VIRGINIA DIVISION OF MINERAL RESOURCES Box 3667, Charlottesville, VA 22903

INTERVAL SHEET

Page 1 of	1		Well Repository	y No.: w- 5636
Date rec'd: 1-10-80	Date Processed:	1-10-80	Sample Interval	1: from 0 to: 1010
PROPERTY:			Number of samp	les: 64
COMPANY: D'Appolonia	(DAPP-4).		Total Depth: 1	010
COUNTY: Accomack			Oil or Gas:	Water: Exploratory: X
From-To	From-To	From-To	From-To	From-To
0_3 3-20	360-370 370-380 380-390	660-670 670-680	970-980	
30-40 50-	390-400 400-410	690-700	990-1000 1000-1010	
60-	· [24 · 1 ·]	710-720 720-730 730-740	5	·
80- - 100-110	440-450 450-460	750-760	1	<u>=</u>
110-120 120-130	460 –470 470 –480 480 –490	770 -780		<u>-</u>
140 <i>-</i> 150 150 <i>-</i> 160	490-500	790 <u>–</u> 800 –		
	510-520 520-530 530-540	820 -830 830 -840		=
240 –250 250 –260	540-550 550-560	850 -860	<u> </u>	<u> </u>
270 - 280	560 – 570 570 <i>–</i> 580	870_880	5	
280 – 290 290 – 300 300 – 310	590-600	890_900		
310 -320	610-620	910-920	_	-
320 -330 330340	630_640	930-940	-	
340 - 350 350 - 360	650_660	950-960		

Unwashed only

VIRGINIA DIVISION OF MINERAL RESOURCES Box 3667, Charlottesville, VA 22903

INTERVAL SHEET

Page /	of		Well Reposit	ory No:	5636
Date rec'd:/	-10-80 Date Pro	cessed: 1-10-80	Sample Inter	val: fr	om:©to: 1010
PROPERTY:			Number of sa	mples:6	,4
COMPANY:	2001 (2	777 (1)	Total Depth:	1010	
COUNTY: ACC	APPOLONIA (DA DMACK	1111-4)	Oil or Gas:	Water:	Exploratory:
From-To	From-To	From-To	Fr	om-To	
3 - 20	310 320 320 330 330 340 340 350 350 360	560 -570 570 -580 590 -600	820 830 .		
60 _	360 - 370 370 - 380 380 - 78	610 -620	810	880	

3 -20	320 -330 330 -340 340 -350 350 -360	590 _600	830.	-830 -840 -860
60 - 80 - 100 - 110	360 - 370 370 - 380 380 - 390 390 - 400 400 - 410	610 -620 630 -640 650 -660		880
110 - 120 120 - 130 140 - 150 150 160	440-450	650 - 670 670 - 680 690 - 700		-920 -940 -960
240 Z50 250 260	460 - 470 470 - 480 480 - 490 490 - 500	710 - 720 720 - 730 730 - 740 750 - 760	980	-980 -1000 -1010
710 280 280 290 290 300 300 310	510 - 520 520 - 530 530 - 540 540 - 550 550 - 560	770 - 780		

un washed only

County: ACCOMACK VDMR Well # 5636

Well: DAPP-4

Farm:

Driller: D'Appolonia

Location: Saxis 7.5' Quadrangle; south end of Saxis Island; 37055'12" N, 75043'39" W

Elevation: 5'+(1.5m)Total depth: 1010'

Started drilling: 1979 Finished drilling: 1979 Sample description by: Joan K. Polzin, Virginia Division of Mineral Resources

References: D'Appolonia, 1980, Hot dry rock geothermal evaluation,

Cris-Wall site, eastern shore of Maryland and Virginia:

Los Alamos Scientific Laboratory, Los Alamos, N.M.

GEOLOGIC SUMMARY

Depth	Thickness	Formation (and remarks)
0-40	40	Pleistocene undivided
40-180	120	Yorktown Fm.
180-380	200	St. Marys Fm.
380-470	90	Choptank Fm.
470-830	360	Colvent Fm.
830-1010	180	Nanjemoy Fm.

NOTE: All unit picks are from gamma log.

OWNER:

DRILLER: D'Appolonia

COUNTY: Accomack

W # 5636

TOTAL DEPTH - 1010'

DEPTH (FEET)			WELL LOG
0-3	Clay		grayish orange (10YR 7/4); abundant clasts; abundant sand; medium grained to granule, subangular to subrounded; poor sorting; quartz.
3-20	Clay	-	olive gray (5Y 4/1); abundant clay; sparse sand; medium grained to granule, subangular to subrounded, poor sorting; quartz.
20-30	No sam	ple.	
30-40	Clay	-	as above; except: sand-medium to very coarse grained; some granules.
40-50	Sand	-	light and dark gray; sparse clay; medium to very coarse grained, subangular, poor sorting; quartz; 40% shell fragments — mollusks; talc?.
50-60	Sand	-	as above; except: fine to very coarse grained, some granules; 3% shell fragments.
60-80	No sam	ple.	
80-100	Sand	-	light olive gray (5Y 6/1); very sparse clay in orange clasts; very fine grained to granule, subangular to subrounded, poor sorting; quartz; 10% shell fragments; some phosphate fragments; garnet
100-110	Sand	-	as above; except: sparse shell fragments.
110-120	Sand	-	as above; except: 7% fine, reworked glauconite.
120-130	Sand	-	greenish gray (5GY 6/1); sparse clay; sand as above; 30% shell fragments; lignite; iron oxide fragments.
130-140	No sam	ple.	•
140-150	Sand	-	light olive gray (5Y 5/2); sparse clay; fine to very coarse grained, subangular, poor sorting; quartz; 25% shell fragments; 10% glauconite.
150-160	Sand	-	as above; except: medium to coarse grained; 45% shell fragments; 30% glauconite.
160-240	No sam	ple.	•
240-250	Shell,	Has	sh - light and dark gray; 60% shell fragments; rest - clay pellets; medium and coarse sand and 15-20% glauconite; talc; iron oxide; muscovite.

DEPTH (FEET)			WELL LOG
250-260	Chall	Una	h
250-260	Shell	nas	h - as above; except: some granules; scaphopod; iron.
260-270	No sa	mple	•
270-280	Sand	-	light olive gray (5Y 6/1); sparse silt; fine to medium grained, subangular, moderate sorting; quartz; 7% glauconite; 7% fine shell fragments.
280-290	Sand	-	as above; except: sparse clay clasts; medium to coarse grained; 20% glauconite; 20% shell fragments; echinoderm spines.
290-300	Sand	-	as above; except: 70% glauconite; 10% shell fragments; iron oxide.
300-310	Sand	-	as above; except: moderate clay, clasts; fine to very coarse grained, subangular to subrounded, few granules; poor sorting; quartz; 10% shell fragments; 5% glauconite.
310-320	Sand	-	as above; except: sparse clay; medium to coarse grained, some granules; moderate sorting; talc.
320-330	Sand	-	as above, except: no granules; 5% shell fragments.
330-340	Sand	-	as above, except: very sparse clay; medium to coarse grained, moderate sorting; 7% glauconite; 1% shell fragments.
340-350	Sand	-	as above, except: poorly sorted; 1% glauconite; rare shell fragments; iron oxide.
350-360	Sand	-	light olive gray (5Y 5/2); very coarse grained with few coarse sized grains, well sorted.
360-370	Sand	-	as above, except: coarse grained; sparse glauconite; shell fragments; iron oxide; lignite.
370-380	Sand	-	as above, except: 1% glauconite; 1% shell fragments.
380-390	Sand	-	as above, except: medium to coarse grained; 2% glauconite; some shell fragments; mica.
390-400	Sand	-	as above, except: 1% glauconite; 1% shell fragments; iron oxide.
400-410	Sand	-	as above, except: fine to coarse grained, moderate sorting; 2% shells.
410-440	No sa	mple	•

DEPTH (FEET)	WELL LOG
440-450	Sand - as above, except: 7% glauconite; 3% shells.
450-460	Sand - as above, except: coarse grained; some fine grained, moderately well sorted.
460-470	Sand - as above, except: moderate silt; fine to coarse grained, poor sorting; 5% glauconite; 3% shell fragments.
470-480	<pre>Sand - as above, except: sparse clay; 3% glauconite; 1% shell fragments.</pre>
480-490	Sand - as above, except: sparse clay in pellets; medium to coarse grained; poor sorting.
490-510	No sample.
510-520	Sand - as above, except: 1% glauconite; 1% shell fragments; iron oxide.
520-530	Sand - as above, except: no clay.
530-540	Sand - as above, except: mica - biotite and muscovite.
540-550	Sand - as above.
550-560	Sand - as above.
560-570	Sand - as above, except: mica; iron oxide.
570-580	Sand - as above, except: fine to coarse grained; few very coarse grained; iron oxide; mica.
580-590	No sample.
590-600	Sand - as above, except: sparse clay; medium to coarse grained; 5% shell fragments; forams - Robulus (L.).
600-610	No sample.
610-620	Sand - as above, except: sparse clay in pellets; few very coarse grains; some glauconite; forams - Nonion spp., Robulus calcar, Textularia; ostracod; iron oxide; mica.
620-630	No sample.
630-640	Sand - dark yellowish brown (10YR 4/2); moderate clay in pellets; medium to coarse grained, few very coarse and some granule sized grains; subangular to rounded, poor sorting; quartz; rare glauconite.

DEPTH (FEET)		WELL LOG
640-650	No sample	·.
650-660	Sand -	light olive gray (5Y 5/2); same physical description as above.
660-670	Sand -	as above, except: sparse clay.
670-680	Sand -	as above, except: 1% shell fragments; iron oxide.
680-690	No sample	··
690-700	Sand -	as above, except: medium to very coarse grained; rare glauconite; iron oxide.
700-710	No sample	· ·
710-720	Sand -	as above, except: very sparse clay; medium to coarse grained, moderate sorting; 1% shell fragments; 3% glauconite; echinoderm spines; foram - Nonion.
720-730	Sand -	as above, except: angular to subangular; iron oxide; mica.
730-740	Sand -	as above, except: fine to very coarse grained, angular to subrounded, poor sorting; 1% glauconite; iron oxide; feldspar; mica.
740-750	No sample	2.
750-760	Sand -	as above, except: medium to coarse grained, few granules; subangular; forams - Marginulina, Textularia, Siphogenerina, Robulus, Nonion, Pyrulina, Denticulata, Globigerina; iron oxide.
760-770	No sample	2.
770-780	Sand -	as above, except: medium to very coarse grained, subangular to subrounded; 1% glauconite; moderate shell fragments; forams; lignite.
780-790	No sample	2.
790-800	Sand -	as above.
800-820	No sample	2.

DEPTH (FEET)		WELL LOG
820-830	Sand -	as above, except: medium to coarse grained, some very coarse grains; forams - <u>Siphogenerina</u> , <u>Robulus (L.)</u> , <u>Robulus calcar</u> , <u>Elphidium florentine</u> , <u>Marginulina</u> , <u>Textularia</u> , <u>Bolivina</u> ; ostracods.
830-840	Sand -	as above, except: coarse grained with few coarse grains and granules; well sorted; 2% glauconite; moderate shell fragments; forams - Siphogenerina; mica.
840-850	No sample	es.
850-860	Sand -	as above, except: medium to coarse grained with few very coarse grains; poorly sorted; some glauconite; forams - Nonion, Robulus, Siphogenerina; ostracods.
860-870	No sample	2.
870-880	Sand -	light olive gray (5Y 5/2); very sparse clay; medium to very coarse sized grained, poor sorting; 1% glauconite; forams - Nonion, Siphogenerina.
880-890	No sample	··
890-900	Sand -	as above, except: few granules; forams - <u>Nonion</u> , <u>Siphogenerina</u> , <u>Marginulina</u> .
900-910	No sample	
910-920	Sand -	as above, except: forams - <u>Textularia</u> ; mica.
920-930	No sample	
930-940	Sand -	as above, except: rare shell fragments; forams.
940-950	No sample	£.
950-960	Sand -	as above, except: medium to coarse grained with few very coarse and granule sized grains; 7% glauconite; 1% shell fragments; feldspar; mica; iron oxide.
960-970	No sample	1.
970-980	Sand -	light and dark gray; as above, except: 50% glauconite.

DEPTH (FEET)

WELL LOG

980-990

No sample.

990-1000

dark greenish gray (5GY 4/1); 93% glauconite; 7% quartz sand, as above. Sand -

1000-1010

Sand -

as above, except: 80% glauconite; 10% shell-quartz sand mixture; as above at 990-1000'.

Logged by: J. K. Polzin Apr., 1980

CONSULTING ENGINEERS, INC.

December 10, 1979

Project No. 78-356

Mr. Gene Rader Virginia Division of Mineral Resources P. O. Box 3667 Charlottesville, VA 22903

> Accomack County Well Data Transmittal

Dear Mr. Rader:

In response to your request to our client, Los Alamos Scientific Laboratories, we are providing you with samples and well logs for the borings we have completed in Accomack County, Virginia. We thank you for the logs of the Tangier Island well you promised to send, as well as for past information exchanges. D'Appolonia appreciates the cooperative working relationship we have established.

Samples collected from Borings DAPP-1, DAPP-3, and DAPP-4 are being sent separately. Gamma logs and field logs for these holes, as well as for DAPP-2, are enclosed. Gamma logging will be performed on DAPP-1 in mid-January and a copy will be forwarded shortly after it becomes available.

Sediment samples were collected from the return fluid flow by washing in a No. 140 sieve. A nylon mesh was used for DAPP-4. For Borings DAPP-3 and DAPP-4, the samples are incomplete due to very small amounts of material in the return flow. Indicated with a check mark on the field logs are the samples which are being made available to you. We do not require return of these samples.

We have enclosed a copy of the preliminary correlations of the gamma logs with a gamma log and geologic description from the Taylor well near Atlantic, Virginia. The gamma logging in the Taylor well was done to the same parameters as used in the logging of DAPP-2, DAPP-3, and DAPP-4 but, of course, the response is different here due to it being a much larger diameter well. Of interest is a marker bed at 630 feet in the Taylor well which can be identified throughout each boring. Conversations with VPI&SO indicate that this may be a radioactive sand that they observed in their Crisfield, Maryland well.

You will also find enclosed a geologic description from the Taylor well, as well as coordinates of each of our borings.

Bill Miller, who performed the logging and sampling will be out of the country until February 1, 1980, therefore, please direct any future questions to Carl Schubert or Bill Johnson.

D'Appolonia trusts that these samples and logs will be of value to you and would appreciate your technical comments.

Sincerely yours,

William Miller /S/

Geophysicist

Carl E. Schubert

Senior Project Engineer

WM:CES:rt Enclosures

Project No. 78-356

Commonwealth of Virginia
Department of Labor and Industry
Division of Mines and Quarries
Big Stone Gap, Virginia 24219

Attention: Mr. William Kelly

Revision to Request for Approval to Conduct Drilling Operations in Accomack County, Virginia

Dear Mr. Kelly:

In the Request for Approval to Conduct Drilling for geothermal test borings sent to your attention on October 1, 1979, proposed drilling locations were provided. These drilling locations have been finalized by establishing agreements with specific landlords and this has resulted in slight changes to the locations presented to you on October 1, 1979. The revised final locations are shown on the attached topographic maps and are described as follows:

BORING NO.	LOCATION	COORDINATE	ELEVATION
DAPP-1	Wallops Island	37° 52' 58" N- 75° 25' 59" W	E1. 15 ft
DAPP-2	New Church - East	37° 58' 34" N- 75° 30' 30" W	E1. 35 ft
DAPP-3	Makemie Park	37° 54' 32" N- 75° 34' 16" W	El. 17 ft
DAPP-42	Saxis	37° 55' 12" N- 75° 43' 39" W	E1. 5 ft

The drilling procedures remain as presented in our letter of October 1, 1979. The drilling program is still scheduled to begin about October 15. The incorporation of the revised drilling locations into your permit is greatly appreciated. If you require any additional information,

10 DUFF ROAD, PITTSBURGH, PA 15235 TELEPHONE: 412/243-3200

AND THE CONTRACT OF THE CONTRA

CONSULTING ENGINEERS, INC.

Ву	Date	Subject	Sheet No of
Chkd. By	vDate		Proj. No

GENE RADER VIRGINIA DIVISION OF MINERAL RESOURCES P.O. BOX 3667 CHARLOTTESVILLE, VA 22903

MR' RADER'.

ENCLOSED PLEASE FIND SAMPLES FROM WELL DAPP-Z TAKEN BY MYSERF AT NEW CHURCH, VIRGINIA. SAMPLES WERE COLLECTED FROM THE RETURN FLOW USING A # 140 SIEVE (.0041 INCHES).

COORDINATES OF THE WELL ARE APPROXIMATELY:

42 03 000 N 4 55 000 E

37° 58' N 75° 30' 30" E

THE WELL IS COCATED ON DT. 709; I.A MILES EAST OF HIGHWAY 13, METAR NEW CHURCH, VIRGINIA.

FINAL DEPTH OF THE WELL WAS 1005!

IF YOU HAVE ANY QUESTIONS OR COMMENTS, PLEASE DIRECT THEM TO BILL JOHNSON IN OUR PITTSBURGH OFFICE. (PHONE # 412-243-3200).

WE WILL BE IN TOUCH SHORTLY, AND I WILL FOREOMED SAMPLES FROM OUR REMAINING WELLS AS SOON AS THEY ARE COMPILED AND CACHLOQUED.

Sweeter, William Miller

PROJEC	CT NUM	BER:	100 9	PROJECT NAME:			
	G NUMB			COORDINATES	COORDINATES		
ELEVA	TION:			GWL: AT	HRS.		TARTED:
ENGIN	EER/GE	OLOGIS1	r:	AT .	HRS.	DATE C	OMPLETED:
	NG MET					PAGE	OF
						z	
DEPTH ()	SAMPLE TYPE & NO.	ESTIMATED MUD FLOW	DRILLING	DESCRIPTION	USCS SYMBOL	ESTIMATED PEPTH CORRECTION	REMARKS
		ш 2			SD.	>	
NOTE	S:	d					

THIS IS THE CLASSIFICATION SYSTEM USED IN THE FLETO LOGS. WANTER ES

		T		ficter.	dentification Proces	A			1000	
Meder Divis	loss	Symbo	ls Typical Numas	(Excluding	g particles larger to fractions on estima	hon 3 In.	Information Required for _ Describing Soil	2.1		Laboratory Classification Criterie
	2	3	4		5	- Year of				,
2 1 1 1	Greenly at the	GW	Well-graded provels, gravel-aand mintures, little or no fines.		grain sizes and sub- il intermediate par		For undisturbed soils add information	6.200		C _u = D ₄₀ Orester than 4
T town	Com Grand	OF	Poorly graded gravels or gravel-send mintures, little or no fines.		one size er e renge nedicte sizes missin		on stratification, dagree of compact- ness, camentation, moisture conditions, and drainage characteristics.	grain-size	S. X.	C _c = (D 30) D 10 × D 60 Setween 1 are
Constant of the Park	1 1 . 1 .	GW.	Silty gravels, gravel-and-allt soluture.		es or fines with low cation procedures s		Give typical name; Indicate approximate parcentage of sand and gravel, saxi-	2 6	GP, SW, S GC, SW,	or Pi law then 4 Pf between 4 and
Mare H is lorger 1/4-in.	2 6 4	oc.	Clayey gravels, gravel-send-clay mixtures.	Mostic fines (fines CL below	or identification pr v.)	roceduras	num size; engularity, surface condi- tion, and hardness of the coarse grains; local or geologic name and	and sand at (Inschio	GW.	Atterberg limits above "A" line requiring use of de symbols.
froction 9, 1s	Gen made (Units or no fines)	SWI	Wall-graded mods, gravelly sends, little or no fines		grain size and subs ediate particle size		other partinent descriptive informa- tion; and symbol in parentheses.	of grave	N P P P P P P P P P P P P P P P P P P P	C _y = 0.00 Greater than 6 C _c = (D 30) ²
P. Copera	P. 25 5	SP	Poorly graded sands or gravelly sends, little or no fines		ano size or a range emodiate sizes miss		Example: Silty sord, gravelly; about 20% hard, angular gravel particles 1/2-in.	held Iden centoges percento	8	C _e = (D 30) a O ₁₀ × D ₆₀ Between 1 and 3 Not meeting all graduation requirements for SW
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.11	SAL	Sifty sands, sand-sift mintures.		es or flace with low cation procedures o		meximum size; rounded and subangular sand grains, coorse to fine; about 15% namplastic fines with low dry strength;	nine par	Mer Her	Atterberg Ilmits below "A" line or PI less than 4 botched zons with PI between 4 and
118	1281	sc.	Clayey sands, sand-clay mintures.	Mostic fines (f	or identification pe e.)	recod area	mell compreted and moist in place; el- levial sand; (811).	Detail Detail	1	Atterberg limits above "A" Item requiring use of d symbols.
		T	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		igntification Proces Smaller than Na.		* # C#	Faction		ing Solls of Equal Uquid Umit
				(Crushing characteristics)	(Reaction to shoking)	(Considency near PL)	For undisturbed sells add Information on structure stratification, con-	. F		rest and Dry Strength Increase Increasing Floaticity Index CH
-	**	ML	incrpenic silts and very fine sands, rock floor, silty or clayer fine sands or clayer silts with slight plasticity.	Name to slight	Quick to slow	Name	sistency in undisturbed and re- molded states, moisture and drain- age conditions.	NDEX	40	
1	11111	CL	Inorganic clays of law to medium pleaticity, gravelly clays, sandy clays, silty clays, lean clays.	Medium to high	None to very alow	Modlum	Olive typical name; indicate degree and	STICITY	30	
5	3-	OL	Organic sitts and organic sitts clays of low plasticity.	Slight to Modium	Slow	Slight	character of plasticity; amount and maximum size of course grains; color in wat condition; odor, if any; local ar geologic name and other perfinant	Pelit-ular PLA	20	СГ
	_R	1/84	Inorganic silts, micacoaus ar distanceaus fins sandy at silty solls, electic silts.	Stigle to medium	Slow to none	Slight to medium	descriptive informations and symbol in parentheses.	3	10 20	CL-AL ST ML
1 0	11	СИ	Intergenic clays of high platfally, for clays	High to vary high	Nemo	High	Example: Clayey stit, brown; slightly planta;	١.	0 10	20 30 40 50 40 70 80 90
á	36	ОН	Organic clays of modium to high planticity, organic of its.	Medium to high	None to very slow	Slight to milelum	small percentage of fire sand; numerous vertical root hales; fire and dry in place; loos; (ML),			PLASTICITY CHART
Highly Organi	e Soffe	n	Post and other highly organic stills.		ified by color, adequently by fibrous					for leborotory classification of fine-evaluad salts

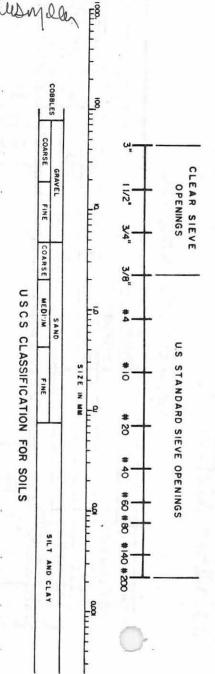
FREID IDENTIFICATION PROCEDURES FOR FINE-GRAINID SOILS OR FRACTIONS are to be performed on the minus No. 40 stores size portless, approximately 1/64 in. For field alumiNess are to be performed on the minus No. 40 stores by hand the course perficie that interfers with the hosts.

ther removing particles larger than No. 40 slave size, mold a pet of sell to the samildancy of party, adding water if necessary. Allow to pet to dy completely by oven, may, or elardying, and then sell is transpill by healthing and crushalling between the fingers. This strength is a measure of the obserctor and quantity of the collected fraction contained in the sell. The dry strength increases with the collected fraction contained in the sell. The dry strength increases with the collected fraction contained in the sell. The sell responses to the collected fraction contained in the sell. The sell responses with the collected fraction contained in the sell. The sell response to the contained of the sell of the s

the collected fraction construct to me sout, one any annual microscoling placeticity.

Refs day strongth is characteristic Zer clays of the CM group, A typical linergenic all process only very allest day strength. Sitly fine sends and alles
have show the same allest day strength, but can be distinguished by the facil
when providering the dried specieson. Fine send facility whereas a typical
loss the smooth feel of fileer.

offer the thread combine, the pieces should be humped fogether and a slight in ection continued until the lung crumbiae. The toogher the thread man the plantic limit and the stiffer the lung when it findly combine, the more potent is the colloided clay fraction in the sail. Weathman of the thread on the plantic limit and quick less of exhaunce of the lung below the plantic limit indicate atther incomposit clay of low selectiny, a material such as beatler-type clays and agents clays which secure below the A Malair counter from him.



ID'APPOILONIA VISUAL CLASSIFICATION OF SOILS

BORING	NUMB	ER: DI	APP-4	COOR	RDINATES W 35		107 100	_		∞7'79 ·
	TION:			GWL:	AT.	HR		_	TE START	16 001
ENGINE	ER/GE	LOGIST	r: WA	Miller	, AT	. HR	RS.		-	ETED: 230
DRILLI	NG MET	HODS:	-LUSH :	SOINT 34" ROD, P	COLLEGE BIT, 7	EOGEL		PA	GE	OF 3
ОЕРТН (<i>feet</i>)	SAMPLE TYPE & NO.	ESTIMATED MUD FLOW RATE	DRILLING		DESCRIPTION	· Torres	USCS SYMBOL	ESTIMATED DEPTH CORRECTION		REMARK S
	54-1	Au	NĄ	CLAYET SAND - SE COMPLE GRAINED L SAND WITH SOME	WELL ROUNDED	LIGHT BROWN	5P		SAMPLE PIT	TAKEN FROM DIL 15 FILL
	54-2			BLUE GREY CLAY, O	SAND, ABUNDA	NED MELT	CL		USED AS	PILL .
8.884°S	· * (*)		- : :	MATERIAL, PLAST			4. <u>\$</u>	- 1 ST - 1 ST - 1 ST	AUGERED	To 20
				AUGER	S4-Z CAME	6FF 0F			,	
. 3	, u			All the second of the second of the	**************************************		* 4		Verget to	an San Tan
	- 70	¥3.8	1935 194		SAME •	r branch and a second				
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41				Manager of the second	W . 7 '	4.24				
	7			WO CAT	- BLUE CLAY A RED BY LOLDS J'FLOW FROM	ne ·	4	, **	core ?	ued patitions
16.0				No.	State	Hore		技	100	
4. 4. 1000 4. 1000	一个大块公司工	多榜	305				**		1, 14, 12	
NOTE	AND SHA				e Cut		e.			
NOT			The state of the state of				14		I	Arguetta de la companya de la compa

D'APPOLONIA VISUAL CLASSIFICATION OF SOILS

			8-356 APP-4	237 11 1	COORDINA	ATES	Fire of Alberta	n (1, . ·	_	ATE: 18 007	The state of the last of the l
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D'APPOILONIA VISUAL CLASSIFICATION OF SOILS

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VISUAL CLASSIFICATION OF SOILS

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VISUAL CLASSIFICATION OF SOILS

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VISUAL CLASSIFICATION OF SOILS

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DEPTH ()	SAMPLE TYPE & NO.	ESTIMATED MUD FLOW RATE	DRILLING	DESCRIPTION	USCS SYMBOL	ESTIMATED PEPTH CORRECTION	REMARKS
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DESCRIPTION S4-30 152 Getting More Fives MyD Thorse Plantic Priets Consor of Plus Consor Consor of Plus Consor Consor	
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	rie Due
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			8-356		PROJECT NA	ME: (AS	L-HDR		<u> </u>		
ORING	NUMBI	R: DA	H2-4		COORDINAT	ES			D,	ATE: 21 001, 79	
LEVA					GWL:	AT.	H	RS.	D	ATE STARTED: 18 OCT.	29
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C)	SAMPLE TYPE & NO.	ESTIMATED MUD FLOW RATE	DRILLING		DESCRIP	TION		USCS SYMBOL	ESTIMATED BEPTH CORRECTION	REMARKS	
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AND FLOW STATE SATE	20 FINE	DESCRIPTION WE TO MEDIUM CRIMNED, O RETE SAMO NO SHELL'S OR DISTINGUI GLANCOUT TE POORLY GRADED ES OF A DARK COLORED CM C 192	HRS. TOBWASSOSIN ROWNED SP IS HATSLE LORTIE	D. D. P.	ATE STARTED: 18 CCT. ATE COMPLETED: 23 OCT 1 AGE 14 OF 35
AND FLOW STATE SATE	20 FINE	DESCRIPTION LE TO MEDIUM GRANED, O RETE SAMO NO SMELL'S OR DISTINGUI GLANIOUS GRADED ES OF A DARK COLORED CM (192 ROUNDED QUARTE SAMO	ROWNED SP	P/	ATE COMPLETED: 23 oct ' AGE 14 OF 35
AND FLOW STATE SATE	20 FINE	LE TO MEDIUM CRIMIED, O PRETE SAMO NO SMELL'S OR DISTINGUI GLANCOUT GRADED ES OF A DARK COLORED CH C 192 ROUNDED QUARTE SAMO	ROWNED SP	P/	AGE 14 OF 35
15	20 FINE	LE TO MEDIUM CRIMIED, O PRETE SAMO NO SMELL'S OR DISTINGUI GLANCOUT GRADED ES OF A DARK COLORED CH C 192 ROUNDED QUARTE SAMO	ROWNED SP	ESTIMATED PEPTH CORRECTION	REMARKS
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	_Tre	DAGE CHRORITE BUT GRADEO CALE OF CLAT	SP		OUTFLOW SEEMED TO THICKEN SLIGHTLY
	Goin Sang Tra Tr	G TO FINE TO MEDIUM ! O @ 400'	100		
	V.	GOIN SAN TRO TE	1612 FINE BOUNDED QUARTE SAVO @ 2 GOING TO FINE TO MEDIUM SANO @ 400' TRACE BIROTEN SHELLS TRACE CLAY	1612 FINE BOUNDED QUARTE SAND @ 390 GOING TO FINE TO MEDIUM QUARTE SP SAND @ 400' TRACE BIRDYEN SHELLS TRACE CLAY	1612 FINE BOUNDED QUARTE SAND @ 290 GOING TO FINE TO MEDIUM QUICTE SAND @ 400' TRACE BROYEN SHELLS TRACE CLAY

			18-35				SL- HDR					•
BORIN	G NUMB	ER: D	APP-L	 	COORDINA	ATES				ATE: 2		
ELEVA				<u></u>	GWL:	AT	1	IRS.		ATE STAP		18 007.57
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DEPTH ()	SAMPLE TYPE & NO.	ESTIMATED MUD FLOW RATE	DRILLING	•	DESCF	RIPTION	•	USCS SYMBOL	ESTIMATED DEPTH CORRECTION	•	REM	ARKS
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ОЕРТН	SAMPLE TYPE & NO.	ESTIMATED MUD FLOW RATE	DRILLING	•	DESCRI	PTION		USCS SYMBOL	ESTIMATED PEPTH CORRECTION	
	5A-52		1149	QUI TR	FID MEDIUM NOTE SAND ALLE OF THREE THALE BROKE THE FINE M POORLY	CHLOENTE 3	ELANCOUTE	S₽		STILL ONLY A SMALL AMOUNT OF CUTTINGS COMING DOT- PROPAGE HYLER OD SE FINES
	CA-53		1205	•	SAME	•		57		MORE YMPTERIAL COM
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SAMPLE TYPE & NO. ESTIMATED MO. ESTIMATED MO	nATE.	DESCRIPTION		6	ESTIMATED BEPTH CORRECTION	REMARKS
		TOWARD ATTE	QVANUT?	SP		SMALL AMOUNT OF MATERIA
5A-35 195 accs	SA	TO MEDIUM, ROUNCED LINO, PODELY GRADES US SAELLS	0	3		IN THE BETTEN FLOW NOTE: CHANGED THO RIMPS DURING THE RUN
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	1338	SAME WITH T	inaces of	SP SC		ערצין לפט בעדרוטיבה
	1355	SAME, WITH TRAJE	uss of cut	SP	, A	Jenk few commen
14-57	1400	SAME, WILL		SC		
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DEPTH ()	SAMPLE TYPE & NO.	ESTIMATED MUD PLOW	DRILLING		DESCR	IPTION		6	CORRECTION	•	REMAR	
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	G NUMBI		APP- 4			D	ATE: 22 OCT. 77
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	ING MET					P/	AGE 23 OF 35
ОЕРТН (SAMPLE TYPE & NO.	ESTIMATED MUD FLOW RATE	DRILLING	DESCRIPTION	USCS SYMBOL	ESTIMATED PEPTH CORRECTION	REMARKS
	54-61		456	SAME - FINE ROUNDED QUALTZ SAND	59 ₩ \$C	r j	VERY FEW CUTTING
			4				
	1		1504				
	462		1508	FINE TO MEDIUM SUB ANGULAR TO ROUNDED QUARTE SAND TRACE OF COARSE QUARTE WITH IRAN STANING TRACE FELDSPAR (RED)	Я	5.2	HARD SPOT @ 655
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ŀ	} .		isk				
	SA-63		1521	FINE TO MEDIUM NAUNOED QUARTE SAND WITH 10% CORRESE AUGULA PROCEPAR AND QUARTE TRACE CORRESE ANGULAR CHERT TRACE GLANCONITE	e SP		STOPPED FOR REPAIRS ETOM 1530-1900
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			LOGIST	: wan	MAT HRS. DATE COMPLETED: 23 00	
-		IG METI		- 1	PAGE 24 OF	35
DEPTH	可		ESTIMATED MUD FLOW RATE	DRILLING	DESCRIPTION REMARKS	
-		SA-là		1150	FINE TO MEDIUM CIEXINGO ROVIDETS SP FROM PREP. TRACE BROWEN SHALL FRAGMENTS	-1150
ŧ			7 . F	\$ 100 mg	POORLY GRADED	
F						
L				1213.		<u> </u>
		4-165 -		1216	SAME TRACE OF COARSE QUANTE TRACE IRON STAINING ON THE QUARTE	
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		4xld		1220	SAME SOMPLE	
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			r: wom	wen.	<u> </u>	AT	<u> </u>	IRS.		DATE COMPLETE	
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DEPTH (SAMPLE TYPE & NO.	ESTIMATED MUD FLOW RATE	DRILLING	•	DESCRI	PTION		USCS SYMBOL	ESTIMATED	Re Criston	MARKS
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			1250	912	· · · ·						
	468		1254	Sam	E , 52 C	PARSE QU	ACCZ	SP	-	SMACE SI	mple
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	. /9		1305					. j. i	. 18		
-	4-67		1317		SAME.		i i	SP ∴:		SMALL S	ample
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DEPTH ()	SAMPLE TYPE & NO.	ESTIMATED MUD FLOW	BATE	DESCRIPTION	USCS SYMBOL	ESTIMATED	REMARKS
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	4.32		1355	FINE TO METHUM ROUNDED RUMETZ	SP		small somple
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				Teace proven swell pragments			
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	ON: R/GEO G METH	MVD FLOCE STANTED TATE TO STANTED TATE		COORDINATES GWL: AT HR AT HR DESCRIPTION FINE DOUNDED QUARTE GAND TRACE FINELY BROKEN SMELL FRAGMENTS POPELY GRACET	RS.	DA DA	TE: 23 OCT 79 TE STARTED: 18 OCT 145 TE COMPLETED: 23 OCT 7 GE 77 OF 35 REMARKS
ELEVATION DRILLING	SAMPLE SAMPLE ON SAMPLE	MVD FLOCE STANTED TATE TO STANTED TATE	MAN	DESCRIPTION FINE DOWNOUS QUARTER LAND TRACE FINELY BRUKEN SMELL FRAGMENTS POPELY GRADED	SS. NSCS SYMBOL	DA PA	TE COMPLETED: 23 OCT '7' GE 77 OF 35 REMARKS
DEPTH	TYPE & NO.	MUD PLOW	DAILLING	FINE DOWNOUS QUARTER LAND TRACE FINELY BRUKEN SMELL FRAGMENTS PROPELY GRADED	USCS SYMBOL	PA CTION CTION	GE 77 OF 35
DEPTH	SAMPLE TYPE & NO.	ESTIMATED MUD PLOW RATE		FINE DOUNDED QUARTE SAND TRACE FINELY BROKEN SHELL FRAGMENTS PROPELY GRACET	SP	TH CTION	REMARKS
				FINE DOUNDED QUARTE SAND TRACE FINELY BROKEN SHELL FRAGMENTS PROPELY GRACET	SP	ESTIMATED DEPTH CORRECTION	
	A-33		1409 i	TRACE FINELY BRUKEN SMELL FRAGMENTS POPELY GRACED	4	,	SMALL SAMPLE
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	-		M13 .				
	****		1430	FINE POLINOUT QUARTE SAND SOMEWHAT CLATEY TRACE FINELY BROWN SHELL FRAGMENTS PROBUT CRADED	\$P & \$€.		SMATL SAMPLE DELAY DUE TO PUTTING SWATCH BLOCK ON LIFT CABLE
	4.75		H35 1458	FINE POUNDED QUARTE SAND 30 DEEX FINE POORLY GRADED SOMEWHAT OLATEY	58 U 5C		Snow Sample
	Tell series						
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	-	4 38		1.4				Elzah	sc)		
	-								1	1		
	ţ			1516				11,77				
(NOT	ES:						Marin Park			•	
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PROJE	CT NUME	BER:	78-351	L	PROJECT NA	ME: LASL-	HDR			
			PP-4.		COORDINAT					DATE: 23 OCT. 79
ELEVA					GWL:	AT.	HR	S.	C	DATE STARTED: 18 00 40
ENGIN	EER/GEO	LOGIST	: us	Meller		AT .	HF	RS.	C	DATE COMPLETED: 23 oct '7
DRILLI	NG MET	HODS:								AGE 29 OF 35
DEPTH ()	SAMPLE TYPE & NO.	ESTIMATED MUD PLOW RATE	DRILLING	•	DESCRIP	TION		USCS SYMBOL	ESTIMATED	REMARKS
	54.A)		1521	ўэл - а		FINE ROUND		چې ه د د		VERY SMALL SAMPLE
ļ:			3.	4 * 3 17 1	. 23 - 177 · ·				· ·	11.
ļ :		. ~		·	PART T					1.
			1529						* ;:	
	4-80		15 35		SAME			58 b		VORY SMALL SAMPLE
				,				5C	*	
<u> </u>					* **	•				
:				•						
t :			1540							
	5 ⁴⁻⁸¹		1547	S	NE- 40ME M	EDIUM SOUD		5P 5C		USUT SMALL SAMPLE
					was applied				•	
			1653		Egit on A			[-		
NOTE							SAN:	Section 1		

BORIN	G NUMBE	R: DA	19-4.	COORDINATES			ATE: 23.007. 1979
ELEVA	TION:			GWL: AT	IRS.		ATE STARTED: 18 00 45
ENGIN	EER/GEC	LOGIST	: WAM	eller AT .	IRS.	_	ATE COMPLETED: 23 oct
DRILLI	NG MET	HODS:				P	AGE 30 OF 35
ОЕРТН (SAMPLE TYPE & NO.	ESTIMATED MUD PLOW RATE	DRILLING	DESCRIPTION	USCS SYMBOL	ESTIMATED DEPTH CORRECTION	REMARKS
over- o schop ost	5A-82		1557	UBEN FINE TO FINE ROUNDED QUARTE SAND, POORLY SURTED NOTKED A SMALL LARVAE - TYPE SNALL IN SAMPLE	58 5C		VERY LITTLE CAMPLE
			1603				
	4-83		1609	SAME - TRACE OF COACSE SUB-ANS	ye		USER LITTLE SAMPLE
-				Runarz	sc		
- ·							
Ł,	1		1614				
	4A.88*		1620	SAME - NO COMICE MATERIAL	SP BL		NOON LITTLE SAMPLE
NOT	55.	2.4.1	1675		1.	33	
NOT	ED:						
1			4	and the second s	وداند بودن آلوند خا درگار		Language

_			78-354		PROJECT NA	ME: LASK-1	HOR !	• •			-	
BORING	NUMB	ER: DA	PP-4.		COORDINATE	ES		£.	DA	TE: 23	٥٠٠٠. ٢	79
LEVA	TION:				GWL:	AT.	HRS	•	DA	TE STAR	TED:	३ ००७ व
NGINE	ER/GE	DLOGIST	r: WAM	Jille	ter in the same	AT :	HRS		DA	TE COMP	LETED:	23 00 13
RILLI	NG MET	HODS:						·	PA	GE 3	31	OF 35
DEPTH ()	SAMPLE TYPE & NO.	ESTIMATED MUD FLOW RATE	DRILLING	•	DESCRIPT	TION		USCS SYMBOL	ESTIMATED PEPTH CORRECTION	·	REMA	RKS
	5A-85		1433		looked Gra Feets Co	ET FINE QUAN		50 50		VeRY	LITTLE	SAMPLE
			1641 .									
	4 do		1645	•	SAME			SP 3		VECK	Little	SAMPLE
	04		1663		<u> </u>						*	
	54.8ª			•	TRACE CLAY ? FRAGINEUTS braging Fair			5P 10 5C		UGR	LITTLE	somete
NOTE	S:		1205			41814						

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ROJEC	TNUME	EH: 7	12-356		+	NAME: LA	3(74.32		1	TE. 0	- 6	
ORING	NUMBE	R: 04	19-4.		COORDIN	ATES				TE: 23.0		(
LEVA'	TION:				GWL:	AT		IRS.	_	TE STARTE		
NGINE	ER/GEC	LOGIST	: w	milla		AT	•	HRS.	The second of th	TE COMPLE		
RILLI	NG MET	HODS:		1					PA	GE 32	OF	35
DEPTH ()	SAMPLE TYPE & NO.	MUD PLOW	DRILLING		DESC	RIPTION	••	USCS SYMBOL	ESTIMATED PEPTH CORRECTION		REMARKS	
	4A-88		1707	4	puro, su	BROKEL	- 160 DV	SC		JER	LTILE S	mort
			ethode (1997)			at de la						
			1711.							are approximately and the second		
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			1722			100			1 (Parties 12 20	•	
	4-90	, ,	1728		Same.	TRACE OF SHELL FRU		51 50		VER	uttle S	ande
	- Ye.								*			
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BOR	ING NUN		78-35			NAME: LASI	- HDR						
	ATION:		DAPP-	4	COORDIN	ATES		- 111		DATE:	22	OCT. 7°	_
			<u>· · · · · · · · · · · · · · · · · · · </u>		GWL:	AT.		HRS.		DATE	TAPTE	· +)
DPU	LING ME	ULOGIS	it: pur	miller.		AT		HRS.		DATE	OMPLE	D: 18 0	9
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	_ o	23	1.			•		7	7	TAGE	33	OF	3
DEPTH	SAMPLE	MUD FLOW	DRILLING	•	DESCR			USCS SYMBOL	ESTIMATED DEPTH	CORRECTION	,	REMARKS	
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BUNI	BORING NUMBER: DAPP-4 ELEVATION:				COORDINATES						
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ENGIN	VEER/GE	OLOGIS	ST: WA	Miller	AT HRS.				DATE STARTED: 18 007		
DKILL	ING ME	THODS:									
	. 0	:3	The same				-		PAGE	34	OF
DEPTH (SAMPLE TYPE & NO.	ESTIMATED MUD PLOW	DRILLING	•	DESCRIPTI	ON	USCS SYMBOL	ESTIMATED PEPTH	CORRECTION	REMA	
	SASA		16 23		SAME	1.	58	+	+	VOTCY LIT	TTLE
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	EER/GEC		: wan	illa	AT HRS.			RS.		DATE COMPLETED: 23 PAGE 35 0		
DRILL	ING MET	HODS:							1	AGE 77	OF 35	
ОЕРТН (SAMPLE TYPE & NO. ESTIMATED MUD FLOW		DRILLING	DESCRIPTION			USCS SYMBOL	ESTIMATED DEPTH	REMARKS ENCOUNTAKED HARDER DRILLING 0 1005 GOOD AMOUNT OF			
	41-97	~2404E	P04	FINE W WEDIUM BLACK SAND SOURCE CORRESE QUARTE (SOULLY GRADED)								
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