

1313017017

LABORATORY ANALYSIS SHEET

ANVIL POINTS OIL SHALE RESEARCH CENTER

Date Sampled 6-15-67

Run No. C1045 START UP

Sample Time: RS 18:15; SS 23:15

<u>FISCHER ASSAY</u>		
<input checked="" type="checkbox"/> RAW SHALE	<input checked="" type="checkbox"/> SPENT SHALE	
<u>31.5</u>	<u>12.6</u>	Gal/Ton
<u>0.910</u>	<u>.910</u>	S.G., g/ml
<u>12.0</u>	<u>4.8</u>	Oil, wt %
<u>2.0</u>	<u>2.2</u>	Water, wt %
<u>83.8</u>	<u>91.6</u>	Sp. Shale, wt %
<u>2.2</u>	<u>1.4</u>	Gas & Loss, wt %
<u>slight</u>	<u>none</u>	COKING TENDENCY

RETORT SHALE MOISTURE
_____ wt %

RAW SHALE FISCHER ASSAY MOISTURE
1.10 wt %

MINERAL CO₂

17.6 16.0 wt %

ASH (SHALE)

65.4 74.8
50.69 wt %

MOISTURE

0.53 0.69 wt %

CARBON

16.8 12.0
7.94 wt %

HYDROGEN

1.94 0.93
17.0 wt %

BENZENE EXTRACTABLES

_____ _____ wt %

SHALE RICHNESS DISTRIBUTION
(See attached graph)

SCREEN ANALYSIS
(See back of this sheet)

All results are "as received" unless noted. "Moisture" designates the moisture content of the -48 mesh material used for "Ash", "Mineral CO₂", "Carbon", and "Hydrogen". The "FA Moisture" is for the sample used for the Fischer Assay.

COMMENTS _____

DATE COMPLETED JUN 19 1967

CHECKED BY REP

OSRC 12A

LABORATORY ANALYSIS SHEET

ANVIL POINTS OIL SHALE RESEARCH CENTER

Date Sampled 6-15-69

Run No. C1045 Startup

LIQUID PRODUCTS

EA

WATER, wt %

D3 PUMPOUT				T3 PUMPOUT	
1	2	3	4	1	2
34.6	/	/	/	/	/
20.3	/	/	/	/	/

GRAVITY, °API

OTT. ASH, wt %

DISTILLATION (See attached sheet - OSRC-24)

VENT PURGE PRODUCT

PSA

OIL WT, g

125.2

WATER VOL, ml

321.5

GRAVITY OIL, °API

~~30.2~~ 28.6

VENT GAS

MAJOR COMPONENTS

CO ₂	_____	vol %
O ₂	_____	"
N ₂	_____	"
CH ₄	_____	"
CO	_____	"
H ₂	_____	"
Ar	_____	"
Others	_____	"

C₁ thru C₄, plus n-Pentane

CH ₄	_____	vol %
C ₂ H ₄ -C ₂ H ₆	_____	"
C ₃ H ₈	_____	"
C ₃ H ₆	_____	"
i C ₄ H ₁₀	_____	"
n C ₄ H ₁₀	_____	"
∅C ₃ H ₆	_____	"
n C ₅ H ₁₂	_____	"

CARBON, _____ lbs/MSCFDG

HYDROGEN, _____ lbs/MSCFDG

COMMENTS _____

LABORATORY ANALYSIS SHEET

ANVIL POINTS OIL SHALE RESEARCH CENTER

Date Sampled 6-16-67

Run No. C 1045 - Startup
Special L.P. REP

LIQUID PRODUCTS

D3 PUMPOUT

T3 PUMPOUT

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>2</u>
PSA Ⓐ WATER, wt %	<u>27.0</u>					
Ⓑ GRAVITY, °API	<u>21.2</u>					
Ⓒ OIL ASH, wt %						

Ⓓ DISTILLATION (See attached sheet - OSRC-24)

VENT PURGE PRODUCT

OIL WT, g _____
WATER VOL, ml _____
GRAVITY OIL, °API _____

VENT GAS

Ⓔ MAJOR COMPONENTS

Ⓕ C₁ thru C₄, plus n-Pentane

CO₂ _____ vol %
O₂ _____ "
N₂ _____ "
CH₄ _____ "
CO _____ "
H₂ _____ "
Ar _____ "
Others _____ "

CH₄ _____ vol %
C₂H₄-C₂H₆ _____ "
C₃H₈ _____ "
C₃H₆ _____ "
i C₄H₁₀ _____ "
n C₄H₁₀ _____ "
∅C₃H₆ _____ "
n C₅H₁₂ _____ "

Ⓖ CARBON, _____ lbs/MSCFDG

HYDROGEN, _____ lbs/MSCFDG

COMMENTS oil taken from a level 3'3" above bit sub

parts 6/16/67 2345 to 6/16/67 2030

DATE COMPLETED JUN 19 1967

CHECKED BY REP

LABORATORY ANALYSIS SHEET

ANVIL POINTS OIL SHALE RESEARCH CENTER

Date Sampled 6-16-67

Run No. C1045 P.T.

Sample Time: RS 0215; SS 0215

FISCHER ASSAY

RETORT SHALE MOISTURE _____ wt %

FA

RAW SHALE SPENT SHALE

<u>32.4</u>	<u>5.7</u>	Gal/Ton
<u>.912</u>	<u>.901</u>	S.G., g/ml
<u>12.4</u>	<u>2.1</u>	Oil, wt %
<u>2.0</u>	<u>1.3</u>	Water, wt %
<u>83.2</u>	<u>96.0</u>	Sp. Shale, wt %
<u>2.4</u>	<u>0.6</u>	Gas & Loss, wt %
<u>Slight</u>	<u>none</u>	COKING TENDENCY

RAW SHALE FISCHER ASSAY MOISTURE 1.10 wt %

MINERAL CO₂

16.9 15.6 wt %

ASH (SHALE)

65.8 79.4 wt %

MOISTURE

0.27 0.18 wt %

CARBON

19.0 9.14 wt %

HYDROGEN

2.02 1.53 wt %

BENZENE EXTRACTABLES

_____ _____ wt %

SHALE RICHNESS DISTRIBUTION
(See attached graph)

SCREEN ANALYSIS
(See back of this sheet)

All results are "as received" unless noted. "Moisture" designates the moisture content of the -48 mesh material used for "Ash", "Mineral CO₂", "Carbon", and "Hydrogen". The "FA Moisture" is for the sample used for the Fischer Assay.

COMMENTS _____

DATE COMPLETED JUN 19 1967

CHECKED BY KEP

LABORATORY ANALYSIS SHEET

ANVIL POINTS OIL SHALE RESEARCH CENTER

Date Sampled 6-16-67

Run No. C 1045-PT

LIQUID PRODUCTS

D3 PUMPOUT

T3 PUMPOUT

~~WATER, wt %~~
~~GRAVITY, °API~~
~~OIL ASH, wt %~~

	<u>D3 PUMPOUT</u>				<u>T3 PUMPOUT</u>	
	1	2	3	4	1	2
WATER, wt %						
GRAVITY, °API						
OIL ASH, wt %						

DISTILLATION (See attached sheet - OSRC-24)

VENT PURGE PRODUCT

~~⊗~~

OIL WT, g 156.1
 WATER VOL, ml 281.4
 GRAVITY OIL, °API 30.3

VENT GAS

~~⊗~~

MAJOR COMPONENTS

C₁ thru C₄, plus n-Pentane

CO₂ 17.9 vol %
 O₂ 2.2 "
 N₂ 67.0 "
 CH₄ 1.8 "
 CO 3.0 "
 H₂ 5.0 "
 Ar 0.8 "
 Others 2.3 "

CH₄ _____ vol %
 C₂H₄-C₂H₆ _____ "
 C₃H₈ _____ "
 C₃H₆ _____ "
 i C₄H₁₀ _____ "
 n C₄H₁₀ _____ "
 C₃H₆ _____ "
 n C₅H₁₂ _____ "

~~⊗~~ CARBON, 9.99 lbs/MSCFDG

~~⊗~~ HYDROGEN, 0.79 lbs/MSCFDG

COMMENTS _____

DATE COMPLETED JUN 19 1967

CHECKED BY REY

SCREEN ANALYSIS DATA SHEET (TY-LAB)

RUN NO. 1005-501 SAMPLE NO. I DATE 1-15-61

UNIT P. 57 #3 DESCRIPTION Ty Lab

APPROX. SHALE SIZE 1/2" SHAKING TIME 10 min ANALYSIS BY S. J. ...

TOTAL SAMPLE WT. GROSS 77.4 - TARE 6.6 = NET 77.8

SCREEN SIZE			WEIGHTS								
SCREENS REQD.	OPENING SIZE	MESH	GROSS LBS.	TARE LBS.	NET WT. RETAINED	SCREEN SIZE	D _i *	1/D _i	% RETAINED	CUM. % RETAINED	% PASSING
	4.25					4.25					
	3.00					3.00	(3.125)	(0.3200)			
	2.50					2.50	(2.625) 2.750	(0.3809) 0.3636			
	2.00					2.00	2.250	0.4444			
	1.50					1.50	1.750	0.5714			
	1.05		24.2	19.2	5.0	1.05	(1.087) 1.275	(0.9199) 0.7843			
	0.742		54.0	20.5	33.5	0.742	0.896	1.116			
	0.525		39.3	19.5	19.8	0.525	0.634	1.577			
	0.371		26.5	19.2	7.3	0.371	0.448	2.232			
	0.263	3	25.5	16.4	7.1	0.263	0.317	3.154			
	0.185	4	21.8	19.4	2.4	0.185	0.224	4.464			
	0.131	6	19.9	19.4	.5	0.131	0.158	6.329			
	0.093	8	20.4	20.4	.0	0.093	0.112	8.928			
	0.065	10	19.4	19.0	.4	0.065					
	PAN		22.7	21.0	1.7	PAN					
TOTAL ON SCREENS AND PAN					77.5	LOSS					
LOSS (BY DIFFERENCE)					.3	TOTAL					
TOTAL SAMPLE WEIGHT					77.8						

* NUMBERS IN PARENTHESES SHOULD BE USED WHEN THESE SCREEN SIZES REPRESENT THE TOP OF THE SHALE SIZE RANGE.

REMARKS: _____

$\sum_{+8m}^m D_i$	$\sum_{+8m}^m X_i$
$1/\sum_{+8m}^m D_i$	$\sum_{+8m}^m X_i / D_i$
D _a	$\sum_{+8m}^m X_i D_i$
D _v	