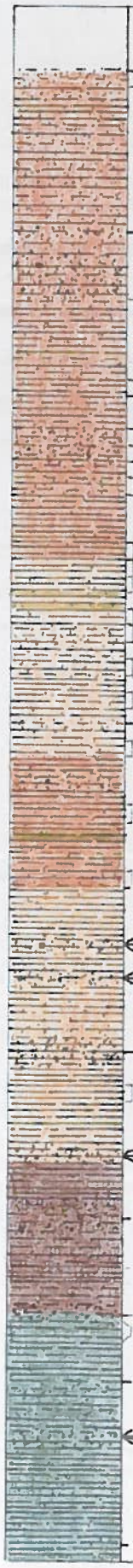
(12-14-15 to 1-19-16 no drilling)

(1-20 to 1-24-16) ream hole to 400' set 400' of 6" casing

(1-25-16) move larger, tank track air/rotary rig to CV-4 collar

PURE ENERGY MINERALS DRILL HOLE CV – 4
Clayton Valley, Esmeralda Co., NV

collar elev. 3946'
page 2 of 3
logged by N. BARR



Lithology

450' 455-500' med brown, interbedded clay, silty clay – silt, trace med-cr sand common return of cr. 'slab' cuttings from clay zones

olive green cr sand
500-520' 10-20%? cr sand composed of pale to brown-green, fngr., siliceous volcanoclastic sandstone

500

*5% 520-540' small %, 'chippy', off white, silic. translucent silica? (sinter?) mostly med. brown silty clay

*Tr. *5% *Tr. 500-835' dominantly med brown vy fn sand – silt, numerous, .5 to 4'(?) interbeds of light to med brown, local grey-brown/org. brown silty clay/clay. Cr 'slab' cutting return from clay zones common.

*Tr.
←20% cr sand
*10% ←10% " "
*2-3%
*Tr

*510-765 numerous 1" to local 12", ? off white, silty clay interbeds interpreted as fn ash derived from terrestrial erosion?, or volc. eruption airfall?

*20%
600
*50%
*20% ← green clay
*5%
*10%

*Tr.
*1%
*1%
←5-8% cr sand
*1-2%
← green clay

med to cr sand fraction trace – 2%, rarely exceeding 5%, composed mostly of pale yellow-brown lithic tuff/rhyolite and lessor dk siliceous metasediments/green indurated tuff/fngr, volcanoclastic sandstone.

700 *35%
←2-3% cr sand 1" pebble
←2-3% cr sand
← 20-25% med-cr sand (chert)
*?5%
← 6-8% med-cr sand
800 ← 5-7% mixed lith sand
← 5-7% cr sand – fn gravel
4-6% mixed lith cr sand

830-835' transition from brown to green-greyish green silty clay

835-905' green to green-grey clay/silty clay plus vy fn sand/silt, notable increase in clay at 865' cr to vy cr 'slab' cutting returns. local tr to 5% med-cr sand, mostly pale yellow-brown volc. composition

← 860-875' 5% cr sand
heavy clay

900'

Drilling Notes

(1-26,27-16) attempt rotary air with 5½" tricone, drill out concrete, drill to 400', air breaches to surface with lg void on outside of casing

(1-28-16) attempt concrete – bentonite seal, sign. groundwater flow at 400', loose fn sand/silt plugs lower 40' of casing

(1-29-16) switch to mud rotary using cr bladed bit drill to 460', drill rate; 25'/hr

(1-30-16) drill 460 to 640' at 23'/hr

(1-31-16) drill 640 to 780' at 20'/hr
heavy clay @ 660-665', 700-720'

(2-2-16) drill 780-860' at ≈ 20-25'/hr, slow advance – mud pump 'surge' in clay zones
heavy clay @ 780-794', 810-820'

(2-3-16) drill 860-980' @ 20'/hr
heavy clay @ 865-880', 890-900'
slow drilling
pronounced thickening of drilling fluid

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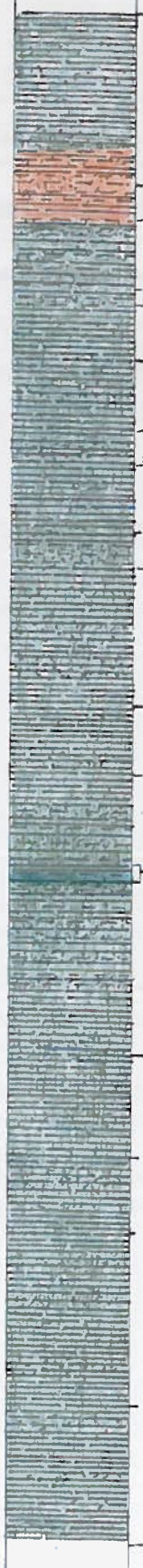
PURE ENERGY MINERALS DRILL HOLE CV - 4
Clayton Valley, Esmeralda Co., NV

collar elev. 3946'
page 3 of 3
logged by N. Barr



Lithology

905-1340' 80% green to brown-green to grey-green silty clay/clay. Cr to locally vy cr slab cuttings from clay zones common.
20% mostly med brown, .5 to 15'? thick interbeds of fn sand/silt. trace to locally 2% med-cr sand. grain size supports lacustrine deposition setting

Drilling Notes

(2-4-16) drill 980-1060' 910-940', heavy clay @ 985-1000', 1012-1015'
significant thickening of drilling mud by cuttings

(2-5-16) drill 1060-1180'
heavy clay @ 1078-80', 1116-1120', 1120-1140'

faster drilling noted in zones of elevated silt/fn sand

(2-8-16) hole completion
total depth 1340'

chalky white residue noted in chip trays @ 960-965', 980-985', 1070-1100'
interpreted to be calcium chloride? drill fluid additive possibly ash? or salt? residue

≈ 450-1340' aver. gr. size of composite sample collected from drill return sump is silt

Collar location: (NAD 27)
11S 0448756 E
4173542 N
collar elev. based on hand held GPS
Drilling Contractor:
Harris Drilling
Fernley, NV

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STATE OF NEVADA
DIVISION OF WATER RESOURCES
WELL DRILLER'S PLUGGING REPORT

OFFICE USE ONLY
Log No.
Permit No.
Basin

PRINT OR TYPE ONLY
DO NOT WRITE ON BACK

Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340

NOTICE OF INTENT NO. 71118

1 OWNER Pure Energy Minerals
MAILING ADDRESS 355Burrad Street Suite 1780
Vancuver BC V6C 2G8 Candada

ADDRESS AT WELL LOCATION Clayton Valley NV
Near Silver Peak NV
Subdivision Name: County: Esmeralda

2 LOCATION SE ¼ SW ¼ Sec 6 T 03S N/S R 40 E
PERMIT/WAIVER No. MM-206 (Issued by Water Resources) Parcel No.

Latitude
Longitude
UTM E 448499 N 4172942 [X] NAD 27 [ ] NAD 83/WGS 84

3 TYPE OF WELL
[ ] Domestic [ ] Irrigation [X] Test
[ ] Municipal/Industrial [ ] Monitor [ ] Stock

Is this well being plugged because a replacement well was drilled? No
If yes, what is replacement well NO!?

Is there an existing well log? No
If yes, what is NDWR well log #?

4 EXISTING WELL CONSTRUCTION
Depth Drilled 1620 Feet Depth Cased Pulled Feet

EXISTING CASING SCHEDULE

Size O.D. (inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
6.628	12.92	.188	0	20

Existing Perforations:
Type of perforation
Size of perforation
From feet to feet
From feet to feet
From feet to feet
From feet to feet
From feet to feet

5 WATER LEVEL
Static water level 21 feet below land surface
Artesian flow No G.P.M. P.S.I
Water temperature °F Quality

6 Additional Notes or Comments
Hole # CV5
see attached lithology report
This Hole had 20' of 6" cemented in for surface it was cut off slightly below surface

7 WELL PLUGGING PROCEDURE
Was well cleaned out to total depth? [X] yes [ ] no
If well was not cleaned out to total depth, please explain why:
Was the well contaminated? [ ] yes [X] no
Was the casing pulled? [X] yes [ ] no
Was the casing over drilled? [ ] yes [X] no
If casing was left in place, please show where additional perforations were made:
Additional Perforations:
Type of perforater used: N/A
From feet to feet Number of perfs per linear foot
From feet to feet Number of perfs per linear foot
From feet to feet Number of perfs per linear foot
From feet to feet Number of perfs per linear foot
From feet to feet Number of perfs per linear foot
From feet to feet Number of perfs per linear foot

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8 WELL PLUGGING MATERIALS

				Material Used		
From 0	feet to 28	feet	Neat Cement	[X] Pumped	[ ] Poured
From 28	feet to 30	feet	Bentonite Chips	[ ] Pumpe	[X] Poured
From 30	feet to 1620	feet	abandonite	[X] Pumped	[ ] Poured
From	feet to	feet		[ ] Pumped	[ ] Poured
From	feet to	feet		[ ] Pumped	[ ] Poured
From	feet to	feet		[ ] Pumped	[ ] Poured

Neat Cement Fluid Weight 1900/105 lbs/gal
Bentonite Grout % bentonite
Date Started 9/23/2016
Date Completed 9/24/2016

9 DRILLER'S CERTIFICATION
This well was plugged and abandoned under my supervision and the report is true to the best of my knowledge.
Name Harris Exploration Drilling & Associates Inc (Contractor)
Address PO Box 81805 Sandiego CA 92138 (Contractor)
Nevada contractor's license number issued by the State Contractor's Board 0026000A A-6
Nevada driller's license number issued by the Division of Water Resources, the on-site driller 1793
Signed (By driller performing actual drilling on site or contractor)
Date 10/4/2016 Contractor

(Rev. 05-06)

USE ADDITIONAL SHEETS IF NECESSARY

PURE ENERGY MINERALS DRILL HOLE CV -5
Clayton Valley, Esmeralda Co., NV

collar elev.
page 1 of 4
logged by N. Barr

Lithology

0-170 ft. Unconsolidated Alluvium: Fine fraction, (75 %), consists of pale yellow-brown, fn to med gr sand, silt and local silty clay, composed of of devitrified ash, ang to euhedral glassy qtz, and minor biotite. Coarse fraction, (25%), composed of cr sand to pebble clasts of lithic tuff, 1-2 % dk, silic meta-sediments, tr to 1% fn gr, epidotized, weakly indurated tuff, tr obsidian and pale, fn gr, silic sinter. Drill fluid cuttings med. brown/locally pale brown.

170-220' cr fraction same as 0-170' fines occur as 50%, .5? to 4'? interbeds of fn sand-silt, with local thin, silty clay sections

220-240' * geology-color change
65% grey-green clay/silty clay
35% cr sand-fn lithic tuff gravel

240-290' 90% fn sand/silt/ brown to grey-brown silty clay, local 'slab' cuttings
10% med to cr sand

290-300' 95%+ green to med. brown clay/silty clay
2% med-cr sand

300-320' 95% pale brown fn sand/silt/silty clay
3-4% med-cr sand/tr fn grav.

320-360' pale brown fn sand/silt/silty clay
→ 5-10% cr sand
25% cr sand composed of med brown, fn gr, silic volcanoclastic SS
→ up to 20% cr sand

360-380' 80% vy pale brown to off-white clay/silty clay
20%? fn ash * as thin? interbeds erosion transport? airfall?

380-400' fines?? mostly well sorted, med-cr gr sand, up to 35% sub to well rounded, glassy quartz (clean sand interbed ??)

400-460' mostly well sorted, med-cr gr sand, subordinate silt/silty clay 420-30, 440-50' 20% well rounded, glassy, med gr. qtz

* 400-460' 3-5%? fn white ash interbeds

*Tr
*Tr
*?
* 3-4%
* 3-4%
* ?

Drilling Notes

Maxidrill track rotary/core rig
rotary - bentonite mud
(2-3-16) 0-60' 5¼" rock bit
(2-4-16) 0-50' 9⅞" tricone
0-20' set 6" casing - cement
(2-5-16) 5⅜" tricone
drill 60 to 380'
drill rate 50 ft/hr

← driller reports groundwater (drill fluid thinned out) sandy

← clay thickens drill fluid

← green clay

← sandy
→ add polymer
← sandy, some gravel

(2-6-16) drill 380 to 600'
← ash
drill rate 35 ft/hr

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PURE ENERGY MINERALS DRILL HOLE CV-5
Clayton Valley, Esmeralda Co., NV

collar elev.
page 2 of 4
logged by N. Barr

Lithology

450' 450-460' abundant qtz rich, well sorted, med-cr gr sand, tr to 3%? fn ash

3-5% 460-540' 80% pale brown fn sand/silt, minor silty clay
15% + pale volc, med-cr sand
tr to locally 5%? fn white ash, as numerous thin? to vy thin? interbeds, erosion transport? airfall?

5%

500

Tr ≈ 500' small increase of dK, silic meta sediments as med-cr sand

1-2% 540-550' same pale brown fn sand/silt
2-4% med-cr sand → 35% of cr fraction composed of pale grey, vy ang/silic shards, fn gr sinter drill grind of qtz pebble?

→ 5-10%? ash

540-1120' med brown to locally pale brown + minor green brown fn sand/silt-silty clay, tr to 2% med-cr sand composed of pale lithic taff/rhyolite and 2-3% dk silic meta sediments

2-3%

Tr-2% → pale brown

600

Tr to 3%, locally up to 5-10% fn white ash evident between 360 to 900' interpreted as fraction to sev inch thick? interbeds, unknown if derived from terrestrial erosion? as airfall tuff, or both

2-3%

2 to locally 10%? ash

700

3-4%

1-2%

→ local dK choc brown silty clay

800

pale brown

Tr to locally 3% ash

→ local increase of dK, silic meta sediments in minor, med-cr gr sand fraction

900

Drilling Notes

(2-6-16) drill 380 to 600'
drill rate 35 ft/hr

540-1120' → steady drill rate
vast majority of cuttings (as fn sand/silt) suspended in drilling mud

← silty clay

(2-8-16) drill 600-840'
drill rate 35 ft/hr

← fn sand

← fn sand

(2-9-16) drill 840-980'
drill rate ≈ 20 ft/hr
expect drilling rate slowed by increasing clay/silty clay

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PURE ENERGY MINERALS DRILL HOLE CV - 5
Clayton Valley, Esmeralda Co., NV

collar elev.
page 3 of 4
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Lithology

900'

900-1120' (cont.)

med brown, locally pale brown to green-brown fn sand, silt silty clay, tr-2% med-cr sand, clay-silty clay % increasing with depth

color change 1120-1460'

dominantly green, grey-green to brown-green silt, silty clay-clay, Tr to 1% med-cr sand, cr fraction typically 90% + pale, rhyo composition, with Tr-sev% dK silic metasediments and lesser green tuff cr fraction % as silic metasediments locally exceeds 10%

sparse cr fraction composed of 5 to locally 10% dK, silic metasediments

Drilling Notes

(2-9-16) drill 840-980'
drill rate ≈ 20ft/hr

(2-10-16) drill 980-1120'
drill rate 20ft/hr
slow steady drilling due to clay

(2-11-16) drill 1120-1260'
drill rate ≈ 20ft/hr
slow steady drilling due to clay

thick, green-gray clayey returns

cutting return of 'slab' clay rare due to bit wear

heavy clay

(drill rotation resistance)

(2-12-16) drill 1260-1360'
drill rate 12ft/hr
clay and bit wear affecting drill rate

heavy clay

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PURE ENERGY MINERALS DRILL HOLE CV - 5
Clayton Valley, Esmeralda Co., NV

collar elev.
page 4 of 4
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Lithology

1350 - 1460' (cont.) green, grey-green to brown-green silt, silty clay clay, Tr to 2% med-cr sand

1460-1470' elevated fn to lessor med sand interbedded with brown-green silt, silty clay, clay

1470-1620' green to brown-green silt, silty clay, clay, Tr to 2% med-cr sand

1620' T.D.

Drilling Notes

(2-13-16) drill 1360-1420'
drill rate 10ft/hr

some cr 'slab' clay recovered

new tricone bit at 1420' 5 1/4"

(2-14-16) drill 1420-1540'
drill rate 21ft/hr

formation clay causing thickening of drill fluids, water added to drill mud @ 1440'

local recovery of 'slab' clay

faster drilling at 1460-1470' due to elevated fn-med sand

(2-15-16) drill 1540-1620' T.D.
drill rate 28ft/hr
steady drilling with thick drill cuttings

cr fraction sample collected using 12 & 40 mesh screens
fn sand collected with difficulty using an 80 mesh screen

collar location: (NAD 27)
11S 0448499 E
4172942 N

Drilling Contractor:
Harris Drilling
Fernley, NV

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BRIAN SANDOVAL
GOVERNOR

STATE OF NEVADA

LEO DROZDOFF
Director

JASON KING, P.E.
State Engineer

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES
901 South Stewart Street, Suite 2002
Carson City, Nevada 89701-5250
(775) 684-2800 · Fax (775) 684-2811
http://water.nv.gov

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NOTICE OF INTENT CARD APPROVAL FORM

To: Harris Exploration Drilling Date: 09/21/2016

Facsimile No.: _____ or E-mail Address: clx89315@yahoo.com

This document was: ☐ E-mailed ☑ Faxed

NOI Card Number: 71118 ☑ **Approved** ☐ **Rejected** (See reasons below)

Work performed	missing	☐	invalid	☐
Proposed use of well	missing	☐	invalid	☐
Intended start date	missing	☐	invalid	☐
Waiver/Permit number if applicable	missing	☑	invalid	☐
Well location (legal description, GPS coordinates)	missing	☐	invalid	☑
Parcel number	missing	☐	invalid	☐
Address at well location	missing	☐	invalid	☐
Permit number	missing	☐	invalid	☐
Waiver number or NDEP Facility ID Number	missing	☐	invalid	☐
Address of Client	missing	☐	invalid	☐
Name of client/owner	missing	☐	invalid	☐
Contractor's license number	missing	☐	invalid	☐
Onsite well driller's license number	missing	☐	invalid	☐
Drilling company name/address	missing	☐	invalid	☐
Driller's signature	missing	☐	invalid	☐
Replacement well	Yes	☐	No	☐

If yes, existing well must be plugged at time the replacement well is drilled, pursuant to NAC 534.300 Replacement Well.

Instructions: PLUGGING 5" DIA TEST WELL. MM-206. WELL CV-5.
UTM: 448499E, 4172942N, NAD 27. SE SW S06 T.3S, R.40E.
SILVER PEAK, CLAYTON VALLEY, NV.

Person reviewing NOI Card: JAKE ECHEVERRIA (775)684-2813

Date reviewed: 09/21/2016

STATE OF NEVADA
DIVISION OF WATER RESOURCES
WELL DRILLER'S REPORT

OFFICE USE ONLY
Log No.
Permit No.
Basin No.

PRINT OR TYPE IN BLACK INK ONLY
DO NOT WRITE ON BACK

Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340

NOTICE OF INTENT NO. *
WELL NAME (If applicable): cv 6

1. OWNER/CLIENT NAME Pure Energy Minerals
MAILING ADDRESS 355 Burrard Street Suite 1780
Vancouver BC V6C 2G8 CANADA

DETAILED ADDRESS AT WELL LOCATION
Clayton Valley Near Silver Peak
Subdivision Name
County: Esmeralda

2. PLS LOCATION nw ¼ sw ¼ 12 Sec 35 N/S s 40 E
PERMIT/WAIVER NO. MM-206
Issued by Water Resources
Current Parcel No.

Latitude
Longitude
UTM E 37.736729 x NAD 27
UTM N -117.559067 NAD 83/WGS 84

3. WORKED PERFORMED
x New Well ☐ Deepen: Orig WL#
☐ Replacement: Original well log #
☐ Recondition: Original well log #

4. PROPOSED USE
☐ Domestic ☐ Irrigation ☐ Monitor
☐ Mining / Dewater ☐ Com / Ind ☐ Stock
x Test / Other lithium ☐ Mun / QM ☐ Rec

5. WELL TYPE
☐ Auger x Rotary ☐ RVC
☐ Air x Mud ☐ Sonic
x Other core

6. LITHOLOGIC LOG

Material Encountered	Lost Circ	Water Strata	From	To
alluvial sands and gravels		x	0	50
silt to fine sand,silty clays			50	110
sandy silts and silty clay			110	955
inter bedded sand and clay			955	1196
clay and silty clay			1196	1500

Date started: 14-Nov , 20 15
Date completed: 12-Jan , 20 16

7. WATER QUALITIES
Static water level: 33 Feet below land surface
Artesian Flow: G.P.M. P.S.I.
Water Temperature: cold ° Fahrenheit
Water Quality: HIGH SALT CONCENTRATION (Brine)

8. WELL TEST DATA
Test Method: ☐ Bailer ☐ Pump X Air Lift

	G.P.M.	Draw Down (Feet Below Static)	Recorded Time (Hours)
air	35	20	2

9. WELL CONSTRUCTION
Depth Drilled: 1500 Feet Depth Cased: 1470 Feet

HOLE DIAMETER (BIT SIZE)

		From		To	
6	Inches	0	Feet	500	Feet
3.78	Inches	500	Feet	1500	Feet
	Inches		Feet		Feet

CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
4.5		hwt core casing	0	500
2		schedule 40 f480	0	1470

ANNULAR MATERIALS
Sanitary Seal Yes No x
Neat Cement to ☐ Pumped ☐ Poured
☐ Cement Grout to ☐ Pumped ☐ Poured
☐ Concrete Grout to ☐ Pumped ☐ Poured
Bentonite Chips to Pumped Poured
Gravel Pack [> 0.2 in.] to ☐ Pumped ☐ Poured
☐ Sand Pack [< 0.2 in.] to ☐ Pumped ☐ Poured
Other, explain: to ☐ Pumped Poured
Hole abandoned see plugging report

PERFORATIONS
Type of perforation: slotted
Size of perforation: 0.01
From 500 Feet To 1470 Feet
From Feet To Feet
From Feet To Feet
From Feet To Feet
From Feet To Feet

10. DRILLER'S CERTIFICATION
This well was drilled under my supervision. This report is true to the best of my knowledge.
Name HARRIS EXPLORATION DRILLING AND ASSOCIATES INC
Contractor
Address P.O. BOX 81805 SAN DIEGO CALIFORNIA 92138
Contractor
Phone 760-822-7886
Nevada contractor's license number as issued by the State Contractor's Board: 0026000A A-6
Nevada well driller's license number as issued by the Nevada Division of Water Resources (on-site driller): 1793 Bore
Signed Contractor Cored Hole
By driller performing actual drilling on site or contractor
Date Sept 20, 2016

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(Rev. 04-16)
USE ADDITIONAL SHEETS IF NECESSARY

STATE OF NEVADA
DIVISION OF WATER RESOURCES
WELL DRILLER'S PLUGGING REPORT

OFFICE USE ONLY
Log No.
Permit No.
Basin

PRINT OR TYPE ONLY
DO NOT WRITE ON BACK

Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340

1 OWNER Pure Energy Minerals
MAILING ADDRESS 355Burrad Street Suite 1780
Vancuver BC V6C 2G8 Candada

NOTICE OF INTENT NO. 71117
ADDRESS AT WELL LOCATION Clayton Valley NV
Near Silver Peak NV
Subdivision Name:
County: Esmeralda

2 LOCATION NE ¼ SW ¼ Sec 12 T 03S N/S R 39 E
PERMIT/WAIVER No. Issued by Water Resources Parcel No.
Latitude
Longitude
UTM E 446705 N 4171439
[X] NAD 27
[ ] NAD 83/WGS 84

3 TYPE OF WELL
[ ] Domestic [ ] Irrigation [X] Test
[ ] Municipal/Industrial [ ] Monitor [ ] Stock

Is this well being plugged because a replacement well was drilled? No
If yes, what is replacement well NOI?

Is there an existing well log? No
If yes, what is NDWR well log #?

4 EXISTING WELL CONSTRUCTION
Depth Drilled 1500 Feet Depth Cased Pulled Feet

EXISTING CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (inches)	From (Feet)	To (Feet)
		Casing Pullied		

Existing Perforations:
Type of perforation
Size of perforation
From feet to feet
From feet to feet
From feet to feet
From feet to feet
From feet to feet

5 WATER LEVEL
Static water level 18 feet below land surface
Artesian flow No G.P.M. P.S.I
Water temperature °F Quality

6 Additional Notes or Comments
Hole # CV6
see attached lithology report

Plugged to Regs
1793 = Rick Lewis
0026000A A-6 is valid for
Harris Exploration

7 WELL PLUGGING PROCEDURE
Was well cleaned out to total depth? [X] yes [ ] no
If well was not cleaned out to total depth, please explain why:

Was the well contaminated? [ ] yes [X] no
Was the casing pulled? [X] yes [ ] no
Was the casing over drilled? [ ] yes [X] no
If casing was left in place, please show where additional perforations were made:

Additional Perforations:
Type of perforater used: N/A
From feet to feet Number of perfs per linear foot
From feet to feet Number of perfs per linear foot
From feet to feet Number of perfs per linear foot
From feet to feet Number of perfs per linear foot
From feet to feet Number of perfs per linear foot
From feet to feet Number of perfs per linear foot

8 WELL PLUGGING MATERIALS

From	feet to	feet	Material Used		
0	25		Neat Cement	[X] Pumped	[ ] Poured
25	27		3/8 hole plug	[ ] Pumpe	[X] Poured
27	1500		abandonite	[X] Pumped	[ ] Poured
				[ ] Pumped	[ ] Poured
				[ ] Pumped	[ ] Poured
				[ ] Pumped	[ ] Poured

Neat Cement Fluid Weight 600 per 86 Gal lbs/gal
Bentonite Grout % bentonite
Date Started 9/22/2016
Date Completed 9/23/2016

9 DRILLER'S CERTIFICATION
This well was plugged and abandoned under my supervision and the report is true to the best of my knowledge.
Name Harris Exploration Drilling & Associates Inc
Contractor
Address PO Box 81805 Sandiego CA 92138
Contractor
Nevada contractor's license number issued by the State Contractor's Board 0026000A A-6
Nevada driller's license number issued by the Division of Water Resources, the on-site driller 1793
Signed
By driller performing actual drilling on site or contractor
Date 10/3/2016 Patrol Blow Contractor

(Rev 05-06)
USE ADDITIONAL SHEETS IF NECESSARY

BRIAN SANDOVAL
GOVERNOR

STATE OF NEVADA

LEO DROZDOFF
Director

JASON KING, P.E.
State Engineer

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES
901 South Stewart Street, Suite 2002
Carson City, Nevada 89701-5250
(775) 684-2800 · Fax (775) 684-2811
http://water.nv.gov

NOTICE OF INTENT CARD APPROVAL FORM

To: Harris Exploration Drilling

Date: 09/16/2016

Facsimile No.: _____ or E-mail Address: clx89315@yahoo.com

This document was: ☐ E-mailed ☑ Faxed

NOI Card Number: 71117 ☑ **Approved** ☐ **Rejected** (See reasons below)

Work performed	missing	☐	invalid	☐
Proposed use of well	missing	☐	invalid	☐
Intended start date	missing	☐	invalid	☐
Waiver/Permit number if applicable	missing	☑	invalid	☐
Well location (legal description, GPS coordinates)	missing	☐	invalid	☑
Parcel number	missing	☐	invalid	☐
Address at well location	missing	☐	invalid	☐
Permit number	missing	☐	invalid	☐
Waiver number or NDEP Facility ID Number	missing	☐	invalid	☐
Address of Client	missing	☐	invalid	☐
Name of client/owner	missing	☐	invalid	☐
Contractor's license number	missing	☐	invalid	☐
Onsite well driller's license number	missing	☐	invalid	☐
Drilling company name/address	missing	☐	invalid	☐
Driller's signature	missing	☐	invalid	☐
Replacement well	Yes	☐	No	☐

If yes, existing well must be plugged at time the replacement well is drilled, pursuant to NAC 534.300 Replacement Well.

Instructions: PLUGGING 6" DIA TEST WELL. MM-206. WELL CV-6.
UTM: 446705E, 4171439N, NAD 27. NE SW S12 T.3S, R.39E.
SILVER PEAK, CLAYTON VALLEY, NV.

Person reviewing NOI Card: Shannon McDaniel (775)684-2842

Date reviewed: 09/16/2016

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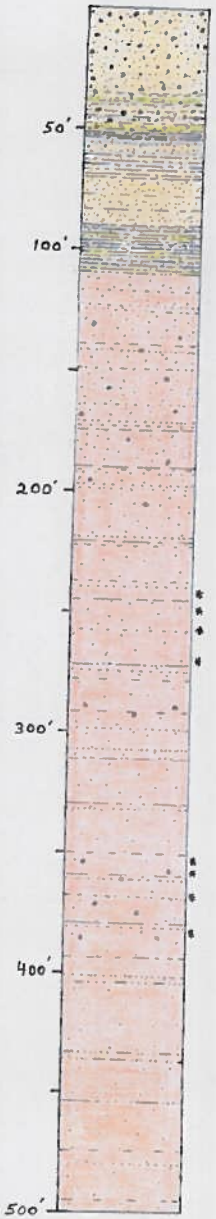
CV-6



PURE ENERGY MINERALS DRILL HOLE CV-6
Clayton Valley, Esmeralda County, Nevada

NAD 83 11S 0446624E 4171640N
NAD 27 11S 0446705E 4171439N elev. 4296 ft

Lithology

0-50' Unconsolidated Alluvial Fan Deposit: 75% off white to pale yellow fn gr sand, silt and silty clay, composed of devitrified ash, glassy, angular to eudedral quartz and minor biotite. 25% off white to pale yellow-green, cr sand to fn pebble clasts of lithic tuff, including 1-3 % dark, siliceous meta-sediments, medium green, weakly indurated, epidotized vocanoclastic sandstone, and trace obsidian. Mostly medium brown return water. (35-40'), several thin, pale gray-green interbeds. (40-50'), elevated pea gravel with increasing silty clays.

50-55' Dominantly medium green to green-brown silty clay. Cuttings often showing as clayey, pebble size 'clots'. Represents transition to lacustrine setting ?

55-110' Near Shore ? Interbedded Lacustrine Deposits: 95 % medium brown, fn sand, silt and silty clay. Local thin intervals of pale gray, gray-green and off-white silty clays returning as coarse 'clots'. Trace to several % cr sand to fn pebble coarse fraction composed of same lithic tuff, volcanoclastic sandstone and meta-sediments. Mostly pale to medium brown return water. (90-110') soft zone, elevated clay, pale gray-green to local off white return water, with portion of cuttings returning as silty clay 'clots'.

110-500' Interbedded Lacustrine Deposits: 98 % medium brown, fn gr sand, silt and silty clay. Steady drilling rate with consistent medium brown return water. Coarse fraction composed of trace to 1 % similar compostion cr sand (128-210', 288-295', 324-325') 10 to 12 local intervals of 'bit chatter', representing local concentrations of coarse rock. Very minor recovery of silty clay 'clots'.

* (240-285', 350-390'). Recovery of 2 mm diameter, off white, soft 'pellets' of air fall tuff. Most abundant between 240-270' & 350-370'. Interpreted as fraction to several inch thick deposits of soft sediment preserved ash, associated with episodic volcanic activity.

Drilling Notes/Comments

Trackmount MAXIDRILL
mud rotary, 6" tricone bit
bentonite + polymer

50 — local clay

100 — Soft zone, poor returns

→ driller starts slower drilling to help lift cuttings

110-500' - steady drilling rate with same medium brown return water

200

— local increase in drilling torque

300

400

Drilling Rate:
0-150' 45ft/hr
150-310' 37ft/hr
310-500' 33ft/hr

Nov. 14, 2015 0-5' (cased)
Nov. 15 5-310'
Nov. 16 310-500'

No caving of hole reported
static water level unknown

500 T.D.

N BARR 11-2015

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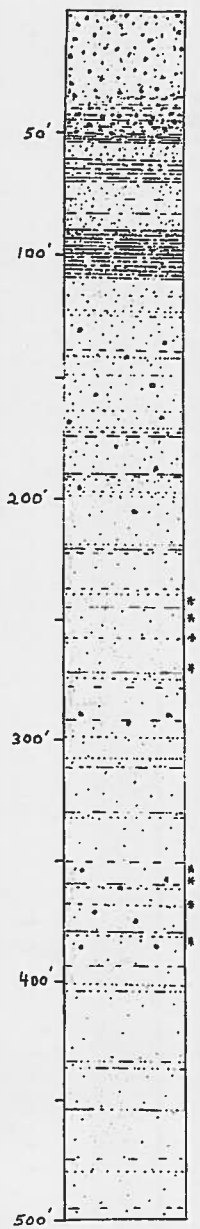
Preliminary Log-Hole CV-6
PURE ENERGY MINERALS
Clayton Valley, Esmeralda Co., NV
Collar elev. ≈ 4296' NAD83
115 0446624 E
4171640 N

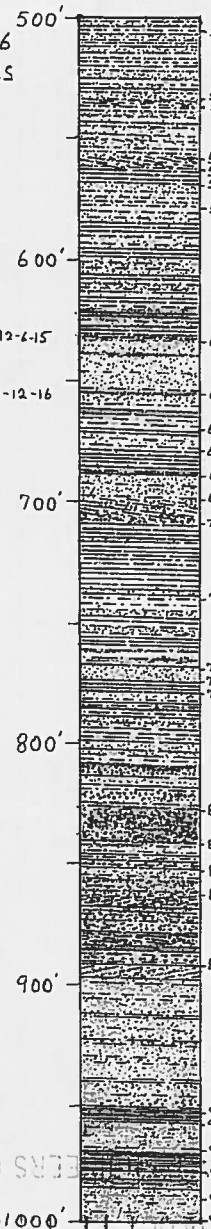
NAD27
115 0446705 E
4171439 N

0-500' Reverse Circulation
hole reaming completed 12-6-15

500-1500' Diamond Coring
1500ft T.D. completed 1-12-16
H size core

(See CV-6 chip log for 0-500')





505' 70% brn, med stiff Silt-Clayey Silt
minor clay laminae
30% loose silty fn Sand
533 536 → Fluvial? thin bedded, (10° off ⊥) vy fn Sand, Silt
w/ cross bed texture. 2" ash bed
med stiff, vy fn sandy Silt
sparse interbeds of fn to cr Sand
558 562 → Fluvial? fn sandy Silt bedding 5° off ⊥
569 → stiff Clay-Silty Clay
578 → med stiff, fn sandy Silt, 20% loose fn sand interbeds

.5 to 4' interbeds of:
65% stiff, 'waxy' Clay-Silty Clay, choc brn
35% loose fn to vy fn Sand
med sand to fn gravel as local 'channel'? fill

638 med loose, fn to silty fn Sand

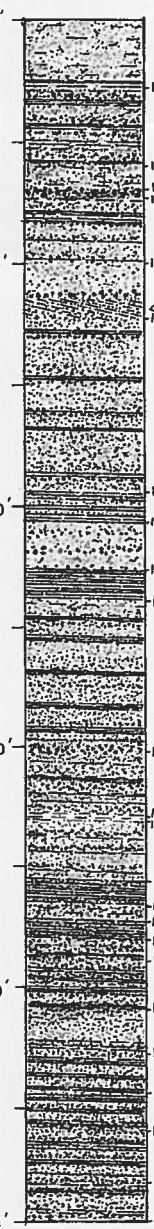
656 60% faint green-grey silty fn Sand, loose
670 40% stiff Silty-Clay
678 → med stiff, fn sandy Silt-Silty Clay
689 → choc brn, stiff, Clay-Silty Clay
698 → loose silty fn Sand
708 Fluvial? interbeds of Silty Clay, fn-cr Sand, fn Gravel as 5° off ⊥ channel? fill
brn green to green, med stiff, 'waxy' Clay

740 green to green brn, med stiff Silt to fn Sandy Silt
15% .5 to 2' interbeds of 'waxy' brn-green Clay
769 → loose fn Sand
773 778 → 80% choc to green brn 'waxy' Clay
70% green brn to blue gray, stiff Silty Clay
30% loose, .5 to 3' interbeds of fn-med Sand and local cr Sand-fn Gravel

828 green to black green, loose cr Sand-fn pebble Conglomerate
842 green brn, med stiff, clayey to fn sandy Silt
853 → loose fn to cr Sand, local fn pebble Conglomerate
863 15% med stiff fn sandy Silt
55% brn, stiff Clay-Silty Clay
45% loose, .5 to 2' interbeds of fn to cr Sand
893 Fluvial? x bedding at 863-868, 878-883

med brn, loose, well sorted, fn to silty fn Sand
lesser med-cr Sand
8% med stiff, thin interbeds of Silty Clay
893-908' rhythmic thin bedding/x bedding at 10° off ⊥

955 959 → org brn, stiff, 'waxy' Clay
970 → loose, fn to silty Sand, minor clay interbeds
979 → med stiff, Silty Clay airfall ash .5' at 968', 962'
991 → loose, fn silty Sand, minor thin clay interbeds
999 → med stiff, loose, fn Sand-Silty Sand



loose, well sorted fn Sand
sparse, org-brn, irreg thin clay laminae
local clay 'rip ups'

1028 .5 to 2' interbeds of:
70% loose silty fn Sand
30% med stiff, Clay-Silty Clay
7 to 8, .25 to .5' fn Gravel interbeds
1062 → Fluvial? loose, thin fn to cr Sand with thin clay laminae
1071 1074 → grey brn, loose, mixed lith, fn sand to fn pebble Conglomerate
loose, well sorted, fn to med, local cr Sand
12% stiff, Clay-Silty Clay, local fn white ash in clay
1102 loose, fn to cr Sand, local fn pebble Gravel
1129 Fluvial? rhythmic thin sand-clay beds 10° off ⊥

Mostly loose, well sorted, silty fn to cr Sand
sparse, .2 to .5' fn pebble gravel interbeds
12% widely scattered, .5 to 1' Clay interbeds

1196 org brn, stiff, Clay-Silty Clay
1208 20% .5 to 1', loose, fn Sand interbeds
grey brn, loose fn to cr Sand, local fn pebble Gravel
local clay 'rip ups'
1228 choc brn, 'waxy' Clay, fn ash seams within clay
1242

.5 to 2' interbeds of:
72% loose to med dense, silty fn to med Sand
local silty matrix, thin bedded cr Sand-fn Gravel
28% choc to org brn 'waxy' Clay-Silty Clay
fn ash in matrix? 1266-70

1302 grey brn, loose, med to cr Sand
local diverse, mix lith. fn pebble Gravels
sparse clay interbeds, elev ash? at 1212-15'
1330 1332 → off white, loose, thin bedded, fn Ash, airfall ??
(also at 1334')
grey brn, loose, poorly sorted, fn to cr Sand
15% org brn, thin, contorted beds of Clay-Silty Clay
1357 → org brn, stiff, irreg seam Silty Clay, minor fn to cr Sand
1367 1373 → grey brn, loose to med dense, fn to cr Sand, minor thin clay
1381 → org brn, stiff, Clayey-Silt, 10% thin, fn to cr Sand beds
1390 → grey brn, loose, poorly sorted, fn to cr Sand, thin, irreg, clay beds
brn-org brn, stiff, Clayey Silt, clay beds broken/contorted
numerous, thin, poorly sorted, fn to cr Sand interbeds
1410 (only 30% recovery) 5' grey brn, fn to cr Sand
? 1' med brn, gravelly Silty Clay
1428 → 60% org brn, stiff, Silty Clay, local 'rip ups'
40% grey brn, loose, poorly sorted, fn to cr Sand
1445 → 75% choc brn, stiff Clay-Silty Clay
25% loose, .5' interbeds of fn to cr Sand
1461 ⊗ weakly lithified, crudely, thin interbedded fn to cr Sand
→ 35% org brn, 'waxy' Clay, local 2mm clay laminae
1483

.5 to 2' interbeds of:
55% brn mottled, stiff, Silty Clay, weakly lithified ?
1500 T.D. 45% grey brn, loose, poorly sorted, fn to cr Sand
local thin clay beds at 5° off ⊥

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