Nopal

NOPAL

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R

INVESTIGATORS: KM (Kristin Meyer),
TP (Terry Perry),
(Gregory James)
g.w. (Jodi Wachowski)
(Ronald T. Green)

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Km 7/7/93

Title of Research: Determination of the Hydrologic Properties of the Pena Blanca Nopal Tuff.

Investigators: Kristi Meyer, Terry Perry under direction of Ron Green and Randy Mantuefel.

Introduction and Objectives:

A series of Rhyolitic tuff samples was collected from the Peña Blanca natural analog site on 3/23/93 by Jim Prikryl, English Pearcy, and Bret Leslie. The series consists of 4 samples representing varying degrees of mineralogic alteration ranging from essentially unaltered country rock to highly altered rock found at the Nopal 1 deposit.

Experiments will be run to ~~provide~~ (Km 7/7/93) determine the hydraulic properties of the rock samples. These properties include porosity, saturated hydraulic conductivity, air permeability and the moisture content-pressure relationship. Using these measurements unsaturated hydraulic conductivity can be determined. Since these properties will be measured for rock samples representing various degrees of hydrothermal alteration, the relationship of the hydraulic character of the tuff samples to the degree of alteration will also be assessed.

Air permeability and saturated hydraulic conductivity will be determined using the flex-wall permeameter. (See Scientific Notebook #083 for air permeability experiments) The retention curve will be measured using the centrifuge and different pressure plate aparatus.

Up to 25 subsamples will be prepared from each rock sample to provide multiple measurements of the properties and assess repeatability + consistency.

Experimental Setup and
Instrumentation: air permeability Experiments

Kristi Meyer 7/1/93

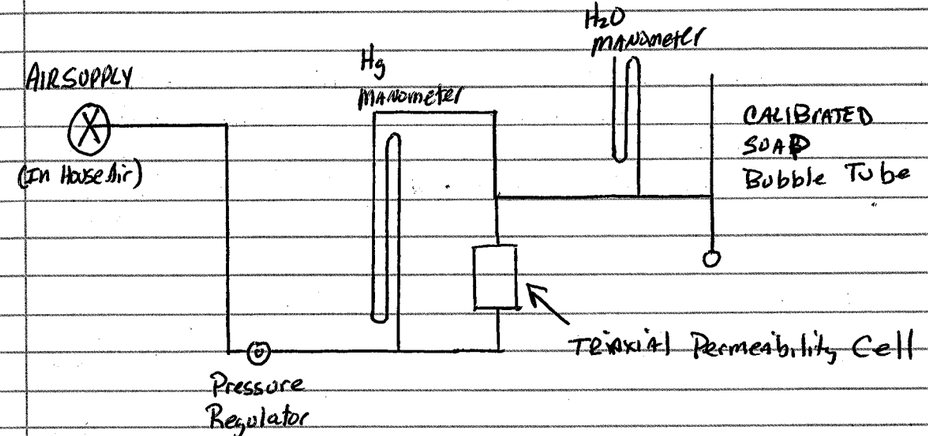
Information potentially subject to copyright protection was redacted from this location. The redacted material (a schematic diagram) is from the equipment brochure listed below.

Figure 1. Schematic of Triaxial Permeability Cell

Brainard-Kilman S-480 and Brainard Kilman S-510

Air Permeability Experiments are run according to ASTM Procedure # D4525 AND CAN BE FOUND IN CNWRA CONTROLLED SCIENTIFIC NOTEBOOK # 083.

Kristi Meyer 7/1/93



SATURATED Hydraulic Conductivity - Instrumentation + Experimental Setup.

VM 4/25

Same setup used as in Air Permeability Exp. ie. Brainard Kilman Permeability cells

ASTM Proceedures (#D-5084) are used.

~~Saturated Hydraulic Con~~ Km 7/7/93

Km 7/7/93 ~~Tempe Cell~~ - Instrumentation and Experimental Setup

THE MODEL 1250 VOLUMETRIC PRESSURE PLATE EXTRACTOR SHOWN CONNECTED TO THE MODEL 1275 HYSTERESIS ATTACHMENTS * SOIL MOISTURE EQUIP. CORP.

Km 7/7/93 Currently we have 6 VPPE cells. They are set up in pairs of two running off of the same Vapor Saturator and operating pressures. Each cell is labeled 1-6, in order to determine reproduceability + consistency the cell number is to be recorded during the experiments and the same type of material to be tested is used in each cell.

Proceedures to be used are based on manufactures operating instructions

Vapor Saturator

The vapor saturator ensures that a constant humidity level is kept (with regard to ambient temperatures) This keeps the tested medium from drying out.

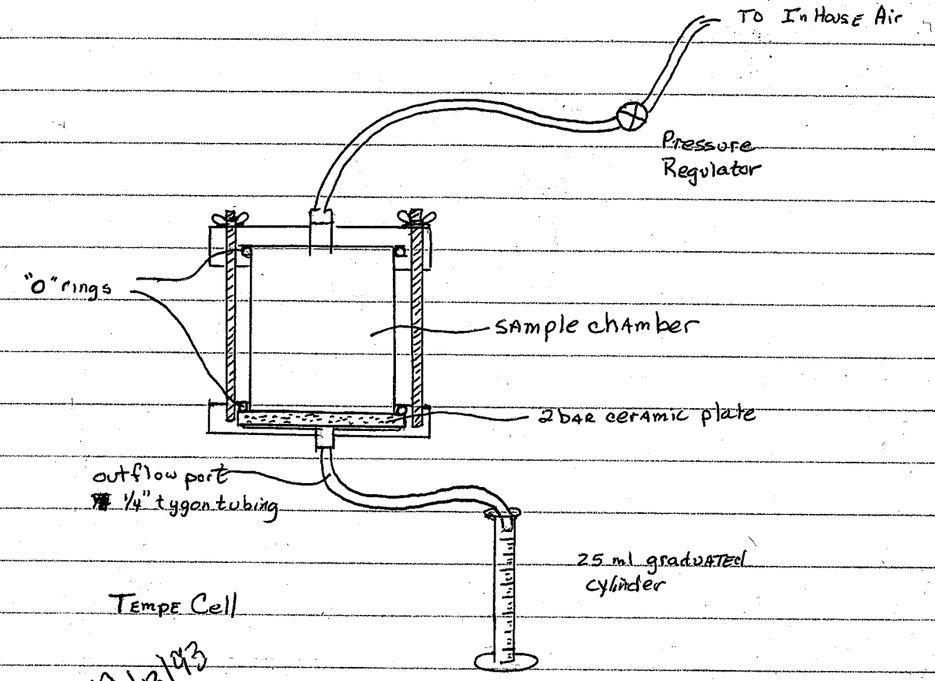
Air Trap (Bubble Catcher

The bubble catcher is used to remove air from under the porous plate, and allow for accurate measurement of moisture outflow.

Fig. 5

Instrumentation + Experimental Setup - TEMPE Cell

Km 7/13/93



Kmeyer 7/13/93

TEMPE Cell purchased from Soil MOISTURE Equip Corp.
Proceedures BASED on MANUFACTURES Operating INSTRUCTIONS.

7/13/93 Instrumentation + Experimental Setup - 15 bar Pressure Plate Extractor

Km

Information potentially subject to copyright protection was redacted from this location. The redacted material is from the equipment brochure from Soil Moisture Equipment Corporation. No additional information is available.

15 BAR CERAMIC PLATE EXTRACTOR CAT. NO. 1500

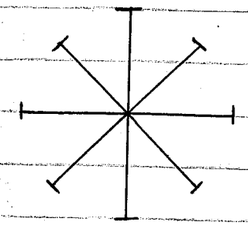
Purchased From
Soil Moisture Equip Corp.

In House Air
(we use a Nitrogen tank)

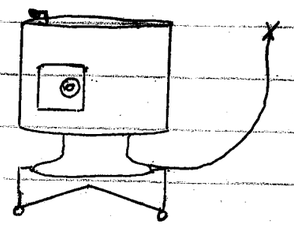
Proceedures followed will be those from the Operating instructions supplied by SM Equip Corp. Except we will be using a Nitrogen tank for pressure instead of Air

7/13/93 KM

INSTRUMENTATION + EXPERIMENTAL Setup - Centrifuge



IEC MODEL 269 8 PLACE
SWINGING ROTOR



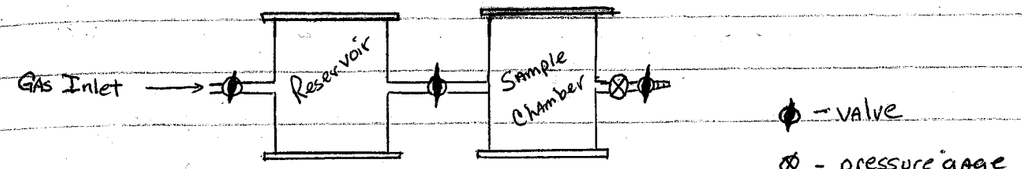
IEC MODEL EXD CENTRIFUGE

Information potentially subject to copyright protection was redacted from this location. The redacted material is from an equipment brochure. No additional information is available.

- Schematic drawing of core holder and experimental set-up of centrifuge equipment

7/13/93 KM Porosity - INSTRUMENTATION + Experimental Setup

GAS Pycnometer METHOD



gas pycnometer - CONSTANT volume system

Proceedures for measurement of porosity using the GAS pycnometer (CONSTANT volume method) are found in Agronomy No9 part 1 Methods of Soil Analysis page 448.
The article is called Porosity and is by RE. Danielson and P.L. Sutherland ©1986

7/13/93
KM

Bulk density - SATURATED + UNSATURATED

A straightforward method adapted from Carrier (1979) was used to determine the dry- and wet-rock densities of hand specimens collected in the survey area. The basic steps are as follows:

Step 1: A rock sample is selected with as little weathering as possible, of mass usually 100-500 gm but never over 1 kg.

Step 2: The mass of the sample is determined in air.

Step 3: The sample is placed in an hermetically sealed vessel and evacuated of air for 6-8 hr using a vacuum oil pump at a pressure of 0.0001 mm of mercury. $\approx 1.9e^{-6}$ psi

Step 4: Only water is allowed to enter the vessel theoretically saturating the sample at atmospheric pressure.

Step 5: The saturated mass of the sample is determined while suspended in water.

Step 6: The saturated mass of the sample is determined while suspended in air.

The volume of the rock sample is the saturated mass in air less the saturated mass in water. Hence, the following formulas for unsaturated and saturated densities, as though they are situated above and below the water table, are:

8/10/94

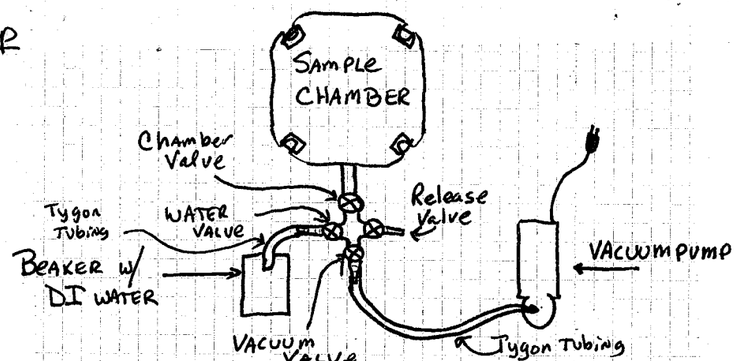
$$\rho_{unsat.} = \frac{Mass_{dry\ in\ air}}{Mass_{sat.\ in\ air} - Mass_{sat.\ in\ water}}$$

$$\rho_{sat.} = \frac{Mass_{sat.\ in\ air}}{Mass_{sat.\ in\ air} - Mass_{sat.\ in\ water}}$$

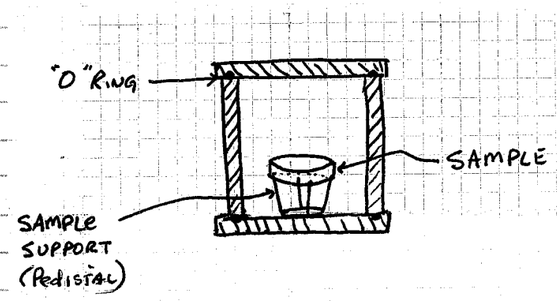
SATURATION Proceedure 7/27/93 KM.

Instrumentation -
- Hermetically sealed chamber w/ ATTACHED 4 WAY valve system.
- Vacuum Pump
- Pedistal

Setup



TOP VIEW
SATURATION Equipment



Proceedure
1. Place sample on pedistal inside chamber
2. Seal chamber
3. Induce VACUUM for 6-8 hours (overnight)
4. Introdue DI H_2O into chamber + let sit for a day.

AQUALAB - Instrumentation, Setup + Procedures.

7. Taking A Reading

Information potentially subject to copyright protection was redacted from this location. The redacted material is from an equipment operating brochure from AquaLab. No additional information is available.


```
      program
*************************************************************************
*  This program was written to calculate the matric suction
*  pressure and percent saturation when utilizing the Aqualab.
*
*  12/1/93  by Kristi Meyer
*************************************************************************

        real temp_c, temp_k, rh, weight_read, weight_dry, sat,
     &          sample, weight_sat,  potential
        integer  i

      open (2, err=99, file = 'testtemp.dat')
      open (3, err=99, file = 'testtemp.out')


      do i=1 , 165
      read (2,*) sample, temp_c , rh, weight_dry, weight_sat,
     &           weight_read

         temp_k = temp_c + 273.15

         potential = -10*(0.461* temp_k * (log(rh)))

         sat = (weight_read - weight_dry) / (weight_sat - weight _dry)

       write (3,10)   rh, potential
      enddo
10    format (1x,f6.1,3x,f5.3,f11.3,3x,f5.3)
99    stop
      end
```

lm 4/28

This program is stored under
/user1/goliath/kmeyer/aqua/a1.p

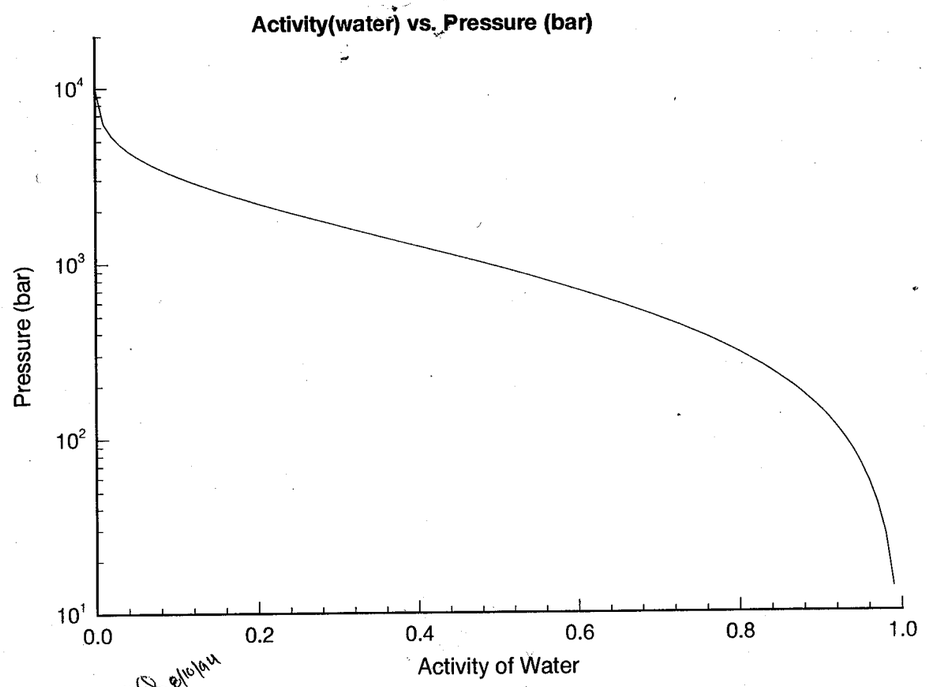
8/10/94

temp_c	Aw	Press(bar)
23.0	0.001	9430.823
23.0	0.010	6287.216
23.0	0.020	5340.896
23.0	0.030	4787.333
23.0	0.040	4394.575
23.0	0.050	4089.928
23.0	0.060	3841.013
23.0	0.070	3630.559
23.0	0.080	3448.255
23.0	0.090	3287.451
23.0	0.100	3143.608
23.0	0.110	3013.485
23.0	0.120	2894.693
23.0	0.130	2785.415
23.0	0.140	2684.239
23.0	0.150	2590.046
23.0	0.160	2501.935
23.0	0.170	2419.167
23.0	0.180	2341.131
23.0	0.190	2267.316
23.0	0.200	2197.287
23.0	0.210	2130.677
23.0	0.220	2067.165
23.0	0.230	2006.477
23.0	0.240	1948.373
23.0	0.250	1892.640
23.0	0.260	1839.094
23.0	0.270	1787.569
23.0	0.280	1737.918
23.0	0.290	1690.010
23.0	0.300	1643.726
23.0	0.310	1598.959
23.0	0.320	1555.615
23.0	0.330	1513.603
23.0	0.340	1472.846
23.0	0.350	1433.271
23.0	0.360	1394.811
23.0	0.370	1357.404
23.0	0.380	1320.995
23.0	0.390	1285.532
23.0	0.400	1250.967
23.0	0.410	1217.256
23.0	0.420	1184.356
23.0	0.430	1152.231
23.0	0.440	1120.845
23.0	0.450	1090.164
23.0	0.460	1060.157
23.0	0.470	1030.796
23.0	0.480	1002.053
23.0	0.490	973.902
23.0	0.500	946.320
23.0	0.510	919.285
23.0	0.520	892.774
23.0	0.530	866.769
23.0	0.540	841.249
23.0	0.550	816.198
23.0	0.560	791.598
23.0	0.570	767.434
23.0	0.580	743.690
23.0	0.590	720.351
23.0	0.600	697.405
23.0	0.610	674.839
23.0	0.620	652.639
23.0	0.630	630.795
23.0	0.640	609.294
23.0	0.650	588.127
23.0	0.660	567.283
23.0	0.670	546.753
23.0	0.680	526.526
23.0	0.690	506.595
23.0	0.700	486.951
23.0	0.710	467.585
23.0	0.720	448.491
23.0	0.730	429.659
23.0	0.740	411.084
23.0	0.750	392.758
23.0	0.760	374.675
23.0	0.770	356.829
23.0	0.780	339.212
23.0	0.790	321.820
23.0	0.800	304.647
23.0	0.810	287.687
23.0	0.820	270.935
23.0	0.830	254.387
23.0	0.840	238.036
23.0	0.850	221.879
23.0	0.860	205.911
23.0	0.870	190.128
23.0	0.880	174.525
23.0	0.890	159.098
23.0	0.900	143.844
23.0	0.910	128.758
23.0	0.920	113.837
23.0	0.930	99.077
23.0	0.940	84.475
23.0	0.950	70.028
23.0	0.960	55.732
23.0	0.970	41.584
23.0	0.980	27.582
23.0	0.990	13.721

8/10/94

8/10/94

(2D) II Print II 26 Jan 1994 II testal.plt II



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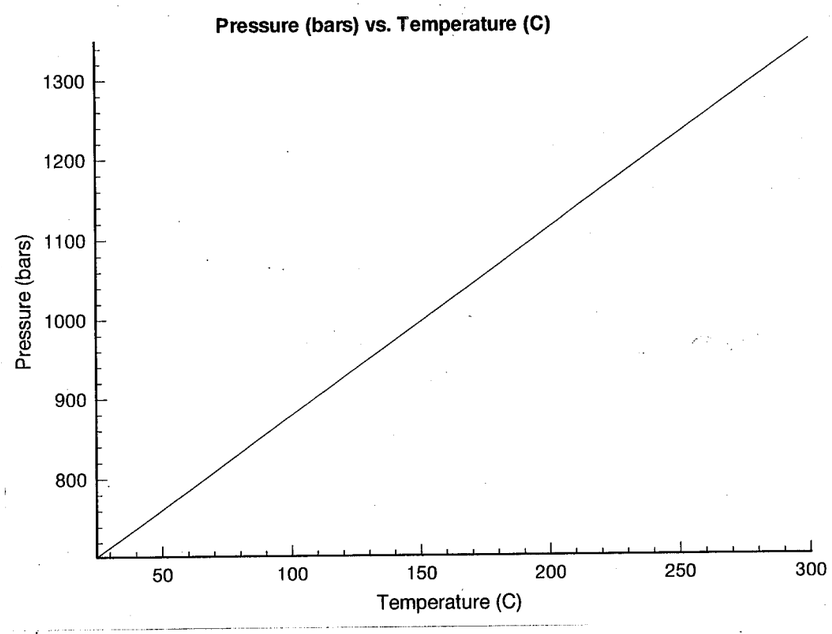
(2D) II Print II 26 Jan 1994 II testtemp.plt II



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Calibration Log (as of 7/27/93) Km

8/10/94

EQUIPMENT LIST

Type	Manufacturer	Rating/Model	SwRI ID#	Cal Date	Next Cal Due
air gage	Moore	0-15psi	1593009	3/17/93	3/17/94
air gage	Moore	0-60psi	0164440	3/17/93	3/17/94
air gage	Moore	0-60psi	0163001	6/9/93	6/9/94
air gage	Moore	0-100psi	1593007	6/9/93	6/9/94
air gage	Moore	0-100psi	1593006	6/9/93	6/9/94
air gage	Binks	0-100psi	1593002	6/8/93	6/8/94
air gage	Moore	0-200psi	1593005	6/9/93	6/9/94
air gage	Moore	0-200in H20	1593008	6/9/93	6/9/94
nitrogen gage/reg	Fisher	10-572-J	N/A	N/A	N/A
nitrogen gage/reg	Fisher	10-572-Q	N/A	N/A	N/A
nitrogen gage/reg	Fisher	10-572-J	N/A	N/A	N/A
manometer	Meriam	20DAX40TM/80"	N/A	N/A	N/A
manometer	Meriam	10AA25WM/10"	N/A	N/A	N/A
manometer	Meriam	10AA25WM/40"	N/A	N/A	N/A
manometer	Meriam	10AA25WM/40"	N/A	N/A	N/A
manometer	Meriam	10AA25WM/40"	N/A	N/A	N/A
air regulator	Moore	40-15	N/A	N/A	N/A
air regulator	Moore	40-15 (m9)	N/A	N/A	N/A
air regulator	Moore	40-7	N/A	N/A	N/A
air regulator	Moore	40-50	N/A	N/A	N/A
air regulator	Moore	40-50	N/A	N/A	N/A
air regulator	Moore	40-100	N/A	N/A	N/A
air regulator	Moore	40-50	N/A	N/A	N/A
air regulator	Moore	40-100	N/A	N/A	N/A
air regulator	Moore	40-100 (m9)	N/A	N/A	N/A
air regulator	Moore	40-200	N/A	N/A	N/A
air regulator	Binks	0-35	N/A	N/A	N/A
pipets	Corex	7064A	N/A	N/A	N/A
pipets	Kimax	51	N/A	N/A	N/A
Burets	Pyrex	2122A	N/A	N/A	N/A
caliper	Fisher	12-130	N/A	N/A	N/A
lamps	Ledu	LE421	N/A	N/A	N/A
scale	Mettler	Pm480	N45601	7/8/93	1/8/94
scale	Sartorius	320006	320006	3/4/93	9/4/93
permeameter	Brainard Kilman	S480	N/A	N/A	N/A
flowmeter	J&W Scientific	ADM100			
Control Panel	Brainard Kilman				
Tachommeter	Fisher Scientific				

9/3 Sartorius scale Calibrated ID# 3903006 Next cal due 3/3/94

8/10/94

EQUIPMENT LOG

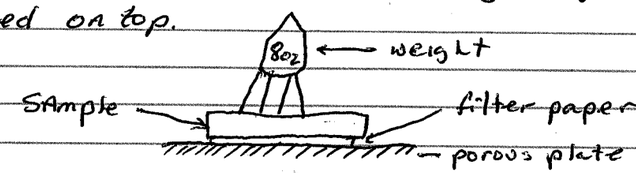
Type	Manufacturer	Model	Serial Number	Location	Cal. date	Ca. Due
air gage	Moore	0-15 psi	1593009	B51	6/9/93	6/9/94
air gage	Moore	3-30 psi	356306	B51	12/22/93	12/22/94
air gage	Moore	0-60 psi	16440	B51	3/17/93	3/17/94
air gage	Moore	0-60 psi	613001	B51	3/2/93	3/2/94
air gage	Moore	0-100 psi	1593007	B51	6/9/93	6/9/94
air gage	Moore	0-100 psi	1593006	B51	6/9/93	6/9/94
air gage	Binks	0-100 psi	1593002	B51	6/8/93	6/8/94
air gage	Moore	0-200 psi	1593005	B51	6/9/93	6/9/94
air gage	Moore	0-200 in. H2O	1593008	B51	6/9/93	6/9/94
air gage	Moore	0-60 psi	356302	B51	12/22/93	12/22/94
air gage	Moore	0-60 psi	356301	B51	12/22/93	12/22/94
air gage	Moore	0-100 psi	356307	B51	12/22/93	12/22/94
air gage	Moore	0-100 psi	356305	B51	12/22/93	12/22/94
balance	O'Haus	310G	1593010	B51	1/6/94	7/6/94
electronic balance	Mettler	PM480	N45601	B51	1/6/94	7/6/94
scale	Sartorius	320006	320006	B51	3/4/94	9/4/94
tachometer	Fisher	TACH	L13502492	B51	12/22/93	12/22/94
control panel	Brainard/Kilman		11183448	B51	~~7/2/93~~	~~1/2/94~~ 4/24/94 10/26/94

Digital Manometer

TEST = 15 bar. 1

7/20/93 KM

Set up test as recommended by manufacturer (p.9). Samples were previously SATURATED FROM density test. They were placed in extractor on top of filter paper to ensure good hydraulic contact and an 8 ounce fishing weight WAS placed on top.



Samples to be tested include:
NRG1. BXY. 1
NRG 1. Bz. 1
NRG 2. Bxy. 2

Sample	Dry Wt	Saturated Wt	Volume
NRG1. Bxy. 1	25.200g	28.583 g	13.80cm^3
NRG1. Bz. 1	26.964g	30.690g	14.79cm^3
NRG2. Bxy. 2	24. 751g	27.244g	12.62cm^3

Set Pressore of the gas (P_g) equal to 10psi

KM 7/21/93 10:30am

P_g = 10psi. Clamped outlet tube and released pressure.

Sample	weight
NRG1. Bxy. 1	28.498g
NRG1. Bz. 1	30.605 g
NRG2. Bxy. 2	27. 177g

Placed wet paper towel in extractor to keep air moist. Closed extractor. set P_g = 20psi

(cont 31)

KM 7/26 3:50pm P_g = 20psi

Sample	Weight
NRG1. Bxy. 1	28.405
NRG1. Bz. 1	30.500
NRG2. Bxy. 2	27.086

set P_g = 30psi

KM 7/27 5:45 pm P_g = 30 Psi

Sample	Weight
NRG1. Bxy. 1	28.331
NRG1. Bz. 1	30.461
NRG2. Bxy. 2	27.038

Removed system from in house air. Connected to Nitrogen TANK

set P_g = 40 PSi

KM 7/30 9:30am P_g = 40 Psi

Sample	Weight
NRG1. BXY. 1	28.225
NRG1. Bz. 1	30.363g
NRG2. Bxy. 2	26.971

set P_g = 50 psi

KM 8/2 10:40am P_g = 49 psi

Sample	Weight
NRG1. Bxy. 1	28.151
NRG1. Bz. 1	30.276g
NRG2. Bxy. 2	26.927g

Set P_g = 60 psi

KM 9/3 1:15 PM P_g = 58 psi

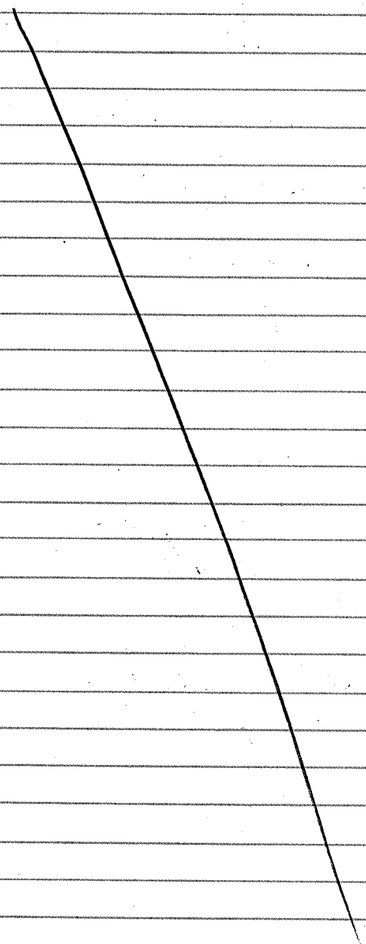
Sample	Weight
NRG1*BXY*1	27.559
NRG1*Bz*1	29.561
NRG2*BXY*2	26.452

(cont 32)

9/8 P_g = 70 psi

NRG1 * Bxy * 1 - 27.738
NRG1 * Bz * 1 - 29.854
NRG2 * Bxy * 2 - 26.623

9/10 P_g = 80psi NRG1 * Bxy * 1 27.595
NRG1 * Bz * 1 29.673
NRG1 * Bxy * 2 26.456



TEST = Aqua Lab. 1

7/20/93 Km

Sample Tested = NRG1. Axy. 1
Sample was placed in oven at 105°C for several days
weight dry = 4.584g
Sample was immersed in DI water for 4 hours

Testing was done according to manufacturers Instructions.
Capillary pressure was calculated by the following equation

$$P_c = 154\ MPa \cdot \ln(1/RH)$$

where RH = the activity of the water (a_w)

STEP 1 - weight (g)	a_w	P_c
5.058g	0.991	13.923 bar
4.907	0.986	21.7 bar
4.893	0.983	26.4 bar

Sample was placed in DI water to soak over night.

7/21/93 Km

weight (g)	a_w	P_c
5.147	0.997	4.6 bar
5.139	0.993	10.8 bar
5.091	0.992	12.4 bar
5.086	0.991	

7/27/93 Km

Problems Noted:

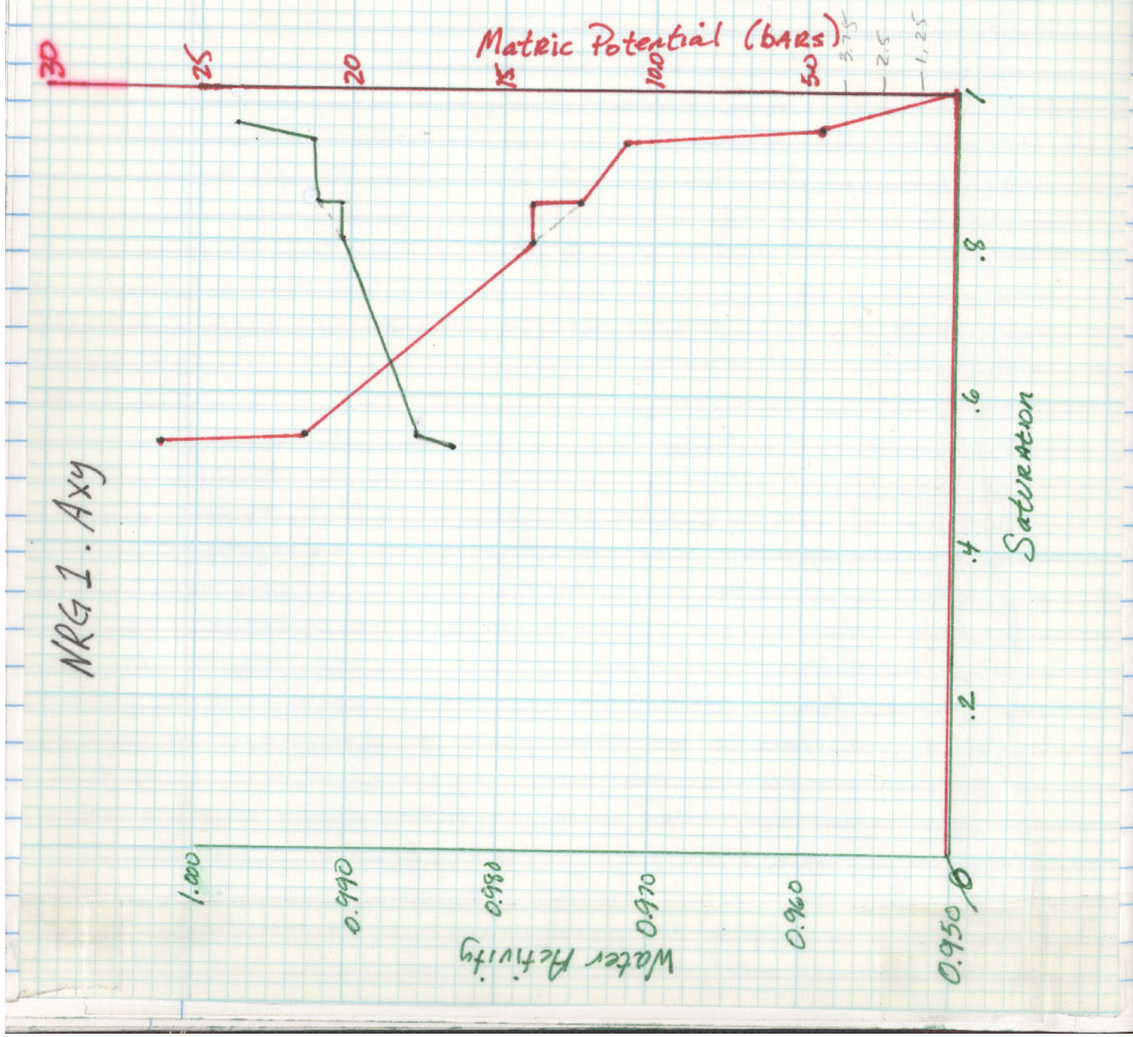
1) Need to let sample come to equilibrium in sealed container
2) Temperature should be noted and used in equation: $\psi_T = RT/M \ln(A_w)$

where R = gas constant T = Kelvin temp
M = molecular mass of H_2O R/M = 0.461 MPa/K

8/9/94

TEST = AQUALAB. 1
7/27/93 KM

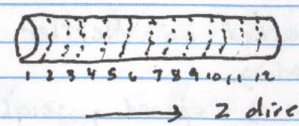
$P_c = 154 MPa \cdot \ln(\%RH)$



TEST = Aqua Lab. 2

KM 7/28/93 Samples used in this test include NRG1* AzB* 1.... 12 (12 samples). These samples were slices of sample NRG1* AzB

ie



After slicing samples they were rinsed in DI water and placed in oven at 105°C to dry.

KM 7/30 Weight of dry cores using Ohause in Pet. Lab B57.

1 - not used in this test				10	2.090
2	2.347	6	2.335	11	2.350
3	2.144	7	2.473	12	2.447
4	1.973	8	2.758		
5	2.076	9	2.793		

Cores were SATURATED WITH DeAired DI WATER using SATURATION Proceedure.

VACUUM pumped to -26 psi for 3 hours. Let set under VACUUM overnight.

KM 8/2

Pulled VACUUM again for 2 hours. Introduced DAired DI WATER. Let sit for 3 days

KM 8/5 Weight of SATURATED Cores:

2	2.676 g	7	2.821 g	12	2.777 g
3	2.450 g	8	3.140 g		
4	2.247 g	9	3.174 g		
5	2.362 g	10	2.388 g		
6	2.660 g	11	2.675 g		

Samples were left to air dry to differing SATURATION Levels (diff amts. of time). Sample 10 and 11 were placed in oven for a couple of minutes. All samples wer then placed in Aqua lab

containers and sealed with tape to come to equilibrium.

KM 8/9 Samples were reweighed on Mettler and placed in AquaLAB for reading.

Ex. Sample 2 opened, weighed, placed in Aqualab. then resealed.

Results	Weight	Activity H_2O	Temp (°C)
2	2.601g	0.991	26.6°C
3	2.361g	0.991	26.7°C
4	2.191g	0.995	26.8°C
5	2.274	0.991	26.8°C
6	KM 8.55 2.544	0.989	26.8°C
7	2.676	0.988	26.8°C
8	2.951	0.985	26.9°C
9	3.083	0.996	26.9°C
10	2.099	0.516	27.0°C
11	2.357	0.482	27.1°C
12	2.556	0.981	27.0°C

Samples 2, 3, 4, 5 were dryed out more under 75 WATT LAMP to get more DATA pts in dry range.

They were resealed in container and left for equilibration.

JMM 8/11

Results	Wt.	A_w	Temp °C
2	2.355	0.546	25.1
3	2.157	0.667	26.3
4	1.985	0.550	25.9
5	2.084	0.506	26.7

8/11 Theory

$\Psi = RT/M \ln(Aw)$

where T = temp in Kelvin

R =

M =

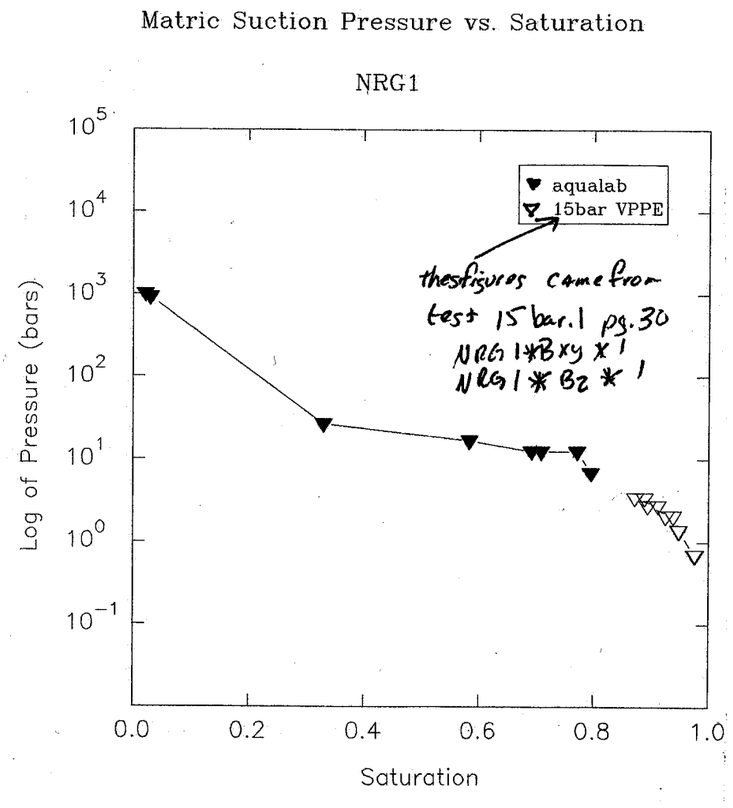
R/m = 0.461

$SAT = \frac{Mass_{wet} - Mass_{dry}}{vol}$

Spreadsheet on QUATTRO Pro was used to fig. SATURATION and Ψ. Filename = AL-NRG.WQ1

GRAPH NAME = PRS SAT .RG1

8/10/94



TEST = 15 bar.2

8/2/93

Added 3 samples to 15 bar PPE for TEST 1.
Set up the same as in test 1.
Samples include:

	Dry wt sample	wet wt
NRG 3 * BYX * 3	~~34.766g~~ 21.021g	21.551g
NRG3 * BYX * 2	34.489g	35.161g
NRG3 * BYX * 1	34.766g	35.478g

	Sample	P_g = 58 psi wt
9/3 Km	NRG3 * BYX * 3	21.599
	NRG3 * BYX * 2	35.273
	NRG3 * BYX * 1	35.627
9/8 P_g=70psi	NRG3 * ByX * 2	35.289
	NRG3 * ByX * 1	35.645
	NRG3 * ByX * 3	21.593
9/10 P_g=80psi	NRG3 * ByX * 1	35.629
	NRG3 * ByX * 2	35.283
	NRG3 * ByX * 3	21.581

TEST = 15 bar.3

Km 9/20/93

TEST WAS setup AS in 15 BAR.1 (pg 30).
Set pressore = 10 psi.

Sample	SAT. Weight	Wt dry
NRG2 * BXy * 1	25.74g	23.48g
NRG2 * Byx * 1	26.347	—
NRG2 * Bz * 1	25.439	22.979
NRG4 * B Xy * 1	16.348	15.685
NRG3 * Byx * 4	13.354	12.910
NRG3 * Bz * 2	8.205	7.980
NRG3 * Byx * 3	21.580	21.021
NRG4 * ByX * 2	13.188	12.657
NRG4 * Bz * 1	22.948	22.008
NRG4 * Byx * 1	13.220	12.675
NRG4 * Bz * 2	18.550	17.956
NRG3 * Bz * 3	18.819	18.109
NRG3 * BXy * 2	22.274	21.592
NRG4 * Bxy * 2	18.553	17.828
NRG4 * Bxy * 3	27.606	—

Set P_g = 20 psi

Km 9/29/93 P_g = 20 psi = 1.38 BAR (Noticed condensation on walls of PPE)

Sample	Wt
NRG2 * BXy * 1	25.353
NRG2 * Byx * 1	26.039
NRG2 * Bz * 1	25.166
NRG4 * Bxy * 1	16.152
NRG3 * Byx * 4	13.210
NRG3 * Bz * 2	8.053
NRG3 * Byx * 3	21.427
NRG4 * Byx * 2	13.011
NRG4 * Bz * 1	22.683
NRG4 * ByX * 1	13.052
NRG4 * Bz * 2	18.363

cont'd 58

9/1/93 KM

Test = AquaLab * 3

Samples tested: NRG3 * AzD * 1 thru NRG3 * AzD * 18
NRG4 * AzB * 1 thru NRG4 * AzB * 21

Samples were SATURATED according to SATURATION Proceedures on 8/17/93. Left in DI WATER (DeAired) in hermeticaly sealed vessel until 9/1/93.

VACCUM was released and WATER DRAINED OFF samples.

Weight of SATURATED samples:

NRG3 * AzD * 1	= 3.409g	NRG4 * AzB * 1	= 4.221g
" * " * 2	= 4.611g	* 2	= 4.533g
" * " * 3	= 3.708g	* 3	= 3.700g
" * " * 4	= 2.792g	* 4	= 3.881g
" * " * 5	= 3.215g	* 5	= 3.891g
" * " * 6	= 3.114g	* 6	= 3.635g
" * " * 7	= 2.610g	7	= 3.278g
" * " * 8	= 4.191g	8	= 2.762g
" * " * 9	= 3.000g	9	= 4.097g
" * " * 10	= 3.376g	10	= 3.058g
" * " * 11	= 3.043g	11	= 3.073g
" * " * 12	= 3.428g	12	= 3.828
" * " * 13	= 3.246g	13	= 3.578g
" * " * 14	= 3.709g	14	= 3.563g
" * " * 15	= 2.446g	15	= 4.420g
" * " * 16	= NOT SATURATED	16	= 4.258g
" * " * 17	= 2.603g	17	= 3.273g
" * " * 18	= NOT SATURATED	18	= 4.533g
		19	= 4.934g
		20	= NOT SAT.
		21	= NOT SAT.

NRG3 AzD * 1 - RH = .993 at 26.5°C $3.402g_f$ $3.409g_i$

NRG4 AzB * 5 RH = .993 at 27.0°C $3.891g_i$ $3.888g_f$

RH = relative humidity
f = weight after reading
i = weight before reading

9/2/93 KM

NRG3 * AzD * 1 RH = 0.993 at 25.3°C wt.f = 3.176g
NRG4 * AzB * RH = 0.985 at 25.5°C $3.871g_i$ 3.838g

9/8/93 KM	Sample	Weight initial (g)	Wt final (g)	A_w	T (°C)
	NRG3 * AzD * 6	-	3.006g	0.440	24.0
	NRG3 * AzD * 14	3.597	3.598g	0.523	24.5
	NRG3 * AzD * 17	2.527	2.528g	0.431	24.8
NOT SAT →	NRG3 * AzD * 18	3.619	3.620g	0.421	25.0
	NRG3 * AzD * 5	3.109	3.108	0.553	25.3
	NRG3 * AzD * 1	3.276	3.277	0.440	25.5
	NRG3 * AzD * 15	2.374	2.373	0.433	25.5
	NRG3 * AzD * 3	3.594	3.591	0.435	25.6
	NRG3 * AzD * 2	4.489	4.490	0.651	25.7
	NRG3 * AzD * 12	3.338	3.338	0.473	25.7
	NRG3 * AzD * 11	2.948	2.946	0.472	25.7
	~~* 10~~	~~3.264~~	KM 9/8/93		
	NRG3 * AzD * 10	3.263	KM 9/8/93 3.263	0.471	25.7
	NRG3 * AzD * 4	2.693	2.693	0.427	25.7
	NRG3 * AzD * 7	2.517	2.516	0.414	25.7
not sat →	NRG3 * AzD * 16	3.487	3.485	0.401	25.8
~~NOT SAT.~~ →	NRG3 * AzD * 8	4.073	4.073	0.546	25.8
	NRG3 * AzD * 13	3.157	3.157	0.445	25.6
KM 9/14	NRG3 * AzD * 9	2.897	2.897	0.423	25.7

9/10/93 NRG3 samples were placed in oven to dry.

Km 9/15/93 Samples (NRG3) Km 9/16/93 were placed in cell and air was evacuated.

Km 9/16/93 Samples (NRG3) saturated using de-aired DI water.

Km 9/20/93 weight of saturated samples

NRG3 * AzD * 1	3.393
" * AzD * 2	4.575
* " * 3	3.692
" * 4	2.782
" * 5	3.204
" * 6	3.112
" * 7	2.605
" * 8	4.156
" * 9	2.990
" * 10	3.371
" * 11	3.034
" * 12	3.407
" * 13	3.230
" * 14	3.675
" * 15	2.436
" * 16	3.579
" * 17	2.593
" * 18	3.727

Sample	Weight (g)	Weight (g)	A_w	T (°C)
NRG3 * AzD * 18	3.727	3.720	0.996	25.1
NRG3 * AzD * 18	3.720	3.719	0.996	25.3

Samples were allowed to dry in air (ambient T + RH). In 5 minute increments the samples were placed in containers and sealed with scotch tape.

3.691 km 9/22

Km 9/22/93 Sample -	W_i	W_f	A_w	T °C
NRG3 * AzD * 18	3.693	~~0.997~~	0.997	25.2
* 17	2.566	2.562	0.995	25.2
* 16	3.533	3.532	0.971	25.3
* 15	2.398	2.395	0.960	25.2
* 14	3.612	3.611	0.879	25.3
* 13	3.179	3.179	0.966	25.3
* 12	3.354	3.354	0.926	25.3
* 11	2.986	2.983	0.986	25.3
* 10	3.320	3.315	0.992	25.3
* 9	2.928	2.924	0.933	25.4
* 8	4.085	4.082	0.823	25.5
* 7	2.549	2.549	0.975	25.4
* 6	3.039	3.037	0.936	25.4
* 5	3.141	3.138	0.961	25.4
* 4	2.718	2.716	0.922	25.3
* 3	3.627	3.625	0.959	25.4
* 2				
* 1				

Km 9/24/93 ~~Direct~~ Put sample #9 and 16 in oven to dry at 105°C

Km 9/27/93 Weight of dry samples:
#9 = 2.877 g
#16 = 3.471 g.

original weights recorded for these two samples were in error!

Km 9/29/93 Samples NRG4 put back into oven to dry. They were not originally sealed with tape and all come to room relative humidity.

Km 10/5/93 NRG4*AZB samples put under vacuum.

Km 10/7/93 Samples saturated in hermetically sealed vessel with DI - cleaned water.

Km 10/15/93

	Sat Wt.
NRG4AZB*17	3.276
*3	3.703
*10	3.061
*6	3.637
*11	3.075
*8	2.764
*16	4.268
*15	4.436
*18	4.542
*20	3.545
*2	4.539
*9	4.101
*7	3.277
*4	3.899
*13	3.583
*12	3.832
*21	3.072
*14	3.570
*19	4.945
Km 10/15/93 *1 ~~*2~~	4.223
*5	3.893

Samples were allowed to air dry to intermittant saturation levels. They were sealed using parafilm in Plastic Aquarium sample holders.

Km 10/15/93

	Sat wt	Sat wt in H_2O
NRG2*AZH*4	3.638	1.989
NRG2*AZB*3	3.154	1.757
NRG2*AZB*4	3.745	2.058
NRG2*AZB*1	3.735	2.070
NRG2*AZB*2	2.910	1.595
NRG2*AZH*5	3.053	1.664
NRG2*AZH*3	3.457	1.879
NRG2*AZH*1	3.854	2.076
NRG2*AZH*2	3.110	1.695
NRG2*AZA*1	3.139	1.716
NRG2*AZA*2	3.544	1.925
NRG2*AZF*1	3.576	1.962
NRG2*AZF*3	3.605 ~~2.756~~	1.954
NRG2*AZA*3	~~3.605~~ Km off's 2.758	1.499
NRG2*AZF*2	3.014	1.637

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7/26/94 Porosity Tests

Tests using the pycnometer were completed using in-house air. Methods followed were from Methods of Soil Analysis pg 448 (Agronomy #9)

Sample = NRG3.BXY.1

$V_{c(w/sample)} = (190"H_2O - 94.5"H_2O) V_r / 94.5"H_2O$

~~$= 1.021 (249.64)$~~ 7/26 km $= 1.010582 (249.64)$

~~$254.95\ cm^3$~~ 8/9/94/km $= 252.28$

$V_{c(w/o\ sample)} = (190"H_2O - 93.5)(249.64)/93.5$

$= 257.65$

$V_{sample} = \pi r^2 h = \pi \left(\frac{5.01}{2}\right)^2 (0.35cm) = 6.90cm^3$

$Vol\ voids = V_{sample} - (V_{c\ w/o\ sample} - V_{c\ w\ sample})$

$6.90 - 5.37 = 1.53cm^3$

$Porosity = 1.53/6.90 = 22\%$

This sample is too small to get an accurate reading using this technique

Sample = NRG4.BYX.3

$V_{c\ w/sample} = (190"H_2O - 96.5"H_2O)(249.64)/96.5"H_2O = 241.88cm^3$

$V_{c\ w/o} = 257.65cm^3$ (from above)

$Vol_{sample} = 15.77\ cm^3$

$Porosity = [15.77 - (257.65 - 241.88)] / 15.77 = 0\%$

NOT POSSIBLE

Sample = NRG4-BXY.3

$V_{c\ w/sample} = (190"H_2O - 94.5"H_2O)(249.64)/94.5"H_2O = 252.28$

Vol sample

$V_{c\ w/o\ sample} = 257.65$

~~Pg~~ km 8/8/94 Pressure gage ID# 1593008
0-200" H_2O
is not sensitive enough for this test.

9/1/93 Km

Pycnometer Porosity Test (Using Industrial Grade Helium)

Pycnometer setup using Dwyer hand held manometer factory calibrated with readibility to 1/100 of a psi. Cal = ±0.01 psi

At 19.75 psi initial pressure and the following eqn the empty sample chamber's vol

$$V_C = (P_{gi} - P_{CF}) V_r / P_{CF}$$

where V_C = volume of gas in sample chamber
P_{gi} = Initial pressure of the gas
P_{CF} = Final pressure of the gas
V_r = Volume of the reservoir

Volume of empty sample chamber's gas = 224.44 g/l

Porosity figured by:

$$\text{Vol}_{\text{sample}} = \frac{(V_{C\,(\text{empty})} - V_{C\,(\text{with sample})})}{\text{Vol. sample}}$$

Sample	Sample Vol (cm^3)	$V_{C\,(\text{with sample})}$	Porosity
~~NRG1*Bx*1~~			
NRG2*Bz*1	11.83	217.289	0.39
NRG2*Byx*1	12.42	217.289	0.42
NRG3*Bz*1	17.15	210.360 ~~210.849~~	0.18
NRG3*Bz*2	3.55	222.635 ~~218.171~~	0.49
NRG 3*Bz*3	7.69	218.171	0.18
~~NRG4*~~			
NRG3*Bxy*2	9.46	216.949	0.20
NRG3*Bxy*3	18.14	210.360	0.22

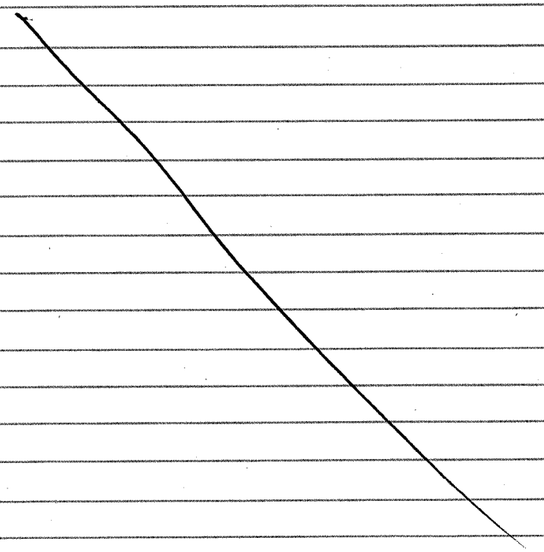
NRG4*Bz*1	10.05	217.289	0.29
NRG4*Bz*2	7.29	218.613	0.20
NRG4*Bxy*1	6.50	219.501	0.24
NRG4* ~~Byy*3~~ (Byx*3 km g/l)	15.77	212.502	0.24
NRG4*Byx*2	5.32	220.391	0.24

- There appears to be some kind of lower limit to the size of the sample to be used.

- Cores (samples) were placed in oven at 105°C after test. Initially they were in a dessicator for about 2 weeks. Will run them again in a day or so to compare results.

- Will cut larger cores and try them

- Will compare with different initial pressure of gas.



9/1/93 KM

Gravimetric Porosity Test

Porosity = (Wt of sample wet − Wt of sample dry) ÷ Vol of sample

Sample ID	Wt_{wet} (g)	Wt_{dry} (g)	Vol (cm^3)	Porosity
NRG3*A2D*1	3.409	3.256	1.47	0.10
" * " *2	4.611	4.435	1.96	0.09
" * " *3	3.708	3.572	1.53	0.09
" * " *4	2.792	2.684	1.16	0.09
" * " *5	3.215	3.086	1.39	0.09
" * " *6	3.114	2.989	1.30	0.10
" * " *7	2.610	2.503	1.13	0.09
" * " *8	4.191	4.032	1.79	0.09
" * " *9	3.000	1.886	1.19	ERR
" * " *10	3.376	3.244	1.42	0.09
" * " *11	3.043	2.935	1.25	0.09
" * " *12	3.428	3.320	1.45	0.07
" * " *13	3.246	3.138	1.42	0.08
" * " *14	3.709	3.567	1.59	0.09
" * " *15	2.446	2.361	0.99	0.09
" * " *17	2.603	2.517	1.11	0.08
NRG4*A2B*1	~~4.281~~ KM all	~~4.704~~	~~4.721~~	~~4.707~~ KM 9/1/93 ERR KM all
" * " *2	4.533	4.392	1.81	0.08
" * " *3	3.700	3.589	1.50	0.07
" * " *4	3.881	3.768	1.59	0.07
" * " *5	3.891	3.758	1.62	0.08
" * " *6	3.635	3.539	1.45	0.07
" * " *7	3.278	3.183	1.30	0.07
" * " *8	2.762	2.684	1.13	0.07
" * " *9	4.097	3.988	1.64	0.07
" * " *10	3.058	2.964	1.22	0.08
" * " *11	3.073	2.981	1.19	0.08
" * " *12	3.828	3.715	1.56	0.07
" * " *13	3.578	3.474	1.45	0.07
" * " *14	3.563	3.462	1.45	0.07

NRG4*A2B*15	4.420	4.296	1.81	0.07
" * " *16	4.258	4.134	1.73	0.07
" * " *17	3.273	3.172	1.39	0.07
" * " *18	4.533	4.401	1.70	0.08
" * " *19	4.934	4.799	2.04	0.07

On 8/17/93 These samples were weighed dry, and then SATURATED according to SATURATION Proceedures.
Before they were SATURATED and weighed they were oven dried at 105°C for 3 days.
On 9/1/93 The SATURATED weights were taken

Pycnometer Porosity Tests

9/8/93 Km

Using Helium gas.
This test will use larger samples than in previous expecriments. These samples were cut on 9/3 and placed in oven to dry.

Initial data on samples:

Sample	Height	Vol.	Wt (dry)
NRG3*Cz*1	1.61cm	73.81cm^3	170.18g
NRG2*Bz*2	1.78cm	35.287cm^3	66.517g
NRG3*Byx*5	1.53cm	30.162cm^3	69.947g
NRG2*Byx*2	1.52cm	29.965cm^3	59.740g

Out of Helium

10/4 NRG3*Cz*2 Height = 0.69 V = ~~73.828~~ 31.632 Wt = 75.914
NRG2*Bxy*4 H = 1.66cm V = 32.725 Wt = 64.921
NRG3*Bxy*4 H = 1.5cm V = 25.570 Wt = 70.126

Testing was conducted using equations on pg 52
V_{gi} = 19.70 V_c empty = 258.40835
NRG3*Cz*2 V_c = 227.8268 Porosity = 0.03
NRG2*Bxy*4 V_c = 233.93011 Porosity = 0.25
NRG3*Bxy*4 V_c = 230.1559 Porosity = 0.04
NRG2*Bz*~~3~~ V_c = 233.93011 Poros = 0.30

9/10/93.
While looking at data from aqualab test for NRG3 samples, #5, 13, 11, #4 were re-measured for volume.
~~the~~ #5 was measured as 0.49 cm high 0.46 km
new measurement makes it 0.47 cm high
#13 was 0.50cm high. Changed measurement to 0.47cm high.

from 57

TEST = 15 bar. 3

	Sample	Weight
KM 9/29/93	NRG3 * BZ * 3	18.580
	NRG3 * Bxy * 2	22.096
	NRG4 * Bxy * 2	18.304
	NRG4 * Bxy * 3	27.226

set P_G = 30 psi = 2.068 BAR

Km 10/4/93	NRG2 * BXy * 1	25.088
	NRG2 * BZ * 1	24.871
	NRG4 * BXy * 1	16.117
	NRG3 * ByX * 4	13.185
	NRG3 * BZ * 2	8.024
	NRG3 * ByX * 3	21.409
	NRG4 * ByX * 2	12.977
	NRG4 * Bz * 1	22.623
	NRG2 * ByX * 1	25.822
	NRG4 * Bxy * 3	27.180
	NRG4 * Bxy * 2	18.274
	NRG3 * Bxy * 2	~~22.069~~ 22.058 Km 8/9/94
	NRG3 * Bz * 3	18.541
	NRG4 * Bz * 2	18.324
	NRG4 * ByX * 1	13.012

set P_G = 40 psi

Km 10/8/93 P_G = 40 psi

Km 10/13/93 P_G = 40 psi = 2.758 BAR

NRG3 * ByZ * 3	21.408
NRG4 * Bz * 1	22.597
NRG4 * ByX * 1	13.012
NRG4 * ByX * 2	12.966
NRG3 * Bz * 2	8.019
NRG2 * Bxy * 1	24.810
NRG2 * ByX * 1	25.507

Km 10/13/93 cont'	NRG3 * BZ * 3	18.529
	NRG4 * Bxy * 2	18.261
	NRG4 * BXy * 3	27.164
	NRG3 * ByX * 4	13.174
	NRG4 * BXy * 1	16.090
	NRG3 * BXy * 2	22.053

Set P_G = 50 psi = 3.447 BAR

Km 11/1/93	NRG2 * Bxy * 1	24.707 g
	NRG2 * BZ * 1	24.384 g
	NRG2 * ByX * 1	25.352 g
	~~NRG2 *~~ Km 11/1/93	
	~~##~~ NRG 3 * ByX * 4	13.175 g
	NRG4 * BXy * 1	16.092 g
	NRG3 * BXy * 2	22.059 g
	NRG4 * Bxy * 3	27.160 g
	NRG4 * BXy * 2	18.261 g
	NRG3 * Bz * 3	18.521 g
	NRG4 * BZ * 2	18.315 g
	NRG4 * ByX * 1	13.008 g
	NRG4 * ByX * 2	12.964 g
	NRG3 * Bz * 2	8.012 g
	NRG4 * Bz * 1	22.579 g
	NRG3 * ByX * 3	21.414 g

Specific Gravity / Bulk Density

9/13/93 MY On 9/10 the samples were taken from the oven and placed in a hermetically sealed vessel. A vacuum pulled for approx 6 hours. The samples were then saturated with DD water and left over weekend.

(Procedures on pg 12)

Sample -	SAT. Weight in air	Sat weight in Water Bulk Sp Gr
NRG3*Cz*1	171.66 g	99.08 g
NRG1*Bxy*2	69.739	37.167
NRG2*Bz*3	70.218	38.561
NRG5*Byx*2	64.167	36.125
NRG3*Bxy*2	22.116	12.926
NRG2*Bz*1	~~25.285~~ 25.280 cm	13.894
NRG4*Byx*2	18.469	10.958
NRG4*Byx*1	16.293	9.647
NRG2*Bz*2	72.968	40.042
NRG3*Byx*5	68.844	39.650
NRG3*Bz*4	75.209	43.449
NRG4*Bz*2	18.511	11.010
NRG2*Bxy*1	25.605	14.545
NRG3*Bz*3	18.665	10.902g
NRG2*Byx*1	26.148	14.475
NRG4*Bxy*3	27.459	16.278

Using equations for UnSAT Sp Gravity:

Mass dry / (Mass SAT in air - mass sat in water)

and for Sat Sp Gravity

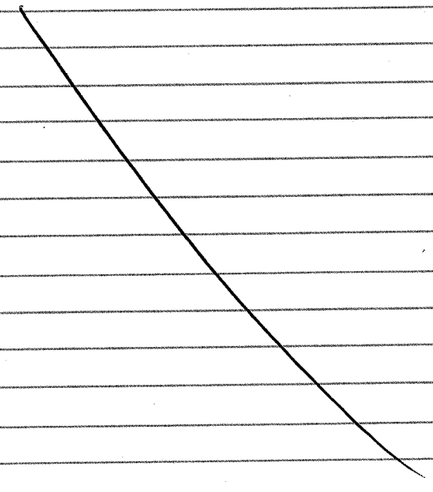
Mass sat in air / (mass sat in air - mass sat in water)

The results were

10/7/93 KM

Sample	SAT Specific Grav	Unsat Sp Grav
NRG3*Czx1	2.37	2.34
NRG1*Bxy*2	2.13	1.88
NRG2*Bz*3	2.21	2.01
NRG5*Byx*2	2.29	2.11
NRG3*Bxy*2	2.38	2.31
NRG2*Bz*1	2.20	1.99
NRG4*Byx*1	~~2.44~~ 2.44 KM 8/9/94	2.34
NRG2xBz*2	2.21	2.01
NRG3*Byx*5	2.31	2.27
NRG3*Bz*4	2.37	2.33
NRG4*Bz*2	2.42	2.33
NRG2*Bxy*1	2.24	2.04
NRG3*Bz*3	2.38	2.29
* NRG2*Byx*1	—	—
* NRG4*Bxy*3	—	—

(these calculations need to wait until a dry mass is determined)



KM 10/8/93

Pycnometer Porosity Test

using a small piece of plastic to raise edge of sample, therefor allowing greater access of gas on all sides of samples.

Following beforementioned equations

$V_{c\,(empty)}$ at 19.70psi$_i$ = 259.989 cm^3 at 19.70 psi

All samples in this test will start at 19.7psi

Sample	Sample vol	P_{EF}	$V_{c\ with\ sample}$	Porosity
NRG1*BZ*1	14.785	9.86	249.134	0.27
NRG1*BXy*1	13.800	9.83	250.66	0.32
NRG1*Bxy*2	32.527	10.16	234.406	0.21
NRG2*Bxy*3	33.907	10.22	231.564	0.16

10/15/93

	SAT weight in air	SAT WT in H_2O
NRG1*BX*2	71.838	38.443
NRG5*BYX*1	56.755	32.040
NRG5*BYX*3	29.895	16.9000
NRG4*BYX*3	37.464	22.208

TEST = Aqualab * 4

KM

NRG4 * AzB * 1 through NRG4 * AzB * 21
placed in vacuum ~~10/5~~ (see pg 44.) 10/5.
can 10/7/93

SATURATED 10/7/93

Weighed and sealed 10/15/93

10/20/93

	Sample	Weight$_i$	Weight$_f$	A_w	T_{oC}
	NRG4*AzB*1	4.148g	4.147g	0.937	25.6
	*2	4.436g	4.438g	0.717	25.7
	*3	3.683g	3.680g	0.997	25.6
	*4	3.807g	3.809g	0.734	25.7
	*5	3.840g	3.839g	0.981	25.7
	*6	3.609g	3.602g	0.988	25.7
	*7	3.211g	3.213g	0.632	25.9
	*8	2.708g	2.710g	0.672	26.0
	*9	4.036g	4.037g	0.745	26.1
	*10	3.030g	3.030g	0.992	26.0
	*11	3.027g	3.030g	0.935	26.0
10/21/93	*12	3.768g	3.770g	0.843	25.8
	*13	3.521g	3.521g	0.815	25.9
	*14	3.524g	3.520g	0.962	26.0
	*15	3.464g	4.364	0.882	26.0

↑ rechecked, this # is good

KM	10/22/93	*16	4.165g	4.167g	0.483	25.4
		*17	3.249g	3.245g	0.993	25.4
		*18	4.453g	4.454g	0.728	25.6
		*19	4.893g	4.891	0.983	25.7
		*20	3.448g	3.450	0.621	25.8
		*21	2.956	2.953	0.895	25.8

10/25/93
RH

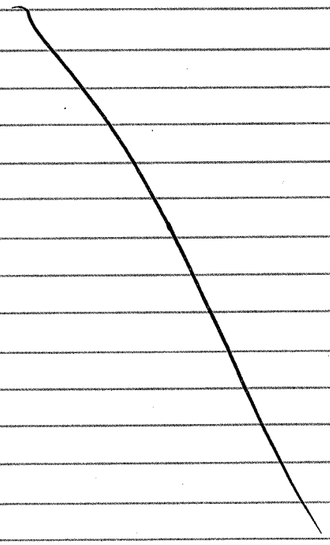
Prepared media sample for cylindrical container.
100 mesh alumina ($\leq 149\ \mu m$)

Prepared 1000 ml quantities of alumina. porosity is taken to be 0.27 (measured earlier). Saturation is 0.8. Thus added 216 ml of DI water to 1000 ml of alumina.

Will need about 8 liters of media.

Before putting media into container, 3 rings of RTV (732 multi purpose) sealant were put on surface of the base of the container to reduce surface gas flow

Media had been dried at ~210°F for ~50 hr prior to mixing with water. Media was still warm at the time it was put into container



TEST = AquaLab * 5

Km NRG 2* ... Samples placed in vacuum 10/5/93
(see pg 44)

Km SATURATED ~~10~~ 10/7/93

Km Weighed + Sealed 10/15/93

Km 10/30/93

Sample	Weight$_i$	Wt$_f$	A_w	T°C
NRG2*AzA*1	2.965g	2.964g	0.972	23.0
NRG2*AzA*2	3.289g	3.285g	0.955	23.1
NRG2*AzA*3	2.567g	2.565g	0.957	23.1
NRG2*AzB*1	3.479g	3.477g	0.928	23.2
NRG2*AzB*2	2.666g	2.664g	0.870	23.3
Km 10/30/93 NRG2 ~~NRG3~~*AzB*3	2.936g	2.937g	0.648	23.3
NRG2*AzF*1	3.519g	3.516g	0.995	23.2
NRG2*AzB*4	3.461g	3.459g	0.923	23.4
NRG2*AzF*2	2.785g	2.784g	0.937	23.4
NRG2*AzF*3	3.388g	3.382g	~~0.947~~ 0.977 Km 10/30	23.4
NRG2*AzH*1	3.678g	3.674g	0.985	23.0
Km 11/1/93 NRG2*AzH*2	2.892g	2.889g	0.948	20.8
NRG2*AzH*3	3.345g	3.343g	0.995	20.8
NRG2*AzH*4	3.522g	3.519g	0.996	20.9
NRG2*AzH*5	3.003g	2999g	1.001	21.2

TEST = AquaLab * 6

Km 11/3/93 Samples placed in vacuum.

Km 11/5/93 Samples SATURATED w/ DEAIRED DI WATER

Km 11/12/93 Samples weighed + sealed

Sample	WT SATURATED	wt sat in water
NRG3*AzD*18	3.737g	2.172
NRG 3*AzD*16	3.586g	2.098
NRG 3*AzD*7	2.597g	1.509g
NRG3*AzD*2	4.592g	2.660g
NRG4*AzB*15	4.417g	2.616g
NRG3*AzD*9	2.986g	1.737g
NRG4*AzB*20	3.527g	2.083g
NRG3*AzD*6	3.099g	Km 11/12/93 ~~1.644g~~ 1.796g
NRG3*AzD*4	2.778g	1.611g
NRG3*AzD*5	3.205g	1.861g
NRG3*AzD*3	3.694g	2.138g
NRG3*AzD*17	2.597g	1.513g
NRG4*AzB*21	3.053g	1.760g
NRG3*AzD*14	3.693g	2.147g
NRG3*AzD*10	3.368g	1.962g
NRG3*AzD*11	3.035g	1.769g
NRG3*AzD*12 13	3.236g	1.883g
NRG3*AzD*8	4.183g	2.424g
NRG3*AzD*1	3.395g	1.955g
NRG3*AzD*12	3.422g	1.993g
NRG3*AzD*15	2.436g	1.426g
NRG1*AzB*11	2.681g	1.435g
NRG1*AzB*12	2.779g	1.497g
NRG1*AzB*5	2.364g	1.264g
NRG1*AzB*10	2.393g	1.278g
NRG1*AzB*3	2.453g	1.306g
NRG1*AzB*7	2.827g	1.507g
NRG1*AzB*2	2.685g	1.430g
NRG1*AzB*4	2.246g	1.205g

cont pg 70

SATURATED Hydraulic Conductivity

11/16/93 NRG1*CXY*1 sample was measured to be 7.64 cm diameter, 0.82 cm high

Theory - Constant Head

$$Q = A_s \frac{K_{SAT}}{\mu_w} \frac{\Delta P_s}{L_s}$$

where K_{sat} = SAT. permeability
ΔP_s = Pressure differential
L_s = Length of Sample
A_s = Area of Sample
Q = Flow through Sample in some time t.

$$k_{SAT} = \frac{Q}{\Delta t} \frac{L_s \mu_w}{\Delta P_s A_s}$$

$\mu_w = 960E\text{-}6$ N·S/m² @ 70°F

SATURATED Sample + set up FLEX WALL ACCORDING TO ps 4.

11/17/93

	Q	t	ΔP psi
Rm1	11.6 ml	29 min 21 sec	35.3 - 2.7
Rm2	7.5 ml	15 min 46 sec	40.4 - 2.7
Rm3	13.2 ml	19 min 33 sec	50.2 - 2.5
Rm4	12.5 ml	17 min 42 sec	60.5 - 2.6
Rm5	10.4 ml	44 min 59 sec	20.5 - 2.5

$A_s = 45.843 cm^2$ $L_s = 0.82 cm$

1/19/93 Rm 1 DATA: Q = 11.6 ml ΔP = 32.6 psi t = 1,761 sec

$L_s = 0.82 cm \left(\frac{1 m}{100 cm}\right) = 8.2E\text{-}3$ m

$A_s = 45.843 cm^2 \left(\frac{1 m^2}{1{,}000 cm^2}\right) = 4.5843E\text{-}2\ m^2$

$\Delta P = 32.6 psi \left(\frac{1 psi}{27.68 "H_2O}\right)^{-1} = 902.37 "H_2O = 22.92 m H_2O$

$Q = 11.6 ml \left(\frac{10^{-6} m^3}{ml}\right) = 1.16E\text{-}5$

Km 1/19/94

$$k_{SAT} = \frac{(1.16E\text{-}5)(8.2E\text{-}2)(960E\text{-}6)}{(1{,}761)(902.37)(4.5843E\text{-}2)} = 5.142e^{-10} m/s = 1.25E\text{-}14$$

(902.37 "H2O = 22.92 m H2O; Km 1/19)

Rm 2 $\Delta P = 37.7\ (27.68) = 1.0435\ E3 = 26.505 m H_2O$

$\Delta t = 946$

$Q = 7.5E\text{-}6$

$$k_{sat} = \frac{(7.5E\text{-}6)(8.2E\text{-}2)(960E\text{-}6)}{(946)(1.0435E3)(4.5843E\text{-}2)} = 1.30E\text{-}14 = 5.350e^{-10} m/s$$

(26.505 m H2O; Km 1/19/94)

Rm 3 $\Delta P = 1{,}320.3 = 33.536 m H_2O$

$\Delta t = 1{,}173$

$Q = 1.32E\text{-}5$

$$k_{sat} = \frac{(1.32E\text{-}5)(8.2E\text{-}2)(960E\text{-}6)}{(1{,}173)(1{,}320.3)(4.5843E\text{-}2)} = 1.46E\text{-}14$$

(33.536 Km 1/19; Km 1/19/94)

Rm 4 $\Delta P = 1{,}602.7 = 40.709 m H_2O$

$\Delta t = 1062$

$Q = 1.25E\text{-}5$

$$k_{sat} = \frac{(1.25E\text{-}5)(8.2E\text{-}2)(960E\text{-}6)}{(1062)(1{,}602.7)(4.5843E\text{-}2)} = 1.26E\text{-}14$$

(Km 1/19; 40.709; Km 1/19/94)

Rm 5 $\Delta P = 498.24 = 12.655 m H_2O$

$\Delta t = 2699$

$Q = 1.04E\text{-}5$

$$k_{sat} = \frac{(1.04E\text{-}5)(8.2E\text{-}2)(960E\text{-}6)}{(2699)(498.24)(4.5843E\text{-}2)} = 1.33E\text{-}14$$

(12.655; Km 1/19/94)

TEST = AquaLab X6 cont

11/22/93 KM NRG3 samples have been sealed and left to come to equilibrium since 11/12.

Sample	wt$_i$(g)	wt$_f$(g)	A_w	T_c
NRG3 AZD*1	3.3g	3.298	0.748	27.1
NRG3*AZD*14	3.620	3.617	0.896	27.3
NRG3*AZD*2	4.492	4.490	0.772	27.3
NRG3*AZD*3	3.602	3.601	0.654	27.7
NRG3*AZD*4	2.693	2.693	0.414	27.8
NRG3*AZD*5	3.102	3.101	0.373	28.0
NRG3*AZD*6	3.014	3.014	0.692	28.3
NRG3 AZD*8	4.107	4.105	0.945	28.5
NRG3*AZD*9	2.934	2.932	0.962	28.6
NRG3*AZD*10	3.279	3.276	0.800	28.7
NRG3 AZD*11	2.947	2.946	0.483	28.7
NRG3*AZD*15	2.371	2.370	0.371	28.7
KM 11/24/93				
NRG3*AZD*16	3.508	3.501	0.709	24.8
NRG3*AZD*17	2.532	2.530	0.721	24.9
NRG3*AZD*18	3.648	~~3.650~~ KM 11/24 3.645	0.784	25.1
KM 11/29/93 NRG3*AZD*20	3.440			
NRG3*AZD*21	2.914	2.915	0.249	27.3
NRG3*AZD*7	2.506	2.506	0.248	27.4

12/14/93 Pycnometer - Porosity TESTING

KM V_r = 249.64

P_i = 19.97 $P_{f\,empty}$ = ~~11.74~~ KM 12/14 11.75

NRG2 BZ1 P_f = 12.01

12/15/93 creating pressure on joints connecting 2 cells when tightening & loosening lid. Larry Bishop made holder for system to try & alleviate problem.

12/16/93 ~~NRG1*Byx*1~~ KM 12/16

V_r = 249.64 P_i = 19.97 $P_{f\,empty}$ = ~~12.665~~ KM 12/16 12.40

$V_{c\,empty}$ = 152.401

NRG1*Byx*1 P_i = 19.97 $P_{f\,sample}$ = 12.665

n = .323

Checked manometer; not zeroed properly. STARTING OVER

V_r = 249.64 P_i = 19.97 P_f = 12.40

NRG5*Byx*5 $P_{f\,sample}$ = 13.16psi $R_{1\,cm}$ $V_{c\,sample}$ = 129.183

n = 0.176

NRG2*BYX*1 P_i = 19.97 $P_{f\,sample}$ = 12.69

$V_{c\,sample}$ 143.213

Reset up: $V_p = 249.64$ $P_i = 19.97$ $P_{f empty} = 13.21$

$V_{c empty} = 127.749$

NL63* BXY*2 $P_{f sample} = 13.53$ $V_{c sample} = 1188.8$

12/20/93

$V_c = 249.64\ cm^3$ $P_i = 19.97$ $P_{f empty} = 13.22$

$V_{c empty} = 127.464$

12/21/93 took manometer in for calibration

12/14 KSAT TEST.

Set up flexwall with "impermeable" plexiglass disk.

Applied 77psi confining pressure
62psi pressure on inflow
5psi pressure on outflow

12/15 NO BOUNDARY FLOW

12/15 Reduced confining pressure to 72psi.
NO Q
Reduced confining pressure to 67psi

12/16 got boundary flow
Increased confining pressure to 71psi

12/17 Got Boundary flow
Took flexwall apart to
1) check fittings for leaks
2) Double membrane
3) Double retaining rings on top & bottom

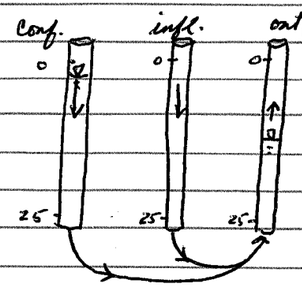
Checked membrane for holes could find none.
(ie, inflated w/ H_2O under pressure, didn't leak)

Doubled membrane. Put 1 "O" ring on bottom & 2 on top.

Set confining Pressure to 70.7 psi
inflow pressure to 61.1 psi
outflow pressure to 38 psi

Fri 4:00pm Water levels confining = 1.1 ml
inflow = 1.2 ml
outflow = 22.4 ml

12/20 Water levels : confining 22.7
inflow 1.4 ml
outflow 6.8 ml



Set confining pressure to 70.8 psi
inflow to 61.3 psi
outflow to 20.1 psi

Set water levels to:
confining 0.6 ml
inflow 0.5 ml
outflow 23.3 ml

12/21 Got flows

Took apart permeameter to test for leaks in fittings. Applied a vertical pressure on sample and filled w/ H_2O to expand membrane. Left for 3 hours. Couldn't see any accumulation of H_2O around fittings.
Tightened all fittings about 1-2 turns and re-set up apparatus at pressures like those on 12/20 above.
Set water levels to:
Conf : 0.9 ml
inflow : 6.1 ml
outflow : 24.5 ml

unit p 77

Vm 12/20 Test = AquaLab #1.

Testing of NR65

Sample	Dry Wt (g)	Sat Wt (g)	Vol cm^3
NR65*A2A*1	4.336	4.689	2.041
*A2A*2	2.934	3.173	1.389
*3	2.390	2.574	1.162
*4	3.842	4.156	1.871
*5	2.979	3.202	1.418
*6	2.903	3.136	1.389
*7	2.674	2.886	1.304
*8	2.665	~~2.885~~ Vm 12/20 2.883	1.248
*9	2.265	2.453	1.219
*10	2.591	2.810	1.276
*11	2.566	2.778	1.304
NR65xA2 B*1	3.379	3.675	1.664
*2	2.744	2.979	1.361
*3	2.969	3.213	1.418
*4	2.379	2.593	1.162
*5	2.524	2.753	1.219
*6	2.227	2.430	1.106
*7	2.975	3.256	1.446
*8	3.342	3.619	1.559
*9	4.432	4.793	2.070
*10	3.348	3.656	1.644
*11	2.755	3.001	1.389
*12	2.711	2.959	1.304
*13	3.238	3.520	1.616
*14	2.284	2.498	1.162
*15	2.463	2.653	1.219
*16	3.219	3.504	1.616
*17	3.338	3.646	1.616

Dryed Samples in various lengths of time. Sealed in Plastic Container with Parafilm. Left to come to equilibrium.

12/21/93 KM NOTES on Clay Minerals

Per Paul Bertetti a thymol solution of 0.3-5% will inhibit bacterial growth. Heating to 170°C for 3-5 hours will also help (using dry heat).

Per Bill Murphy - at 325-400°C Kaolinite start to lose interstitial hydroxides, at @ 700°C they no longer will be able to reconstituted.

$CaSO_4$ solution is used to keep the clays from becoming expansive. 0.001 M is okay for Apache Leap Rocks. Should be okay for ours.

from 74

KM 12/22 Water levels at 5:

confining	4.0
inflow	6.1
outflow	23.0

Got Q!

Need to change out swage locks on outflow ports. Also will change out tubing when it arrives (on order).

KM 12/27 Water Levels

confining	13.4
inflow	6.3
outflow	16.5

Changed out swage locks + teflon tape on outflow ports.

Reset up

	Water Levels		Pressure
Confining	~~0.5~~ 12/27 KM	1.1	70.2
Inflow	1.5		60.4
Outflow	20.7		19.4

KM 12/28 12:00 pm Water levels

Confining	1.1
Inflow	23.2
Outflow	15.1

Increased confining pressure to 90.4 psi

Water levels:

confining	1.2
Inflow	2.5
Outflow	22.7

cont pg 84

15BAR - NRG2 Ψ vs. ϕ calculations

KM 12/21

pg = 10psi * [bar/14.504psi] = 0.690 bar
= 20psi * " = 01.379 bar
= 30psi " = 2.068 bar
= 40psi " = 2.758 bar
= 49psi " = 3.378 bar
= 58psi " = 3.999 bar
= 70psi " = 4.826 bar
= 80psi " = 5.516 bar
50psi " = 3.447 bar

NRG2 * Bxy * 2

Dry Wt = 24.751 g SATURATED Wt = 27.244 g

at 0.690 bar ~~SAT~~ KM 12/27 WT = 27.177 g
SAT = (27.244 - 24.751) · (27.244 - 27.177)
= 0.973

SAT = 1 - [(SAT wt - WT) / (SAT WT - Dry Wt)]

at 1.379 bar ~~Sat = 1 - 2.493/27244 -~~ KM 12/27
Sat = 1 - [27.244 - 27.086)/2.493]
=0.940

at 2.068 bar SAT = 1 - [(27.244 - 27.038)/2.493]
= 0.917

at 3.338 bar SAC = 1 - [(27.244 - 26.927)/2.493)
= 0.873

at 2.758 bar SAT = 1 - [(27.244 - 26.971)/2.493]
= .891

at 3.999 bar SAT = 1 - [(27.244 - 26.452)/2.493]
= .683

at 4.826 bar SAT = 1 - [(27.244 - 26.623)/2.493]
= 0.751

at 5.516 bar SAT = 1 - [(27.2440 - 26.456)/2.493]
= 0.684

NRG2 * Bxy * 1

Dry Wt 23.48 g SAT WT 25.74 g

at 1.379 bar SAT = 1 - [(25.740 - 25.353)/2.260]
= 0.829

at 2.068 bar SAT = 1 - [(25.740 - 25.088)/2.260]
= 0.712

at 2.758 bar SAT = 1 - [(25.740 - 24.810)/2.260]
= 0.589

at 3.447 bar SAT = 1 - [(25.740 - 24.707)/2.260]
= 0.543

NRG2 * Byx * 1

Dry Wt 23.860 SAT Wt = 26.344

at 1.379 bar SAT = 1 - [(26.344 - 26.039)/2.484]
= 0.877

at 2.068 bar SAT = 1 - [(26.344 - 25.822)/2.484]
= 0.790

at 2.758 bar SAT = 1 - [(26.344 - 25.507)/2.484]
= 0.663

at 3.447 bar $S_{AT} = 1 - [(26.344 - 25.352)/2.484]$
$= 0.601$

NRG2 * BZ * 1
Dry Wt = 22.979 g Sat WT = 25.439 g.

at 1.379 bar $S_{AT} = 1 - [(25.439 - 25.106)/2.460]$
$= 0.865$

at 2.068 bar $S_{AT} = 1 - [(25.439 - 24.871)/2.460]$
$= 0.769$

at 3.447 bar $S_{AT} = 1 - [(25.439 - 24.384)/2.460]$ KM 12/27
$= 0.571$

~~NRG2 * Bxy * 2~~ KM 12/28

KM 12/26

Aqualab Calibration

Upon placing DI H_2O in Aqualab got a reading of 1.004. Since water has an activity of 1.000 calibration of aqualab was deamed necessary.

Made saturated solutions of NaCl and $MgCl_2$, by adding chemical until dissolution did not continue. $MgCl_2$ is very day and takes up H_2O from the atmosphere so crystals were added to saturated soln.

DI ~~solut~~ KM 12/26 has an A_w of 1.00 at all T(°C)
$MgCl_2$, NaCl values were taken from the greenspan tables for ERH provided by Docagon (manufacturer).

Initial values were recorded as:

$NaCl_{(a)}$	0.756	at 27.9°C
	0.757	at 28.0 °C
$MgCl_{2(a)}$	0.364	27.5
	0.364	27.7

From the TABLES NaCl at 25°C S/B .7529 ± 0.12E-2
at 30°C S/B .7509 ± 0.11E-2

$MgCl_2$ at 25°C S/B .328 ± 0.16E-2
at 30°C S/B .3244 ± 0.14E-2

Calibration is carried out by turning a screw in back of the machine when it is beeping to bring the readings in line.
The relationship is linear so when one solution is in line all should be.

If this doesn't occur the machine s/b taken apart and cleaned.

KM 12/28 Continued trouble occurred using the $MgCl_2$. crystals at bottom of solution dissolved since yesterday.

Placed dry crystals in chamber, read 0.316, this is low. s/b 0.328

Placed crystals in cup and pored solution over them.
Read 0.344, this is high (at 26°C) s/b 0.328

NaCl A_w = 0.751 at 26.1°C s/b 0.752

DI H_2O A_w = 0.998

adjusted machine up to 1.000

DI H_2O A_w = 1.000

NaCl 0.750 at 25.3°C s/b 0.753
0.752 at 26.3°C s/b 0.752

$MgCl_2$ 0.342 at 25.8°C s/b 0.328
0.337 at 26.1°C
0.329 at 26.2°C
0.328 at 26.3°C

DI H_2O 1.002
1.002
1.001
1.001

Cl KM 12/29
NaOH 0.750 at 25.0°C
0.752 at 26.1°C

DI H_2O 1.000 at 25.5°C

$MgCl_2$ 0.322 at 26.1
0.322 at 26.2

KM 12/28 ~~NaOH~~ 0.754 25.2°C
NaCl 0.754 at 26°C

KM 12/29
NaCl 0.751 at 25.1°C

placed $MgCl_2$ crystals in sample cup to ¼ full added saturated soln, and stirred.
$MgCl_2$ 0.334 at 24.7°C
$MgCl_2$ 0.335 at 25°C
opened compartment and stirred sample
$MgCl_2$ 0.329 at 25.2°C
$MgCl_2$ 0.330 at 25.3°C

NaCl 0.727 at 25.1°C
NaCl 0.731 at 25.2°C
NaCl 0.732 at 25.1°C

DI 0.969 at 24.7°C
Believe some $MgCl_2$ spilled in compartment.
Called Decagon tech. support. John Campbell gave me instructions for cleaning instrument.

NaCl 0.730 at 24.6°C
NaCl 0.717 at 24.7°C

DI 0.965 at 24.6°C
0.971 at 25.1°C

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from

KM 12/28 cont Water levels
confining 1.2
inflow 2.9
outflow 22.3

6:30 pm increased confining pressure to 100.3 psi
water levels
confining 1.3
inflow 2.9
outflow 22.3

12/29 KM
11:00 am
Water Levels confining: 1.3
inflow: 3.9
outflow: 22.0

Reset Water levels
confining 0.7
inflow 2.9
outflow 22.0

Pycnometer Porosity Tests

Initial Pressure = 19.95 psi
Chamber empty final pressure = 13.20

Vol Chamber = 127.657 cm³

NRG4 BYX2 P_f = 13.38 V_{cfinal} = 122.581

$$n = \frac{V_{sample} - (Vol\,Chamber\,empty - V_{cfinal})}{V_{sample}}$$

$$n = \frac{5.323 - (127.657 - 122.581)}{5.323}$$

$$= 0.046$$

This sample was tested previously at 24%

Pores may have been clogged by:
1) formation + growth of bacteria, algae, fungus
2) movement + reprecipitation of clays to clog pores
3) precipitation of other minerals

12/29 KM — Machine packed up and sent to:

Decagon Devices
NE 1525 Merman Dr
Pullman Wa 99163
Ret Authorization # 1157

for Repair +/or calibration

1/6 KM — Aqualab received back in good condition

DI H_2O : 0.998 at 25.6 ✓

DI H_2O = 0.998 at 26.2 ✓

NaCl = 0.753 at 26.2 ✓

NaCl = 0.754 at 26.5 ✓

MgCl = 0.345 at 26.4

MgCl = 0.345 at 26.4
stirred solution

MgCl = 0.341 at 26.8
added $MgCl_2$ xtls

MgCl = 0.339 at 27.0

MgCl = 0.330 at 27.1
stirred

MgCl = 0.323 at 27.2 ✓

Calibration ok. KM 1/6

1/5 KM — Cleaning of Samples

Placed "dry" NRG1*Bxy*1, NRG2*Bz*1 NRG3*Bz*3 and NRG4*Bxy*2 in SATURATOR. Pulled Vacuum.
Released into SATURATOR a 50% Chlorox and 50% DI solution.

1/6 KM — Upon opening the SATURATOR noticed the sample labels had been "bleached" off. Was able to relabel samples by their characteristics. The Chlorox solution also has an etching affect on the aluminum equipment.

KM 1/6/93 Aqualab Test 8 (NRG5)

NRG5*A2A*4	Wt_i 3.866	Wt_f = 3.866	0.727 at 27.5	
NRG5*A2B*12	Wt_i 2.702	Wt_f = 2.702	0.285 at 27.5	
NRG5 A2B* 14	Wt_i = 2.286	Wt_f 2.288	0.357 at 27.4	
NRG5 A2B* 13	Wt_i = 3.243	Wt_f 3.241	0.385 at 27.5	
KM 1/7 NRG5 A2B*11	Wt_i = 3.348	Wt_f 3.347	0.340 at 24.3	
NRG5*A2B*8	Wt_i 3.352	Wt_f = 3.351	0.342 at 24.4	
NRG5*A2B*10	Wt_i 3.358	Wt_f = 3.354	0.353 at 24.5	
NRG5*A2A*7	Wt_i 2.676	Wt_f 2.676	0.319 at 24.7	
NRG5* A2A*5	Wt_i 2.972	Wt_f = 2.973	0.291 at 24.7	
NRG5*A2B*3	Wt_i 2.983	Wt_f = 2982	0.611 at 24.9	
NRG5*A2B*7	Wt_i 2.976	Wt_f = 2.975	0.267 at 24.8	
NRG5* A2A*11	Wt_i 2.563	Wt_f = ~~2.566~~ 2.563 KM 1/7	0.242 at 24.8	
NRG5*A2A*1	Wt_i 4.340	Wt_f = 4.340	0.262 at 24.7	
NRG5*A2B*9	Wt_i = 4.450	Wt_f = 4.449	0.374 at 24.8	
NRG5*A2A*2	Wt_i = 2.946	Wt_f = 2.945	0.360 at 23.3	
NRG5*A2B*11	Wt_i = 2.759	Wt_f = 2.758	0.352 at 23.7	
NRG5*A2A*8	Wt_i = 2.666	Wt_f 2.664	0.251 at 23.9	
NRG5*A2A*10	Wt_i = 2.596	Wt_f = 2.594	0.336 at 24.2	
NRG5 A2B*2	Wt_i = 2.745	Wt_f = 2.745	0.237 at 24.4	
NRG5*A2B*15	Wt_i = 2.445	Wt_f = 2.445	0.234 at 24.5	
NRG5*A2B*4	Wt_i = 2.375	Wt_f = 2.374	0.305 at 24.7	
NRG5*A2B*1	Wt_i = 3.388	Wt_f = 3.388	0.397 at 24.9	
NRG5*A2B*6	Wt_i 2.235	Wt_f = 2.234	0.340 at 25.0	
NRG5*A2B*5	Wt_i = 2.530	Wt_f = 2.532	0.351 at 24.8	
NRG5*A2A*3	Wt_i = 2.365	Wt_f = 2363	0.273 at 25.0	
NRG5*A2B*16	Wt_i = 2.220	Wt_f = 3.218	0.297 at 25.2	
NRG5*A2A*6	Wt_i = 2911	Wt_f = 2911	0.340 at 25.2	

KM 1/12/94 Tagged NRG4*B samples with Aluminum Tags, and soaked them in a 50% - 50% solution of Chlorox and D.I water.

KM 1/13/94 Rinsed samples with DI WATER and placed them in a beaker. Covered samples with DI

K_{SAT} TEST NR64 * BYX * 2

KM 1/13/94

Placed sample in Permeameter. Water used in this test will be 0.0525 % NaOCl (1% Chlorox).

2:00pm Set confining pressure to 67.4 psi water level = 0.45 ml
inflow pressure to 60.4 psi " " = 0.7 ml
outflow pressure to 19.6 " " = 11.4 ml

2:10 pm reset water levels
conf = 0.55
inflow: 0.90
outflow: 9.5

2:34pm water levels
conf = 0.75
inflow: ~~3.9~~ 3.4 KM 1/13
outflow = 6.8

$Q = A_s (K_{SAT} \Delta P_s)/\mu_w L_s$ (see page 68)

$K_{SAT} = Q/\Delta t \; \frac{L_s \mu_w}{\Delta P_s A_s}$

$\mu_w = 960\ E\text{-}6$ $N \cdot s/m^2$ at 70°F

$L_s = 2.7E\text{-}3$ m $A_s = 5.323\ E\text{-}3\ m^2$

$\Delta P = 40.8 psi = 1129.34" H_2O$

$Q = 2.5\ E\text{-}6\ m^3$

$\Delta t = 22 min = 1320$ sec

$K_{SAT} = \frac{(2.5E\text{-}6)(2.7E\text{-}3)(960E\text{-}6)}{1320 \cdot 1129.34 \cdot 5.323E\text{-}3} = 8.166\ E\text{-}16\ m/s^2$

Had problem with leakage from confining pressure to outflow again.

Broke down Permeameter to Fix leak by changing out teflon tape and or fittings. KM 1/13 try and

Pressure levels the same

3:15pm Water levels at
conf = 0.9 ml
infl = 2.5 ml
outflow = 20.0 ml

3:46pm Water levels at
conf = 1.1 ml
infl = 5.0 ml
outflow = 17.6 ml

$K_{sat} = \frac{(2.2\ E\text{-}6\ m^3 \cdot 2.7E\text{-}3 \cdot 960E\text{-}6)}{1860 \cdot 1129.34 \cdot 5.323E\text{-}3} = 5.10\ E\text{-}16$ KM 1/13

still have problems with leakage.

3:54pm conf = 1.1 ml
inflow: 5.5 ml
outflow: 17.1 ml

$K_{sat} = \frac{(2.7\ E\text{-}6 \cdot 2.7E\text{-}3 \cdot 960\ E\text{-}6)}{(\cancel{7860}\ 2340 \cdot 1129.34 \cdot 5.323\ E\text{-}3)} = 4.98\ E\text{-}16$
KM 1/13

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AquaLab Test 9 ... (NRG5)

	Sample	Wt$_{ig}$	Wt$_{fg}$	A_w	T°C
1/14/94 KM	NRG5*AzB*3	3.116	3.110	0.982	26.6
	NRG5*AzA*7	2.787	2.782	0.982	26.8
	NRG5*AzA*6	3.003	2.999	0.968	26.9
	NRG5*AzB*3	3.062	3.057	0.953	27.0
	NRG5 AzA*7	2.736	2.734	0.937	27.0
	NRG5*AzA*6	2.964	2.960	0.907	27.0
	NRG5*AzB*3	3.027	3.026	0.911	26.9
	NRG5 AzA 7	2.709	2.707	0.877	26.7
1/17/94 KM	NRG5*AzA*7	2.700	2698	0.851	24.1
	NRG5*AzA*6	2.934	2.931	0.863	24.7
	NRG5*AzB*3	3.008	3.004	0.893	25.1
	NRG5*AzA*7	2.689	2.689	0.694	26.1
	NRG5*AzA*6	2.921	2.919	0.680	26.4
	NRG5* AzB* 3	2.983	2.983	0.679	26.4
	NRG5*AzA *7	2.679	2.678	0.466	26.4
	NRG5*AzA*6	2.909	2.907	0.492	26.4
	NRG5* Az B*3	2.978	2.978	0.575	26.2
KM 1/18/94	NRG5* AzB*3	2.969	2.967	0.310	24.8
	NRG5*AzA*6	2.902	2.902	0.306	25.3
	NRG5*AzA*7	2.669	2.668	0.272	25.6
KM 1/19/94	NRG5*AzA6	2.898	2.897	0.265	26.4
	NRG5*AZB*3	2.961	2.962	0216	26.3
	NRG5*Az A*7	2.667	2.666	2.17	26-5

Placed samples in oven to get dry weight.

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K_{SAT} Test NRG4*BYX*2 cont.

KM 1/19/94 According to ASTM D 5084 ("K_{sat} Saturated Media")

$$K = QL/Ath$$

where K = hydraulic Conductivity, m/s
Q = quantity of flow, taken as average of inflow + outflow, m^3
L = length of specimen along path of flow, m
A = cross-sectional area of specimen, m^2
t = interval of time, s, over which flow Q occurs
h = diff in hydraulic head across sample, m of water

KM 1/19
1320 s

$$K = (2.5E^{-6}\ m^3 \cdot 2.7E\text{-}3\ m)/5.323E\text{-}3\ m^2 \cdot 1860 s \cdot 28.685\ m$$

$$= 3.349\ E\text{-}11\ m/s$$

$$= 3.416\ e\text{-}14\ m^2$$

KSAT TEST NRG 3CZ#2

KM 1/17/94 Set up flexwall as outlined on pag 4.
Used 0.0525% NaOCl as fluid instead of DI.
Fluid was DE AIRED

Set Confining pressure = 68.8 psi
inflow pressure = 60.9 psi
outflow pressure = 19.8 psi

4:20pm fluid levels -
confining = ~~4.0+5ml~~ 4.25ml KM 1/17
inflow = 6.0ml
outflow = 23.7ml

4:50pm fluid level of confining pressure dropped.
Found leak at bottom of aparatus where
bottom manifold is attached. Tightened bolt.

fluid levels -
confining 4.5
inflow 6.05
outflow 24.7

KM 1/18/94 1:00pm
fluid levels
confining = 5.1
inflow = 6.9
outflow = 23.1

checked for leaks, could find none.
flushed air out of outflow tubing.
reset water levels

1:10pm confining = 3ml
inflow = 5.0
outflow = 24.0

KM 1/19/94 3:00 pm
confining = 3.0ml
inflow = 5.7ml
outflow = 23.6ml

$K = \frac{QL}{Ah} = \frac{q/t \cdot L}{\Delta h}$

$A = 4.5843e^{-2}m^2$ $L = 6.9e^{-3}m$ $q = 0.55e^{-6}m^3$
$t = 93{,}600s$ $\Delta h = 41.1psi = 28.8963m\ H_2O$

$K = (0.55e^{-6} \cdot 6.9e^{-3})/(4.5843e^{-2} \cdot 93{,}600 \cdot 28.8963) = 3.06e^{-14}m/s$

$= 3.12e^{-17}m^2$

KM 1/20/94 FLUID LEVELS - confining = 3.0ml
1:00pm inflow = 6.5ml
outflow = 23.ml

$q = \frac{1.0 + 1.5}{2} = 1.25ml$

$K = (1.25e^{-6} \cdot 6.9e^{-3})/(4.5843e^{-2} \cdot 172800 \cdot 28.8963) = 3.77e^{-14}m/s$

$3.77e^{-14}m/s \cdot 1.02E{-}3 = 3.84e^{-17}m^2$

KM 1/21/94 1:25pm Fluid levels confining 3.1ml
inflow 15.3 ml
outflow 14.3 ml

K=(For time between 1:00pm 1/20 to now) =
$(8.75e^{-6} \cdot 6.9e^{-3})/(4.5843e^{-2} \cdot 87{,}900 \cdot 28.8963) = 5.185e^{-13}m/s$

$= 5.289e^{-16}m^2$

over ↓

km 1/21/94 4:00pm Fluid Levels
confining = 3.1 ml
inflow = 16.2 ml
outflow = 13.4 ml

From last Reading t = 45m q = 0.9 ml
K = (0.9e-6 · 6.9e-3)/(4.5843e-2 · 2700 · 28.8963) =
1.736e-11 m/z
1.736e-11 · 1.02e-3 = 1.771e-14 m²

km 1/21/94 6:00 pm Fluid Levels
confining = 3.1
inflow = 16.8
outflow = 12.9

km 1/24/94 New fluid levels.
3:50 pm confining = 4.5 ml
inflow = 4.2 ml
outflow = 18.4 ml

km 1/25/94 confining = 4.9
2:30 inflow = 4.6
outflow = 17.3

km 1/26/94 confining = 5.1 ml
inflow = 5 ml
outflow = 17.1 ml

Increased Pressure levels to:
confining = 85.2 psi
inflow = 75.6 psi
outflow = 19.5 psi

↘ cont pg 104

Centrifuge Test. 1.

km 1/19/94 Placed SATURATED cores NRG1 AzC and NRG1 AzA in centrifuge.
AzA km 1/21 AzC km 1/21
3:00 RPM = 1342 WT SAT ~~AzC~~ = 16.21 g WT SAT ~~AzA~~ = 12.536 g

1/20/94 RPM = 1342 WT = AzC = 11.381 WT AzA = 15.877 g
2:20pm

1/21/94 Centrifuge was set to on, but upon inspection was not revolving. Turned to off + back to on and it worked. Do not know how long it ran before cutting off.

1/21/94 3:15 1754 RPM WT AzC = 11.158 WT AzA = 15.477

~~km 1/21/94 4:00~~ km 1/21

1/26/94 wt tubes AzC = 11.154 AzA = 14.314
Centrifuge on 60 on dial but not rotating.
reset to 60 RPM = 2,022
1:35pm increased to 80 on dial

1/26/94 3:55 pm RPM = 2481 AzA = 14.290 AzC = 11.093
cores were rather warm and STARTED TO crumble at edges where they hit the bottom of the container (tube).

Do not believe this to be a viable experiment.
I may work at lower RPM's, where the centrifuge doesn't heat up.

Aqualab test. 10

		Wti (g)	Wtf (g)	Aw	T°c
KM 1/24/94	NRG4*AzB*3		3.660	0.979	25.9
	NRG4*AzB*5		3.837	0.974	26.2
	NRG4*AzB*4	3.837	3.834	—	—
	NRG3*AzD*10	3.319	3.313	0.974	27.0
	NRG3*AzD*5	3.147	3.146	0.937	27.4
	NRG3*AzD*11	2.980	2.976	0.900	27.7
	NRG4*AzB*4	3.818	3.817	0.844	27.7
KM 1/25/94	NRG4*AzB*4	3.804	3.803	0.691	26.2
	NRG3*AzD*10	3.286	3.284	0.914	26.6
	NRG4*AzB*3	3.627	3.628	0.750	27.1
	NRG4*AzB*5	3.793	0.716 KM 1/25 3.797	0.716	27.6
	NRG3*AzD*5	3.125	3.122	0.821	27.8
	NRG3*AzD*11	2.958	2.957	0.767	27.9
KM 1/26/94	NRG4*AzB*3 1/26 KM	3.622	3.622	0.683	27.2
	NRG3*AzD*10	3.277	3.275	0.821	27.3
	NRG4*AzB*5	3.791	3.790	0.673	27.4
	NRG3*AzD*11	2.947	2947	0.673	27.5
	NRG4*AzB*4	3.796	3.795	0.649	27.6
	NRG3*AzD*5	3.111	3.111	0.684	27.7
KM 1/28/94	NRG4*AzB*3	3.605	3.603	0.228	27.0
	NRG3*AzD*5	3.094	3.094	0.231	26.9
	NRG3*AzD*10	3.247	3.248	0.233	27.0
	NRG4*AzB*5	3.773	3.772	0.231	27.2
	NRG3*AzD*11	2.934	2.934	0.232	25.8
	NRG4*AzB*4	3.781	3.783	0.255	26.0
	NRG4*AzB*3	3.603	3.600	0.255	26.3
KM 1/31/94	NRG4*AzB*4	3.776	3.778	0.227	25.1
	NRG4*AzB*3	3.597	3.596	0.223	26.4
	NRG3*AzD*10	3.245	3.246	0.214	26.7
	NRG3*AzD*11	2.931	2929	0.211	26.7

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TEST - 15 BAR. 4.

1/21/94 Wt saturated (g)

KM

NRG5*BYX*3	29.823
NRG5*BYX*2	64.238
NRG5*BZ*5	28.909
NRG5*BYX*1	56.650
NRG4*BXY*2	18.465
NRG4*BYX*2	13.148
NRG5*AZA*6	3.123
NRG5*AZA*7	2.874
NRG5*AZB*3	3.205

Placed samples in extractor at 10psi

1/21/94

KM

At 10psi sample weights = (g)

NRG5*BYX*3	29.743
NRG5*BYX*2	64.138
NRG5*BZ*5	28.853
NRG5*BYX*1	56.571
NRG4*BXY*2	18.347
NRG4*BYX*2	13.026
NRG5*AZA*6	3.119
NRG5*AZA*7	2.865
NRG5*AZB*3	3.198

Placed samples in extractor at 20 psi

KM 1/26/94

Pg = 20psi sample weights (g) =

NRG5*BYX*3 - 29.683	NRG5*AZA*7 - 2.858
NRG5*BYX*2 - 64.000	NRG5*AZB*3 - 3.194
NRG5*BZ*5 - 28.798	
NRG5*BYX*1 - 56.478	
NRG4*BXY*2 - 18.327	
NRG4*BYX*2 - 13.006	
NRG5*AZA*6 3.109	

cont pg 100

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Km 1/26 cont. Set P_S = 30 psi

Km 1/28/94 P_S = 30 psi Samples Wt.

NRG5*BYX*2	63.870
NRG5*BYX*3	29.641
NRG5*ByX*1	56.385
NRG5*Bz*5	28.737
NRG5*AzA*7	2.857
NRG5*AzA*6	3.105
NRG5*AzB*3	3.182
NRG4*BXy*2	18.297
NRG4*ByX*2	12.974

Set P_S = 40 psi

Km 1/31/94 P_S = 40 psi

Samples	wt
NRG5*ByX*2	63.739
NRG5*ByX*3	29.563
NRG5*Bz*5	28.665
NRG5*AzA*7	2.850
NRG5*ByX*1	56.260
NRG5*A2A*6	3.095
NRG5*AzB*3	3.175
NRG4*BYX*2 BXy*2	18.279
NRG4*ByX*2	12958

Km 1/31

Set P_S = 50 psi

Km 2/3 P_S = 50 psi

NRG5*BYX*2	63.591	NRG4*BXy*2	18.266
NRG5*B4X*3	29.461	NRG4*ByX*2	12.953
NRG5*ByX*1	56.108		
NRG5*Bz*5	28.573		
NRG5*AzA*7	2.837		
NRG5*AzA*6	3.077		
NRG5*AzB*3	3.157		

Set P_S = 60 psi

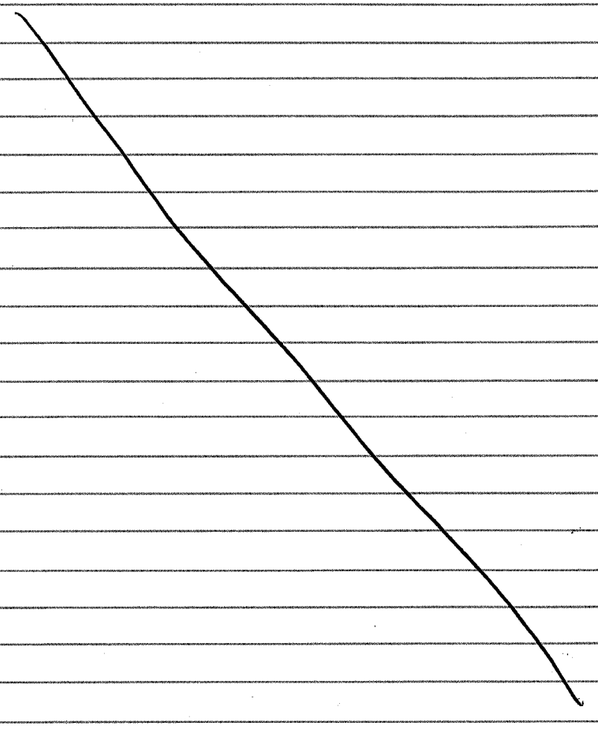
Cont Ps 1/3

From 96

new fluid levels
confining : 7.4 ml
inflow : 5.0 ml
outflow : 17.0 ml

Km 1/28 1:30pm inflow = 5.8
outflow = 16.3
confining = 7.3

1/28 3:45pm confining = 7.4
inflow = 5.9
outflow = 16.3



FROM 98

Aqualab TEST. 10 cont.

NRG4 * AZB * 5	3.766	3.765	0.209	26.7
NRG3 * AZD * 7	3.087	3.087	0.202	26.8

These samples were not heated to get to these low activities.
Placed samples in oven to dry.
SATURATED SAMPLES.

TEST: KSAT TEST NRG4 * Bz * 2

1/31/94 Km set up FLEXWALL WITH SATURATED SAMPLE NRG4 * Bz * 2. THIS SAMPLE WAS PREVIOUSLY CLEANED USING Sodium hypochloxite soln. (see pg 89).

Permeant used is a 0.0525 % soln NaOCl.

L = height = 0.37 cm = 0.0037 m
vol ~~Area~~ = 7.294 cm^2 = ~~.0729 m^2~~ Km 2/1 A = 5.323 e^{-3} m^2

2/1/94 Km ~~set Pressures~~ = Km 2/1

	Pressore	Fluid level	Time
confining	47.5 psi	5.8 ml	
inflow	41.9 psi	3.6 ml	
outflow	19.8 psi	22.8 ml	11:08 am (START)
confining	47.5	6.0 ml	12:46 pm (STOP)
inflow	41.9	10.2 ml	
outflow	19.8	16.2 ml	
conf	47.5	6.2 ml	3:37 pm (STOP
inflow	41.9	21.9 ml	
outflow	19.8	4.5 ml	

New Pressures — Fluid Levels — 3:45 pm START

confining	30.1	5.8
inflow	25.1	0.9
outflow	20.0	23.8

$K = Q/A \cdot \Delta L/\Delta H$

$= \frac{18.3\ m^3/16{,}620\ s}{5.323e^{-3}} \cdot \frac{3.7e^{-3}}{15.54} = \frac{1.1011e^{-9}}{5.323e^{-3}} \cdot .2381e^{-4} = 4.925e^{-11}$ m/s

$K = 4.925e^{-11}\ m/s^2 \cdot 5.024e^{-14}\ m^2$

Conf 5.8 4:41 pm
inflow 3.3
outflow 21.4

$K = \frac{24e^{-6}}{2,460} \cdot \frac{3.7e^{-3}}{5.323e^{-3} \cdot 15.54} = 4.364e{-}11$ m/s

$4.364e^{-11} \times 1.01e^{-3} = 4.408e^{-14} m^2$ km2/1

$1.02e^{-3} = 4.451e^{-14} m^2$

2/1/94

	Pressure	Fluid level	
Confining	30.2	6.0	
inflow	25.1	3.7	
outflow	20	20.9	11:35 am

Fluid Levels
6.0
~~5.4~~ 5.1 km 2/2
19.5 11:57 am

Pressures		Levels	
Confining	30.1	6.0	
inflow	25.1	5.3	
outflow	15.0	19.2	12:00

Fluid: Confining 6.0 1:05 pm
inflow 11.2
outflow 13.2

New Pressures		Fluid Levels	Time	
Confining	70.1	6.7	~~1423~~	km 2/2
Inflow	60.0	11.4	1424	1429
outflow	10.0	13.1	~~1424~~	
Confining		6.8		1532
Inflow		21.8		
Outflow		2.5		

Aqualab
2/2/94

Sample	SATURATED WT(g)
NRG4*AzB*16	4.237
NRG4*AzB*3	3.686
NRG4*AzB*17	3.255
NRG4*AzB*18	4.508
NRG4*AzB*4	3.870

SAMPLE	wti(g)	wtf(g)	Aw	T°C
NRG4*AzB*16	4.211	4.209	.978	26.6
NRG4*AzB*3	3.685	3.6866	.982	26.9
NRG4*AzB*17	3.253	3.232	.969	27.3
NRG4*AzB*18	4.477	4.472	.931	27.7
→ NRG4*AzB*4	3.829	3.825	.918	27.9
NRG4*AzB*16	4.193	4.190	.781	28.1
NRG4*AzB*3	3.635	3.634	.739	28.2
NRG4*AzB*17	3.212	3.211	.631	28.2
NRG4*AzB*18	4.453	4.455	.653	28.0
NRG4*AzB*4	3.812	3.809	.582	27.7

2/3/94

Sample	wti(g)	wtf(g)	Aw	T°C
NRG4*AzB*4	3.811	3.809	0.568	26.5
NRG4 AzB 16	4.183	4.183	0.657	27.7
NRG4*AzB*4	3.807	3.806	.524	27.8
NRG4*AzB*16	4.181	4.178	.571	27.8
NRG4*AzB*4	3.805	3.805	0.477	27.8
NRG4*AzB*16	4.178	4.177	.529	27.9
NRG4*AzB*4	3.804	3.802	.452	27.8
NRG4*AzB16	4.175	4.175	.495	27.9
NRG4AzB*4	3.801	3.802	.427	27.9
NRG4AzB*16	4.174	4.170	.466	27.8
NRG4AzB*4	3.801	3.798	.409	27.9
NRG4AzB*16	4.174	4.173	.446	27.9

Kin 2/4/94

Sample	Wti	Wtf	Aw	Tc
NRG4×AzB×4	3.800	3.798	0.509	26-3
NRG4*AzB*16	4.171	4.172	0.553	27.0
NRG4×AzB×4	3.798	3.796	.431	28.5
NRG4*AzB*16	4.170	4.169	.463	29.1
NRG4*AzB*3	3.632	3.633	.702	29.4
NRG4*AzB*17	3.208	3.205	.652	29.6
NRG4*AzB*3	3.628	3.628	.648	29.7
NRG4*AzB*17	3.205	3.205	.593	29.7
NRG4*AzB*3	3.628	3.626	.610	29.6
NRG4*AzB*17	3.203	3.203	.562	29.5
NRG4*AzB*3	3.626	3.624	.579	29.4
NRG4*AzB*17	3.203	3.203	.539	29.2
NRG4*AzB*3	3.623	3.623	.551	29.0
NRG4*AzB*17	3.202	3.202	.523	28.8

2/7/94	Wti	Wtf	Aw	T°C
NRG4*AzB*17	3.200	3.200	.669	27.9
NRG4*AzB*3	3.622	3.622	.618	28.2
NRG4*AzB*17	3.200	3.199 2/7 Kin	.552	29.0
NRG4*AzB*3	3.620	3.620	.562	29.4
NRG4*AzB*17	3.197	3.197	.531	29.6
NRG4*AzB*3	3.620	3.620	.560	29.8
NRG4*AzB*17	3.197	3.199	.524	29.8
NRG4*AzB*3	3.620	3.621	0.545	29.9

FROM 104 CONT. TEST = KSAT NRG4 B2.2

NEW PRESSURES

Confining = 99.9
Inflow = 80.1
Outflow = 9.9

FLUID LEVELS (ml)

1.9
1.9
22.4

1607

FLUID LEVELS 4:37 pm

Confining 1.9
Inflow 9.5
outflow 14.9

New Pressures (Psi)

confining = 99.9
Inflow = 80.1 2/2
outflow = ~~80~~ 25.0

Fluid Levels (ml)

1.9
11.9 11.4
2/2 13.1

FLUID LEVELS (ml)

1.9
11.9
12.7 4:49 pm

FLUID Level Time

2.0 1729
18.3
16.3

~~CONT.~~ TEST = KSAT : NRG4 = B4X + 1

2/2/94 $\Delta L = 0.25\,cm = .0025\,m$ $A = 5.323e^{-3}\,m^2$

Set up Flexwall

2/3/94 Set Pressures to:

confining = 85.0
inflow = 80.1
outflow = 4.9

upon starting got flows entirely too fast.
Took apart flexwall. Edge of sample was broken, making it unuseable.

Test = K_{SAT} NRG4 BXY-1

2/3/94

ΔL = 0.33cm 2/3/94 ΔL = 0.33cm

Set up flex wall

	Set Pressures to		Fluid levels	
(1)	Confining:	92.5	4.7	1415
	Inflow:	80.4	3.2	
	Outflow:	5.1	~~23.0~~ 2/3/94 20.3	
				3:17pm
			4.3	
			4.9	
			18.8	
(2)	Set Pressores to		Fluid Levels	3:23pm
	CONFINING	89.3	4.3	
	Inflow	80.3	4.9	
	Outflow	15.0	19.0	
			3.8	1656
			7.0	
			16.9	
(3)	Set Pressores to			
	Confining:	89.5	3.9	1659
	Inflow:	80.36	5.2	
	Outflow:	25.1	21.0	
			3.5	1815
			7.3	
			19.5	

From 110

2/4/94

	Set Pressures to		Initial Fluid levels	Final	12:35 pm
(4)	Confining =	80.1	2.5	2.5	
	Inflow =	70.0	8.5	10.3	final
	Outflow =	25.0	18.2	16.0	1331

	Set Pressures to	Initial fluid level	final fluid Level	1335	Start
(5)	Confining =	80.0	2.5	2.2	
	Inflow =	69.7	10.3	12.5	
	Outflow =	35.0	16.1	14.0	1452 Stop

	Set Pressures to	Initial fluid level	final fluid level		
(6)	Confining:	80.0	~~2/4/94~~ 2.2	2.0	1500 START
	Inflow:	70.0	12.7	14.2	
	Outflow:	45.0	13.8	12.4	1600 STOP

	Set Pressures to	Initial fluid level	final fluid level	
(7)	Confining:	90.0	2.3	2.2	
	Inflow:	70.0	14.2	14.9	1606 Start
	Outflow:	55.0	12.4	11.7	
					1706 Stop

2/5/94 $K = Q/A \; dl/dh$ $dl = 0.33e^{-2}$ m $A = 5.323e^{-3}$ m^2

(1) $K = (1.6e^{-6} / (3720 \cdot 5.323e^{-3})) \cdot (0.33e^{-2} / (5294.13/100)) = 5.0367e^{-12}$ m/s
$= 5.0367e^{-12} \times 1.02e^{-3} = 5.1374e^{-15}$ cm^2

(2) $K = (2.1e^{-6} \cdot 0.33e^{-2}) / (5580 \cdot 5.323e^{-3} \cdot 52.94) = 4.407e^{-12}$ m/s
$= 4.407e^{-12} \cdot 1.02e^{-3} = 4.495e^{-15}$ cm^2

(3) $K = (1.8e^{-6} \cdot 0.33e^{-2}) / (4560 \cdot 5.323e^{-3} \cdot 52.94) = 4.623e^{-12}$ m/s
$= 4.715e^{-15}$ cm^2

(4) $K = (2.0e^{-6} \cdot 0.33e^{-2}) / (3360 \cdot 5.323e^{-3} 52.94) = 6.97e^{-12}$ m/s
$= 7.110e^{-15}$ cm^2

8/9/94

(5) (4) $K = (2.1e^{-6} \cdot 0.33e^{-2}) / (4620 \cdot 52.94 \cdot 5.323e^{-3}) = 5.323e^{-7}$ m/s
$= 5.429e^{-15} cm^2$

(6) $K = (1.4e^{-6} \cdot 0.33e^{-2} / 3600 \cdot 52.94 \cdot 5.323e^{-3}) = 4.55e^{-12}$ m/s
$= 4.645e^{-15} cm^2$

(7) $K = (0.7e^{-6} \cdot 0.33e^{-2} / 3600 \cdot 52.94 \cdot 5.323e^{-3}) = 2.277e^{-12}$ m/s
$= 2.323e^{-15} cm^2$

From P_S 100. : 15 bar. 4 cont

Km 2/8/94 $P_S = 60$ psi

NRG5 * ByX * 2	63.422	
NRG5 * ByX * 3	29.381	km 2/8/94
NRG5 * ByX * 1	~~65.926~~ 55.926	
NRG5 * Bz * 5	~~28.475~~ 28.461	km 2/8/94
NRG5 * AzA * 7	2.827	
NRG5 * AzA * 6	3.070	
NRG5 * AzB * 3	3.150	
NRG4 * BXy * 2	.18.244	
NRG4 * ByX * 2	12.939	

set $P_S = 70$ psi

Km 2/16/94 $P_S = 69$ psi

NRG5 * ByX * 2	63.323	
NRG5 * ByX * 3	29.344	
NRG5 * ByX * 1	55.820	
NRG5 * Bz * 5	28.437	
NRG5 * AzA * 7	2.822	
NRG5 * AzA * 6	3.064	
NRG5 * AzB * 3	3.142	
NRG4 * BXy * 2	~~18.261~~ 18.234	km 2/8/94
NRG4 * ByX * 2	~~12.952~~ 12.937	km 2/8/94

cont ps 116

Dry Weights -

Rocks cut 2/11/94 put in oven to dry

2/14/94 Wt of dry samples.

NRG1*AzA*3	2.960	NRG2*AzA*11	2.810
NRG1*AzD*4	2.483	NRG2*AzA*1	2.952
NRG1*AzF*8	3.518	NRG2*AzA*12	5.180
NRG1*AzF*5	3.721	NRG2*AzG*2	3.703
NRG1*AzF*7	3.741	NRG2*AzC*5	3.438
NRG1*AzA*7	3.353	NRG2*AzC*2	3.040
NRG1*AzD*8	3.138	NRG2*AzA*7	3.122
NRG1*AzD*3	2.391	NRG2*AzG*4	3.359
NRG1*AzA*12	3.744	NRG2*AzC*4	3.36
NRG1*AzA*10	2.961	NRG2*AzG*3	3.843
NRG1*AzA*1	5.138	NRG2*AzC*3	3.310
NRG1*AzA*8	2.663	NRG2*AzA*2	2.789
NRG1*AzF*1	3.799	NRG2*AzA*4	3.059
NRG1*AzA*5	3.265	NRG2*AzC*1	3.115
NRG1*AzD*9	2.654	NRG2*AzA*10	2.623
NRG1*AzD*2	3.203	NRG2*AzA*6	2.917
NRG1*AzD*7	3.481	NRG2*AzA*8	2.405
NRG1*AzF*3	3.844	NRG2*AzA*9	3270
NRG1*AzF*9	3.206	NRG2*AzA*5	2.856
NRG1*AzA*4	2.335	NRG2*AzA*3	2.520
NRG1*AzD*1	3.402	NRG2*AzG*1	2.726
NRG1*AzF*2	3.814		
NRG1*AzF*6	3.584		
NRG1*AzF*4	3.503		
NRG1*AzA*2	3.320		
NRG1*AzA*9	2.994		
NRG1*AzA*6	2.809		

Dry Weight

Rocks cut 2/11, put in oven to Dry

2/14/94 wt. of dry samples.

NRG4*AzF*1	4.602	NRG3*AzC*1	3.971
NRG4*AzF*7	3.863	NRG3*AzB*2	4.043
NRG4*AzF*8	4.346	NRG3*AzB*5	3.199
NRG4*AzF*4	3.279	NRG3*AzC*8	4.261
NRG4*AzF*5	3.428	NRG3*AzB*11	3.388
NRG4 AzC*1	3.886	NRG3*AzB*6	3.988
NRG4*AzC*8	3.389	NRG3*AzB*16	5.465
NRG4*AzC*4	3.536	NRG3*AzB*12	3.438
NRG4*AzF*6	3.568	NRG3*AzB*3	3.789
NRG4*AzF*13	4.130	NRG3*AzB*10	3.652
NRG4*AzC*6	3.956	NRG3*AzB*9	3.601
NRG4*AzF*12	4.388	NRG3*AzB*8	3.569
NRG4*AzC*5	3.532	NRG3*AzC*9	4.346
NRG4*AzF*3	3.662	NRG3*AzB*1	3.934
NRG4*AzC*3	3.443	NRG3*AzC*3	5.562
NRG4*AzE*4	3.190	NRG3*AzB*4	3.531
NRG4*AzC*2	3. 4.001 2/14/94	NRG3*AzB*7	3.025
NRG4*AzF*2	3.983	NRG3*AzC*12	3.623
NRG4*AzF*11	3.696	NRG3*AzB*13	3.619
NRG4*AzF*9	3.816	NRG3*AzC*6	3.770
NRG4*AzE*3	3.640	NRG3*AzC*4	4.463
NRG4*AzC*7	3.356	NRG3*AzC*5	4.159
NRG4*AzC*11	5.358	NRG3*AzC*7	4.328
NRG4*AzE*1	3.060	NRG3*AzC*2	3.620
NRG4*AzC*9	3.452	NRG3*AzC*11	4.496
NRG4*AzF*10	4.178	NRG3*AzC*10	4.181
NRG4*AzC*10	3.489	NRG3*AzB*15	3.316
NRG4*AzE*2	3.334	NRG3*AzB*14	3.483
~~NRG4~~ 2/14/94		NRG3*AzC* ~~3~~ 13	3.447

3/14/94

From 113

15bar.4 cont

2/17 KM

SAMPLE	PRES-bar	WT-sat	WT-dry	WT-press	e-d	c-d	SAT
nrg5*byx*3	0.689465	29.823	27.536	29.743	2.207	2.287	0.96502
nrg5*byx*2	0.689465	64.238	59.181	64.138	4.957	5.057	0.980225
nrg5*bz*5	0.689465	28.909	26.632	28.853	2.221	2.277	0.975406
nrg5*byx*1	0.689465	56.65	52.304	56.571	4.267	4.346	0.981822
nrg5*aza*6	0.689465	3.123	2.888	3.119	0.231	0.235	0.982979
nrg5*aza*7	0.689465	2.874	2.659	2.865	0.206	0.215	0.95814
nrg5*azb*3	0.689465	3.205	2.952	3.198	0.246	0.253	0.972332
nrg5*byx*3	1.37893	29.823	27.536	29.683	2.147	2.287	0.938784
nrg5*byx*2	1.37893	64.238	59.181	64	4.819	5.057	0.952937
nrg5*bz*5	1.37893	28.909	26.632	28.798	2.166	2.277	0.951252
nrg5*byx*1	1.37893	56.65	52.304	56.478	4.174	4.346	0.960423
nrg5*aza*6	1.37893	3.123	2.888	3.109	0.221	0.235	0.940426
nrg5*aza*7	1.37893	2.874	2.659	2.858	0.199	0.215	0.925581
nrg5*azb*3	1.37893	3.205	2.952	3.194	0.242	0.253	0.956522
nrg5*byx*3	2.068395	29.823	27.536	29.641	2.105	2.287	0.92042
nrg5*byx*2	2.068395	64.238	59.181	63.87	4.689	5.057	0.92723
nrg5*bz*5	2.068395	28.909	26.632	28.737	2.105	2.277	0.924462
nrg5*byx*1	2.068395	56.65	52.304	56.385	4.081	4.346	0.939024
nrg5*aza*6	2.068395	3.123	2.888	3.105	0.217	0.235	0.923404
nrg5*aza*7	2.068395	2.874	2.659	2.857	0.198	0.215	0.92093
nrg5*azb*3	2.068395	3.205	2.952	3.182	0.23	0.253	0.909091
nrg5*byx*3	2.75786	29.823	27.536	29.563	2.027	2.287	0.886314
nrg5*byx*2	2.75786	64.238	59.181	63.739	4.558	5.057	0.901325
nrg5*bz*5	2.75786	28.909	26.632	28.665	2.033	2.277	0.892841
nrg5*byx*1	2.75786	56.65	52.304	56.26	3.956	4.346	0.910262
nrg5*aza*6	2.75786	3.123	2.888	3.095	0.207	0.235	0.880851
nrg5*aza*7	2.75786	2.874	2.659	2.85	0.191	0.215	0.888372
nrg5*azb*3	2.75786	3.205	2.952	3.175	0.223	0.253	0.881423
nrg5*byx*3	3.447325	29.823	27.536	29.461	1.925	2.287	0.841714
nrg5*byx*2	3.447325	64.238	59.181	63.591	4.41	5.057	0.872059
nrg5*bz*5	3.447325	28.909	26.632	28.573	1.941	2.277	0.852437
nrg5*byx*1	3.447325	56.65	52.304	56.108	3.804	4.346	0.875288
nrg5*aza*6	3.447325	3.123	2.888	3.077	0.189	0.235	0.804255
nrg5*aza*7	3.447325	2.874	2.659	2.837	0.178	0.215	0.827907
nrg5*azb*3	3.447325	3.205	2.952	3.157	0.205	0.253	0.810277

nrg5*byx*3	4.13679	29.823	27.536	29.381	1.845	2.287	0.806734
nrg5*byx*2	4.13679	64.238	59.181	63.422	4.241	5.057	0.83864
nrg5*bz*5	4.13679	28.909	26.632	28.461	1.829	2.277	0.80325
nrg5*byx*1	4.13679	56.65	52.304	55.926	3.622	4.346	0.83341
nrg5*aza*6	4.13679	3.123	2.888	3.07	0.182	0.235	0.774468
nrg5*aza*7	4.13679	2.874	2.659	2.827	0.168	0.215	0.781395
nrg5*azb*3	4.13679	3.205	2.952	3.15	0.198	0.253	0.782609
nrg5*byx*3	4.826255	29.823	27.536	29.344	1.808	2.287	0.790555
nrg5*byx*2	4.826255	64.238	59.181	63.323	4.142	5.057	0.819063
nrg5*bz*5	4.826255	28.909	26.632	28.437	1.805	2.277	0.79271
nrg5*byx*1	4.826255	56.65	52.304	55.82	3.516	4.346	0.80902
nrg5*aza*6	4.826255	3.123	2.888	3.06	0.172	0.235	0.731915
nrg5*aza*7	4.826255	2.874	2.659	2.822	0.163	0.215	0.75814
nrg5*azb*3	4.826255	3.205	2.952	3.142	0.19	0.253	0.750988

2/17 KM

Calculations made using Q Pro spreadsheet

Verification: NRG5*byx*3 at 10psi

pressure in BARS = 10psi × [1 bar / 14.504 psi] = 0.689465 ✓✓

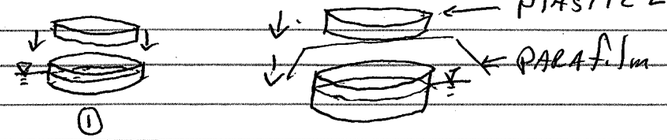
SAT = $\frac{Wt_{SAT} - Wt_{10psi}}{Wt_{SAT} - Wt_{dry}}$ = $\frac{29.823 - 29.743}{29.823 - 27.536}$ = $\frac{0.08}{2.287}$ = 2/17 KM

SAT = $\frac{Wt_{10psi} - Wt_{dry}}{Wt_{SAT} - Wt_{dry}}$ = $\frac{29.743 - 27.536}{29.823 - 27.536}$ = $\frac{2.207}{2.287}$

= 0.9650197 ✓✓

KM 2/17/94 Greg made up sample containers by:

1.) Filling plastic cup + covering w/ lid only
2) Filling plastic cup, covering w/ PARAFILM then w/ lid



Weight of units

① 8.442
② 9.706

Left overnight

2/18/94 Weight

① 8.356
② 9.700

Δ Weight (g) ① 0.086g
② 0.006g

2/21/94 Δ Weight (g) ② - 0.002g

① was discontinued.

TEST = KSAT NRG1 * BXY*1

This test is a repeat. (see pg # 110.)

TEST = Ksat

Sample ID: NRG1*BXY*1 Date: 2/18/94
Investigators: KM
Initial Notes: Repeat Test - Because Confining Fluid Level was increasing on last test. Sample was not re-loaded in cell.

2/21/94 KM

DP: 15.1 Date: 2/21/94 Start time: 9:30am Stop Time: 11:50am

Pressures (psi)	Inital	Final	Fluid Levels (ml)	Inital	Final
Confining	50.0	49.7	Confining	1.1	1.0 KM 2/21/94
Inflow	30.7	30.4	Inflow	3.9	~~10.8~~ 6.3
Outflow	15.6	15.4	Outflow	15.4	13.0

Change in Fluid level (cm)
Confining: +0.10 Inflow: ~~-2.9~~ -2.4 Outflow: +2.4

DP: 25 Date: 2/21/94 Start time: 11:56am Stop Time: 1:05 pm

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	51.0	50.8	Confining	1.0	0.9
Inflow	40.0	39.8	Inflow	6.5	8.6
Outflow	15.0	14.9	Outflow	12.9	10.8

Change in Fluid level
Confining: +0.1 Inflow: -2.1 Outflow: +2.1

DP: 35 Date: 2/21/94 Start time: ~~12:09~~ KM 2/21/94 Stop Time: 2:19

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	51	50.8	Confining	0.9	0.75
Inflow	40	39.9	Inflow	8.7	11.8
Outflow	5	4.9	Outflow	10.5	7.4

Change in Fluid level
Confining: +0.15 Inflow: -3.1 Outflow: +3.1

DP: 45 Date: ~~KM~~ 2/21/94 Start time: 2:27 Stop Time: 3:20

Pressures ~~KM~~ 2/21/94	Inital	Final	Fluid Levels	Inital	Final
Confining	65.3	65.3	Confining	1.2	1.1
Inflow	50.7	50.7	Inflow	12.3	15.7
Outflow	4.9	5.0	Outflow	7.0	3.6

Change in Fluid level
Confining: +0.1 Inflow: -3.4 Outflow: +3.4

Continued on page: _____

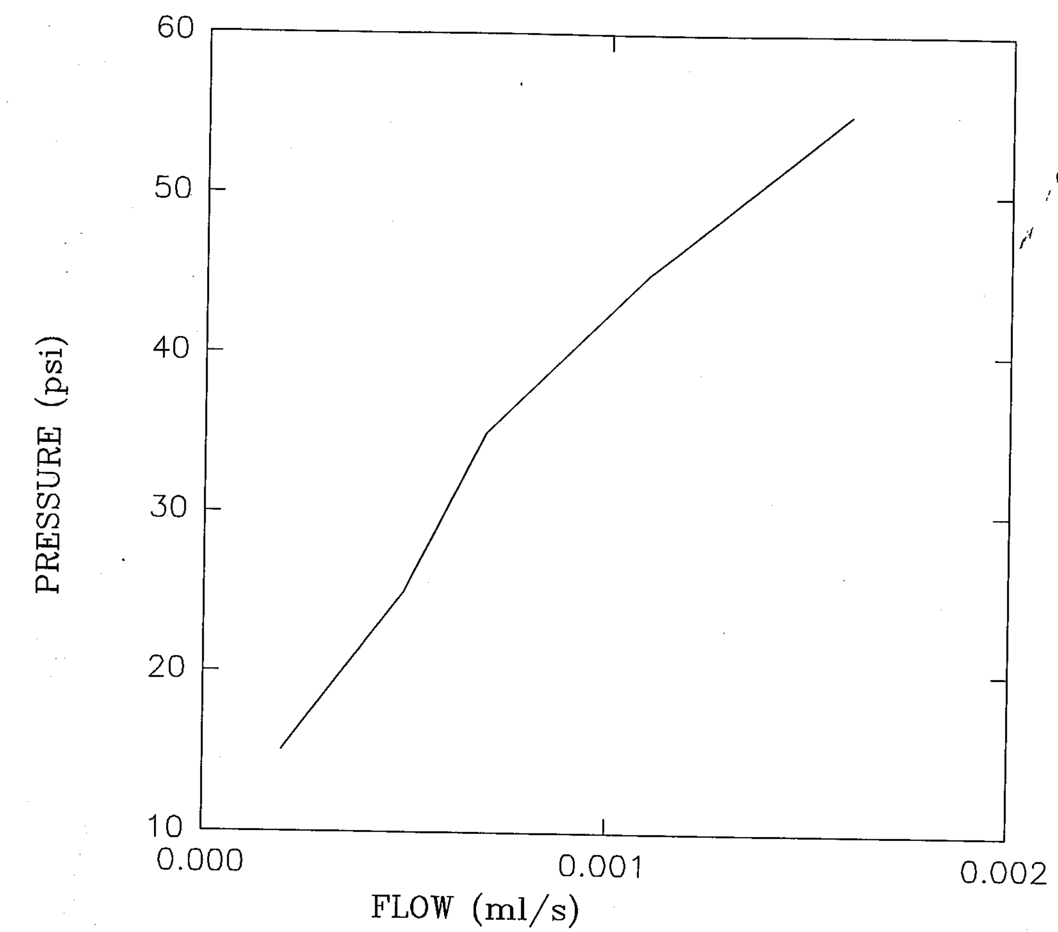
Sample ID: NRG14 Bxy #1		TEST = Ksat		Continued on pg:	
DP: 55	Date: 2/21/94		Start time: 1645	Stop Time: 1803	
Pressures (psig)			Fluid Levels		
	Inital	Final		Inital	Final
Confining	80.0		Confining	1.5	1.5
Inflow	60.0		Inflow	13.2	20.7
Outflow	5.0		Outflow	9.7	2.3
Change in Fluid level					
Confining: 0.0		Inflow: -7.5		Outflow: +7.4	

DP:	Date:		Start time:	Stop Time:	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		
Change in Fluid level					
Confining:		Inflow:		Outflow:	

DP:	Date:		Start time:	Stop Time:	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		
Change in Fluid level					
Confining:		Inflow:		Outflow:	

DP:	Date:		Start time:	Stop Time:	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		
Change in Fluid level					
Confining:		Inflow:		Outflow:	

DP:	Date:		Start time:	Stop Time:	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		
Change in Fluid level					
Confining:		Inflow:		Outflow:	



KM

KM 4/28/94 Graph made using Sigma Plot v. 5.01
Data file for Ploting came from Quattro Pro
file = KSAT. WQ1
can be found

2/9/94

TEST = Ksat

Sample ID: NRG3*CZ*2 Date: 2/22/93

Investigators: Kn

Initial Notes:

DP: 55	Date: 2/22/94		Start time: 0900	Stop Time: 11:25	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	86-8		Confining	1.40	1.60
Inflow	60.2		Inflow	6.00	6.50
Outflow	5.3		Outflow	19.35	18.95
Change in Fluid level					
Confining: -0.2		Inflow: -0.5		Outflow: +0.5	

DP: 40	Date:		Start time: 11:25	Stop Time: 1:30	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	86.3		Confining	1.60	1.70
Inflow	60.0		Inflow	6.50	6.70
Outflow	20.0		Outflow	19.30	19.00
Change in Fluid level					
Confining: -0.10		Inflow: -0.20		Outflow: +0.30	

DP: 30	Date: 2/22/94 2/23/94		Start time: 133	Stop Time: 12:55	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	86-4		Confining	1.7	2.4
Inflow	50		Inflow	6-6	7.7
Outflow	19.8		Outflow	19.0	17.8
Change in Fluid level					
Confining:		Inflow: -1.1		Outflow: +1.2	

DP:	Date:		Start time:	Stop Time:	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	86		Confining	3.8	
Inflow	80		Inflow	3.3	
Outflow	45		Outflow	21.8	
Change in Fluid level					
Confining:		Inflow:		Outflow:	

Continued on page: _____

2/9/94

Sample ID: NRG3*CZ*2 TEST = Ksat Continued on pg:

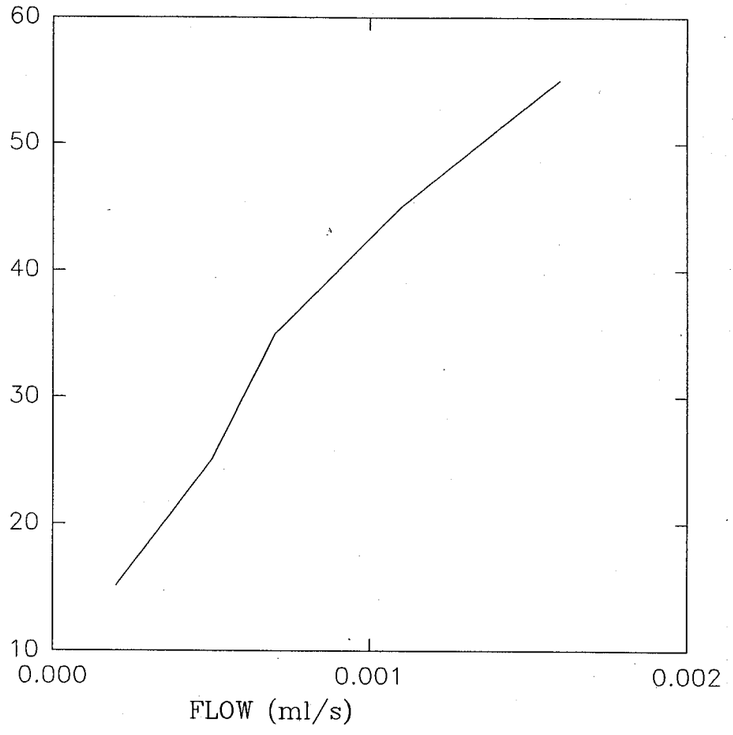
DP:	Date:		Start time:	Stop Time:	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	86.1		Confining		
Inflow	80.0		Inflow		
Outflow	45		Outflow		
Change in Fluid level					
Confining:		Inflow:		Outflow:	

DP: 25	Date: 2/22/42/24/94		Start time: 6:06	Stop Time: 3:57 2/24	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	86.1		Confining	3.2	
Inflow	70		Inflow	1.5	3.9
Outflow	45		Outflow	24.0	21.5
Change in Fluid level					
Confining:		Inflow: -2.4		Outflow: +2.5	

DP: 45	Date: 2/24/94		Start time: 4:01	Stop Time: 8:20	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	86		Confining	5.4	
Inflow	70		Inflow	3.95	6.35
Outflow	25		Outflow	21.4	18.9
Change in Fluid level					
Confining:		Inflow: -2.4		Outflow: +2.5	

DP: 40	Date: 2/25/94		Start time: 8:21	Stop Time: 11:52	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	93		Confining	11.3	
Inflow	80		Inflow	6.5	7.1
Outflow	10		Outflow	18.8	18.1
Change in Fluid level					
Confining:		Inflow: -0.6		Outflow: +0.7	

DP:	Date:		Start time:	Stop Time:	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		
Change in Fluid level					
Confining:		Inflow:		Outflow:	



8/9/94

TEST = AquaLab

Initial Notes: Saturated samples placed in water. Individual samples removed from water and patted dry. Initial weight and activity recorded. Air Dry time recorded after data set taken. Samples covered until next measurement.

Investigators: GREGORY JAMES

Yr: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG5*AzB*14	2/10	2.485	2.480	.994	24.0
NRG5*AzB*15	2/10	2.642	2.638	.988	24.0
NRG5*AzB*5	2/10	2.738	2.734	.990	24.1
NRG5*AzB*4	2/10	2.574	2.571	.996	24.1
NRG5*AzB*2	2/10	2.976	2.972	.994	24.1
NRG5*AzB*6	2/10	2.417	2.409	.984	24.1
NRG5*AzB*11	2/10	2.995	2.986	.995	24.1
NRG5*AzB*17	2/10	3.631	3.625	.995	24.1
NRG5*AzB*9	2/10	4.796	4.791	.993	24.2
NRG5*AzB*16	2/10	3.502	3.497	.997	24.2
NRG5*AzB*10	2/10	3.645	3.639	.992	24.2
NRG5*AzB*7	2/10	3.242	3.239	.990	24.1
NRG5*AzB*13	2/10	3.486	3.482	.991	24.1
NRG5*AzB*8	2/10	3.610	3.607	.993	24.0
NRG5*AzB*12	2/10	2.926	2.922	.993	24.0
		Air Dry time =	15 min		

Samples Saturated w/ 5% soln of NaOCl

END OF TEST

Continued on page: _____

9/9/94

8/9/94

TEST = AquaLab

Initial Notes: Saturated samples placed in water. Individual samples removed from water and patted dry. Inital weight and activity recorded. Air dry time recorded after data set taken. Samples covered until next measurement.

Investigators: Gregory James Yr: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG3*AzD*17	2/10	2.597	2.595	.991	23.0
NRG3*AzD*14	2/10	3.691	3.686	.990	23.1
NRG3*AzD*7	2/10	2.615	2.612	.989	23.3
NRG3*AzD*1	2/10	3.404	3.401	.990	23.4
NRG3*AzD*18	2/10	3.234	3.230	.991	23.5
NRG3*AzD*12	2/10	3.415	3.413	.983	23.6
NRG3*AzD*18	2/10	3.736	3.730	.990	23.7
NRG3*AzD*6	2/10	3.119	3.116	.988	23.7
NRG3*AzD*9	2/10	3.000	2.994	.984	23.8
NRG3*AzD*8	2/10	4.185	4.177	.987	23.9
NRG3*AzD*15	2/10	2.445	2.438	.984	23.8
		Air Dry time =	15 min		

Samples SATURATED w 5% Sol. of NaOCl

END OF TEST

Continued on page: _____

TEST = AquaLab

Initial Notes: Saturated samples placed in water. Individual samples removed from water and patted dry. Initial weight and Activity recorded. Air dry time recorded after data set taken. Samples covered until next measurement.

Investigators: Gregory James Yr: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4*AzB*15	2/10	4.429	4.423	.998	22.0
NRG4*AzB*14	2/10	3.569	3.566	.996	22.1
NRG4*AzB*6	2/10	3.634	3.630	.990	22.1
NRG4*AzB*1	2/10	4.231	4.225	.996	22.2
NRG4*AzB*19	2/10	4.951	4.945	.992	22.2
NRG4*AzB*2	2/10	4.547	4.542	.995	22.2
NRG4*AzB*7	2/10	3.278	3.273	.992	22.4
NRG4*AzB*10	2/10	3.066	3.061	.992	22.5
NRG4*AzB*13	2/10	3.581	3.579	.994	22.5
NRG4*AzB*11	2/10	3.076	3.073	.990	22.6
NRG4*AzB*8	2/10	3.762	3.758	.983	22.8
NRG4*AzB*9	2/10	4.100	4.097	.990	22.9
		Air Dry time =	15 min.		

Samples SATURATED w/ 5% soln of NaOCl

END OF TEST

Continued on page: _____

8/9/94

8/9/94

TEST = Ksat

Sample ID: NRG4xB4X+3 Date: 2/23/94

Investigators: Km

Initial Notes:

DP:	Date: 2/23/94		Start time: 2:51	Stop Time:	
	Pressures		Fluid Levels		
	Inital	Final		Inital	Final
Confining	86		Confining	3.2	
Inflow	50.3		Inflow	2.3	
Outflow	19.9		Outflow	18.7	
Change in Fluid level					
Confining:		Inflow:		Outflow:	

Km 2/23

DP: 30	Date: 2/23/94		Start time: 6:11 pm	Stop Time: 4:03 2/24	
	Pressures		Fluid Levels		
	Inital	Final		Inital	Final
Confining	85.8		Confining	3.2	5.4
Inflow	50		Inflow	1.3	2.0
Outflow	19.8		Outflow	24.5	23.9
Change in Fluid level					
Confining:		Inflow:		Outflow:	

DP: 40	Date: 2/24/94		Start time: 4:03	Stop Time: 8:10 2/25	
	Pressures		Fluid Levels		
	Inital	Final		Inital	Final
Confining	85.8		Confining	5.4 ~~[illegible]~~ Km	10.3
Inflow Km	60.2	62.3	Inflow	Km ~~[illegible]~~ 2.1	2.8
Outflow	19.6 ~~19.6~~	20.7	Outflow	23.9	23.9
Change in Fluid level					
Confining:		Inflow:		Outflow:	

DP: 50	Date:		Start time: 9:45	Stop Time:	
	Pressures		Fluid Levels		
	Inital	Final		Inital	Final
Confining	93.7		Confining		
Inflow	~~60.2~~ 62.3		Inflow	~~2.4~~ 2.9	
Outflow	5.0		Outflow	22.9	
Change in Fluid level					
Confining:		Inflow:		Outflow:	

Km 2/24

Continued on page: ______

8/9/94

Sample ID:		TEST = Ksat		Continued on pg:	
DP ≈ 50	Date: 3/7/94		Start time: 5:08 3/7	Stop Time: 3/10 12:42	
	Pressures (psi)		Fluid Levels (ml)		
	Inital	Final		Inital	Final
Confining	82.3	82.7	Confining	5.8	9
Inflow	60.7	60.9	Inflow	2.1	4.5
Outflow	10.5	11.8	Outflow	20.9	18.8
Change in Fluid level					
Confining:		Inflow:		Outflow:	

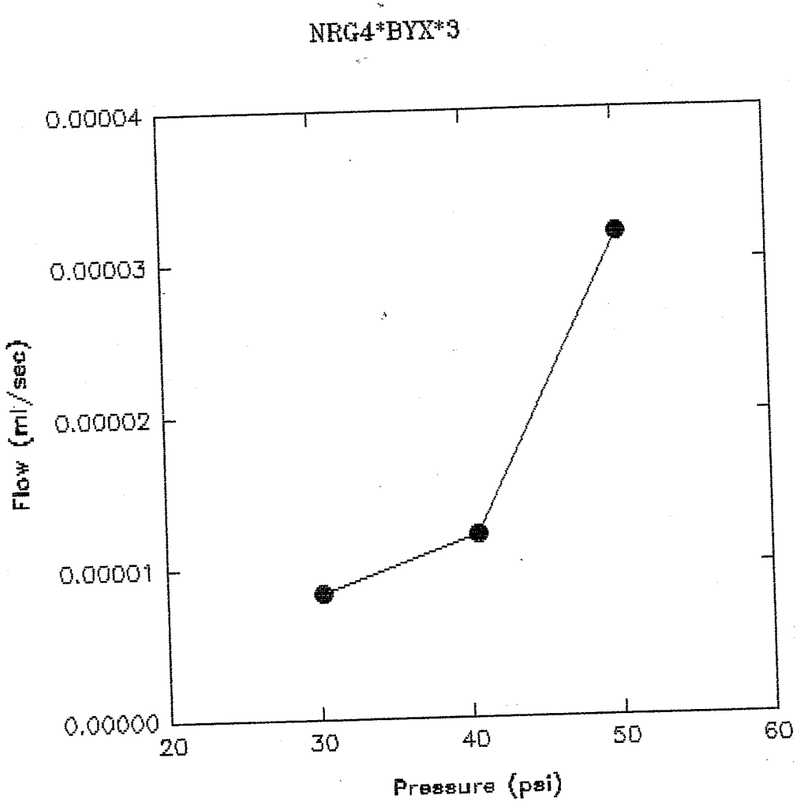
DP: 70	Date: 3/10		Start time: 3/10 12:46	Stop Time:	
	Pressures		Fluid Levels		
	Inital	Final		Inital	Final
Confining	97.0		Confining	9.5	
Inflow	80.0		Inflow	4.6	
Outflow	10.0		Outflow	18.8	
Change in Fluid level					
Confining:		Inflow:		Outflow:	

Km 3/10

DP:	Date:		Start time:	Stop Time:	
	Pressures		Fluid Levels		
	Inital	Final		Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		
Change in Fluid level					
Confining:		Inflow:		Outflow:	

DP:	Date:		Start time:	Stop Time:	
	Pressures		Fluid Levels		
	Inital	Final		Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		
Change in Fluid level					
Confining:		Inflow:		Outflow:	

DP:	Date:		Start time:	Stop Time:	
	Pressures		Fluid Levels		
	Inital	Final		Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		
Change in Fluid level					
Confining:		Inflow:		Outflow:	



K4BYX3.SP5: Mon, 21-Mar-94

Flow (ml/sec)	Press (psi)
8.3e-006	30.2
1.21e-005	40.6
3.19e-005	50.2

KM 3/21

TEST = Ksat

Sample ID: NRG4*BXY*3 Date: 3/14/94

Investigators:

Initial Notes:

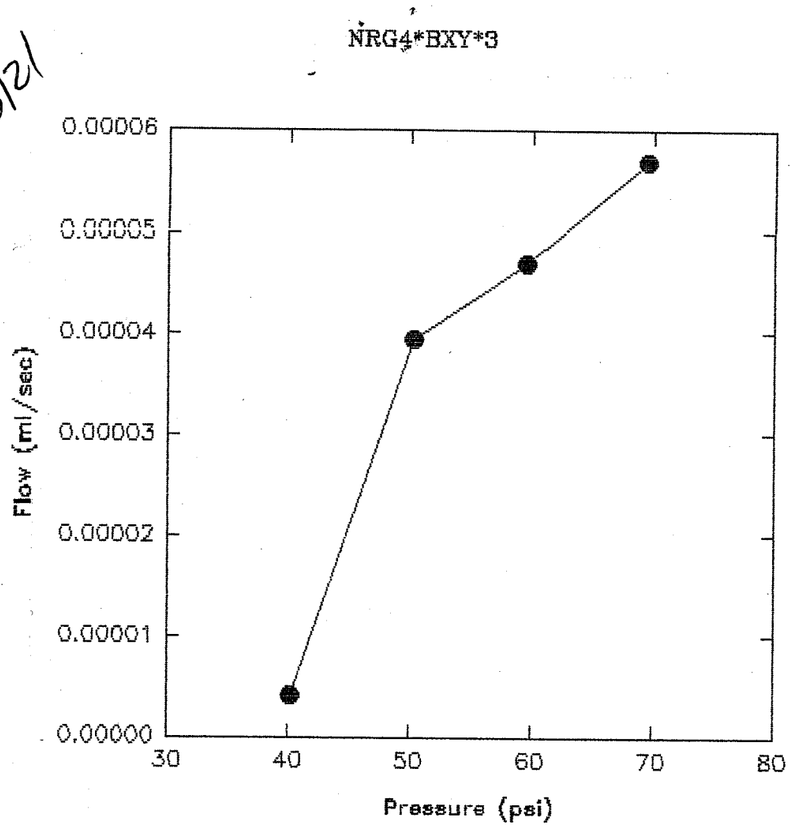
DP: 70	Date: 3/14/94		Start time: 3:00 3/14	Stop Time: 2:40 3/17	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	96.5	96.8	Confining	1.1	3.2
Inflow	79.4	79.8	Inflow	4.5	9.4
Outflow	9.9	10.1	Outflow	18.0	13.2
Change in Fluid level					
Confining:		Inflow: -4.9		Outflow: +4.8	

DP: 60	Date: 3/15/94		Start time: 2:45 3/15	Stop Time: 3:18 3/16	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	96.7		Confining	3.2	3.1
Inflow	79.7		Inflow	9.4	13.6
Outflow	20.1		Outflow 3/15 ~~13.2~~ 13.4		9.3
Change in Fluid level			-4.2		+4.1
Confining:		Inflow:		Outflow:	

DP: 50	Date: 3/16/94		Start time: 3:19 3/16	Stop Time: 1206 3/17	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	88.4	88.1	Confining	2.8	3.3.5
Inflow	70.1	70.4	Inflow	13.6	16.6
Outflow	19.8	19.8	Outflow	9.3	6.4
Change in Fluid level					
Confining:		Inflow: -3.0		Outflow: +2.9	

DP:	Date: 3/17/94		Start time: 12:09	Stop Time: 354 3/17	
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	88.2		Confining	3.35	
Inflow	60.0		Inflow	16.6	16.9
Outflow	19.8		Outflow	6.4	5.9
Change in Fluid level					
Confining:		Inflow: -0.3		Outflow: +0.5	

Continued on page:



KM 3/21/94

K4BXY3.SP5: Mon, 21-Mar-94

Flow (ml/sec)	Press (psi)
5.69e-005	69.5
4.7e-005	59.6
3.94e-005	50.3
4e-006	40.2

TEST = Ksat

Sample ID: NRG5 * C * 1 Date: 3/21/94

Investigators:

Initial Notes:

DP: 50 | Date: 3/21/94 | Start time: | Stop Time: 60 min

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	87.7		Confining	9.1	9.7
Inflow	60.0	59.5	Inflow	6.0	17.5
Outflow	9.1	8.8	Outflow	20.9	17.5

Change in Fluid level

Confining: — Inflow: Outflow:

DP: 60 | Date: 3/21/94 | Start time: | Stop Time: 80 min

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	87.2		Confining		
Inflow	70.1		Inflow	9.9	16.0
Outflow	8.8		Outflow	17.35	11.1

Change in Fluid level

Confining: Inflow: Outflow: 85 min

DP: 70 | Date: 3/21/94 | Start time: | Stop Time:

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	87.1		Confining		
Inflow	80.3		Inflow	4.7	16.0
Outflow	8.7		Outflow	21.5	10.0

Change in Fluid level

Confining: Inflow: Outflow:

DP: 2 | Date: 3/21 | Start time: 5:30pm | Stop Time: 6:10pm

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	49.3		Confining		
Inflow	40.1		Inflow	1.0	1.5
Outflow	38.0		Outflow	24.4	23.9

Change in Fluid level

Confining: Inflow: Outflow:

Continued on page:

Sample ID: NRG5 v C-1 TEST = Ksat Continued on pg:

DP: 10 | Date: 3/22/94 | Start time: 12:44 | Stop Time: 200

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	50.5		Confining		
Inflow	41.2		Inflow	1.6	4.1
Outflow	31.1		Outflow	23.9	21.4

Change in Fluid level

Confining: Inflow: Outflow:

DP: 20 | Date: 3/22/94 | Start time: 2:04 | Stop Time: 3:04

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	50.5		Confining		
Inflow	40.8		Inflow	4.3	7.1
Outflow	20.7		Outflow	21.2	18.3

Change in Fluid level

Confining: Inflow: Outflow:

DP: 30 | Date: | Start time: 3:06 | Stop Time: 4:30

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining			Confining		
Inflow	40.7		Inflow	7.3	12.25
Outflow	10.6		Outflow	18.0	12.9

Change in Fluid level

Confining: Inflow: Outflow:

DP: 40 | Date: | Start time: 5:31 | Stop Time:

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining			Confining		
Inflow	50.3		Inflow	16.0	9.2
Outflow	10.6		Outflow		

Change in Fluid level

Confining: Inflow: Outflow:

DP: 40 | Date: 3/22 | Start time: 6:29 | Stop Time:

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining			Confining		
Inflow	50.5		Inflow	13.3	
Outflow	10.7		Outflow	21.1	

Change in Fluid level

Confining: Inflow: Outflow:

Sample ID: NRG5*C*1 TEST = Ksat Continued on pg:

DP: 40 Date: 3/22 Start time: 6:32 Stop Time: 6:59.5

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	67.3		Confining		
Inflow	50.5		Inflow	14.9	15.9
Outflow	10.7		Outflow	19.3	18.3

Change in Fluid level
Confining: Inflow: Outflow:

DP: 25 Date: 3/23 Start time: 9:53 Stop Time: 11:00

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	67.3		Confining		
Inflow	50.5		Inflow	1.8	4.3
Outflow	25.3		Outflow	23.4	21.0

Change in Fluid level
Confining: Inflow: Outflow:

DP: 25 Date: Start time: 11:00 Stop Time: 12:04

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	67.3		Confining		
Inflow	50.8 NM 3/23		Inflow	4.3	6.8
Outflow	25.3		Outflow	21.0	18.6

Change in Fluid level
Confining: Inflow: Outflow:

DP: 30.1 Date: 3/23 Start time: 12:26 Stop Time: 1:31

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	67.2		Confining		
Inflow	40.7		Inflow	7.4	9.9
Outflow	10.6		Outflow	17.7	15.1

Change in Fluid level
Confining: Inflow: Outflow:

DP: 20.7 Date: Start time: 1:44 Stop Time: 2:52

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining			Confining		
Inflow	41		Inflow	3.2	5.0
Outflow	20.7		Outflow	23.1	21.3

Change in Fluid level
Confining: Inflow: Outflow:

Sample ID: NRG5*C*1 TEST = Ksat Continued on pg:

DP: Date: Start time: 2:52 Stop Time: 3:52

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	66.9		Confining		
Inflow	40.5		Inflow	5.0	6.5
Outflow	20.5		Outflow	21.3	19.8

Change in Fluid level
Confining: Inflow: Outflow:

DP: Date: Start time: 3:54 Stop Time: 5:01

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	66.9		Confining		
Inflow	40.4		Inflow	6.6	7.5
Outflow	30.3		Outflow	19.9	19.0

Change in Fluid level
Confining: Inflow: Outflow:

DP: Date: Start time: Stop Time:

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		

Change in Fluid level
Confining: Inflow: Outflow:

DP: Date: Start time: Stop Time:

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		

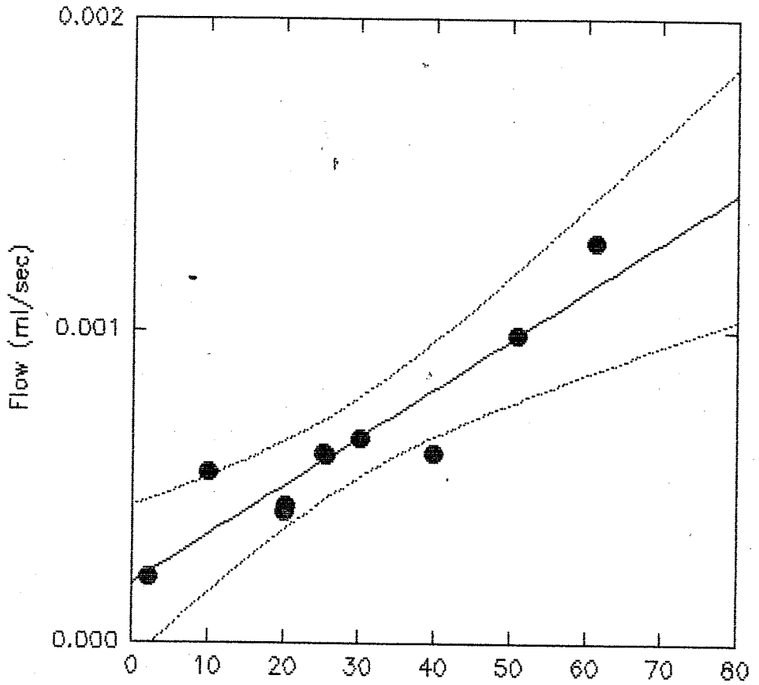
Change in Fluid level
Confining: Inflow: Outflow:

DP: Date: Start time: Stop Time:

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		

Change in Fluid level
Confining: Inflow: Outflow:

8/9/94



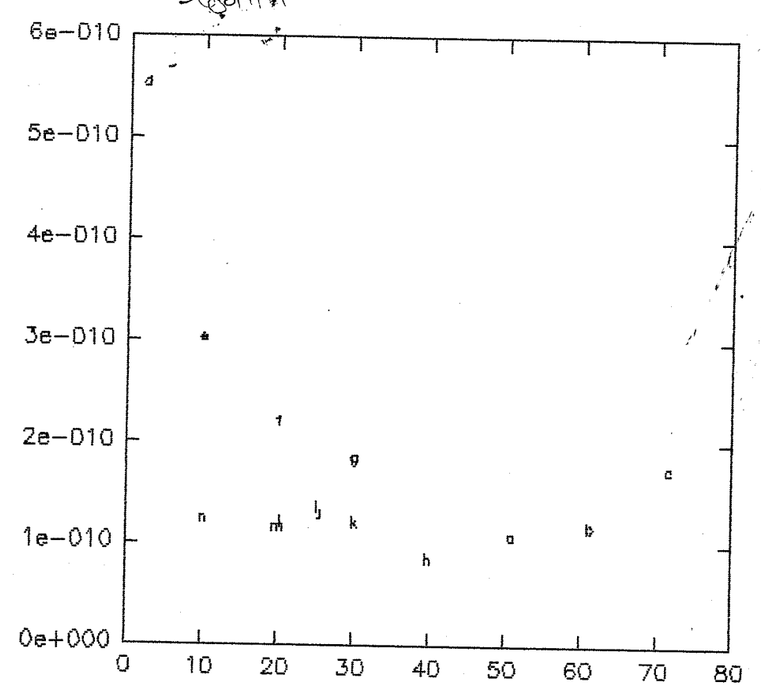
K5C1.SP5: Thu, 24-Mar-94

Flow (ml/sec)	Press (psi)	Flow	Press	Time
0.0002083	2.1	0.0009861	50.9	3600
0.0002273	10.1	0.0012865	61.3	4800
0.0005482	10.1	0.002353	71.6	5100
0.0004167	20	0.0002083	2.1	2400
0.0007917	20.1	0.0005482	10.1	4560
0.0004412	20.3	0.0007917	20.1	3600
0.0006095	25.2	0.000997	30.1	5040
0.0006005	25.6	0.0006061	39.8	1650 -h
0.0006538	30.1	0.0006095	25.2	4020
0.000997	30.1	0.0006005	25.6	4080
0.0006061	39.8	0.0006538	30.1	3900
0.0009861	50.9	0.0004412	20.3	4080
0.0012865	61.3	0.0004167	20	3600
0.0007917	20.1	0.0002273	10.1	4020

8/9/94

8/9/94 NRGS*C-1

K(SAT)



K(SAT)
1.08e-010
1.17e-010
1.74e-010
5.54e-010
3.03e-010
2.2e-010
1.85e-010
8.5e-011 -h
1.35e-010
1.31e-010
1.21e-010
1.21e-010
1.16e-010
1.24e-010

8/9/94

4/3/94 NRG5*AN core cut into subsamples for aqualab

Sample number	height (cm)	*Volume (cm^3)
NRG5*AN*1	0.66	0.34
NRG5*AN*2	0.70	0.38
NRG5*AN*3	0.66	0.34
NRG5*AN*4	0.60	0.28
NRG5*AN*5	0.69	0.37
NRG5*AN*6	0.69	0.37
NRG5*AN*7	0.63	0.31
NRG5*AN*8	0.38	0.11
NRG5*AN*9	0.59	0.27

* Diameter of A core = 1.9cm

4/14/94

Dry weights

Sample Id	Dry Weight (g)
NRG5*AN*1	3.682
NRG5*AN*2	4.087
NRG5*AN*3	3.777
NRG5*AN*4	3.513
NRG5*AN*5	3.795
NRG5*AN*6	3.725
NRG5*AN*7	3.571
NRG5*AN*8	2.242
NRG5*AN*9	3.176

TEST = Ksat

Sample ID: NRG3*BV*7 Date: 5/5/94

Investigators:

Notes:

Start time:	Date: 5/9/94	Stop time: 3:20:28.18	Date: 5/9/94
DP: ~10 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	90	Confining	4.1	4.4
Inflow	20	Inflow	4.05	4.05
Outflow	10	Outflow	22.0	22.0

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 5:15 pm	Date: 5/9/94	Stop time: 2:06	Date: 5/11/94
DP: ~40 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	90	Confining	4.4	9.1
Inflow	50	Inflow	4.15	4.3
Outflow	10	Outflow	22.0	22.0

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 2:07	Date: 5/11/94	Stop time: 2:11	Date: 5/13/94
DP: ~60 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	90	Confining	9.1	13.3
Inflow	70	Inflow	4.35	4.5
Outflow	10	Outflow	22.05	22.1

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 2:14	Date: 5/13/94	Stop time: 9:50 am	Date: 5/16/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	90	Confining	13.3	
Inflow	80	Inflow	4.6	4.85
Outflow	5	Outflow	22	21.85

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Continued on page: _____

Sample ID: NRG3xBYX*7 TEST = Ksat Continued on pg:

Start time: 10:02 Date: 5/16 | Stop time: 2:00 Date: 5/17

DP: (psig) DT: (sec) | Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	100.4	Confining	4.3	7.3
Inflow	94.0	Inflow	4.9	5.15
Outflow	5.0	Outflow	21.05	21.8

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: Date: | Stop time: Date:

DP: (psig) DT: (sec) | Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: Date: | Stop time: Date:

DP: (psig) DT: (sec) | Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: Date: | Stop time: Date:

DP: (psig) DT: (sec) | Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: Date: | Stop time: Date:

DP: (psig) DT: (sec) | Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

Change in Fluid level(ml)

Confining: Inflow: Outflow:

TEST = Ksat

Sample ID: NRG3*BX4*4 Date:

Investigators:

Notes: h = 1.5cm

Start time: Date: 5/9/94 | ~~Stop~~ time: 3:20:28.18 Date: 5/9/94

DP: 210 (psig) DT: (sec) | Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	90	Confining	4.1	4.4
Inflow	19.9	Inflow	4.1	4.1
Outflow	10.0	Outflow	17.7	17.7

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 5:14pm Date: 5/9/94 | Stop time: 2:05 Date: 5/11/94

DP: 140 (psig) DT: (sec) | Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	90	Confining	4.4	9.1
Inflow	50.2	Inflow	4.2	4.5
Outflow	10.0	Outflow	17.7	17.7

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 2:08 Date: 5/11/94 | Stop time: 2:10 Date: 5/13/94

DP: 2 60 (psig) DT: (sec) | Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	89.9	Confining	9.1	13.3
Inflow	70.4	Inflow	4.6	5.0
Outflow	10.0	Outflow	17.7	17.5

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 2:15 Date: 5/13/94 | Stop time: 9:50 Am Date: 5/16/94

DP: (psig) DT: (sec) | Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	89.9	Confining	13.3	19.4
Inflow	81.7	Inflow	5.1	7.1
Outflow	4.0	Outflow	17.35	15.6

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 10:00 Date: 5/16/94 | Stop time: 2:00 Date: 5/17/94

DP: (psig) DT: (sec) | Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	100.4	Confining	4.3	7.3
Inflow	95.0	Inflow	7.1	11.45
Outflow	4.1	Outflow	15.6	11.35

Change in Fluid level(ml)

Confining: Inflow: Outflow:

KM 8/9/94

Sample ID: NRG1 * BX * 2 TEST = Ksat Continued on pg:

DP: 15 Date: 3/23/94 Start time: 12:28 Stop Time: 1:44

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining			Confining	KM 3/29	
Inflow	20		Inflow	5.8 5.7	14.5
Outflow	5		Outflow	21.5	12.8

Change in Fluid level

Confining: Inflow: Outflow:

DP: 10 Date: 3/23/94 Start time: 1:45 Stop Time: 2:52

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining			Confining		KM 3/29
Inflow	20.0		Inflow	3.2	8.3
Outflow	10.0		Outflow	20.7	15.7

Change in Fluid level

Confining: Inflow: Outflow:

DP: 20 Date: 3/23/94 Start time: 2:53 Stop Time: 3:40

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining			Confining		
Inflow	30.0		Inflow	8.4	15.3
Outflow	10.0		Outflow	15.6	8.7

Change in Fluid level

Confining: Inflow: Outflow:

DP: 30 Date: 3/23/94 Start time: 3:41 Stop Time: 5:00

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining			Confining		
Inflow	40.0		Inflow	1.8	18.6
Outflow	10.0		Outflow	19.2	2.8

Change in Fluid level

Confining: 3/23 KM Inflow: Outflow:

Sample ID: NRG1 * BX * 2 TEST = Ksat Continued on pg:

DP: 40 Date: 3/24/94 Start time: 3:00 Stop Time: 3:36

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	67.9		Confining		
Inflow	50.0		Inflow	1.3	11.1
Outflow	10.0		Outflow	21.6	11.9

Change in Fluid level

Confining: Inflow: Outflow:

DP: 50 Date: 3/24/94 Start time: 3:38 Stop Time: 4:04

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	67.8		Confining		
Inflow	60.0		Inflow	2.4	11.6
Outflow	10.0		Outflow	21.2	12.0

Change in Fluid level

Confining: Inflow: Outflow:

DP: 60 Date: Start time: 4:33 Stop Time: 5:04

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining	95.8		Confining		
Inflow	70.0		Inflow	2.0	14.1
Outflow	10.0		Outflow	21.1	9.0

Change in Fluid level

Confining: Inflow: Outflow:

DP: Date: Start time: Stop Time:

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		

Change in Fluid level

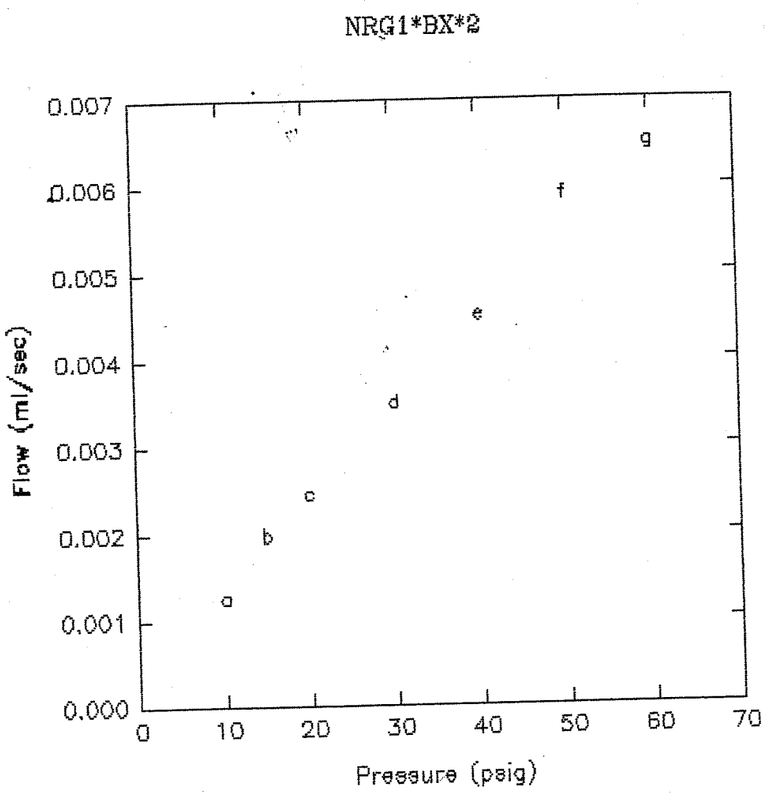
Confining: Inflow: Outflow:

DP: Date: Start time: Stop Time:

Pressures	Inital	Final	Fluid Levels	Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		

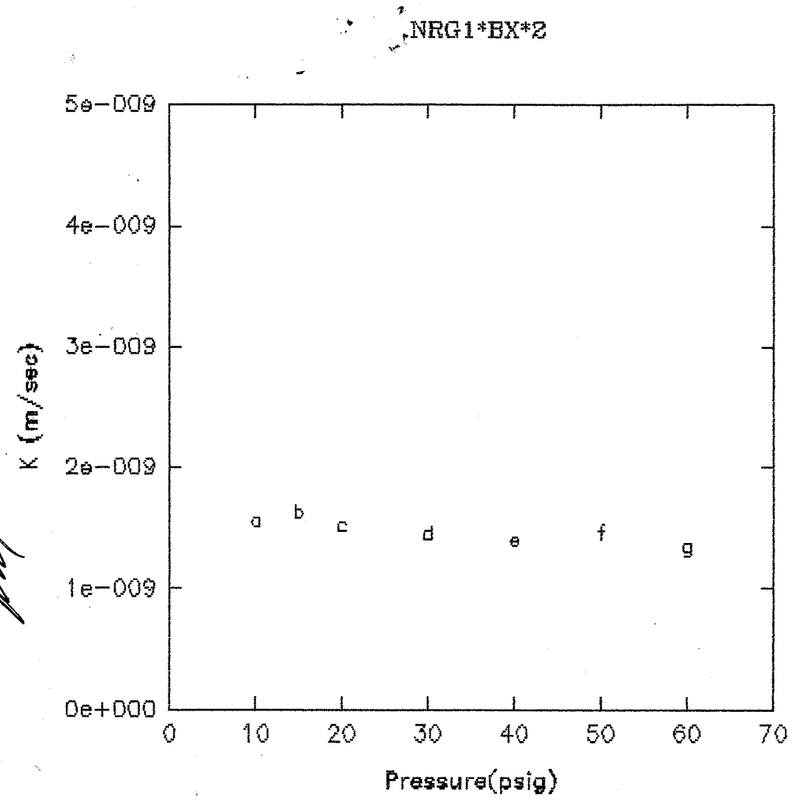
Change in Fluid level

Confining: Inflow: Outflow:



NRG1*BX*2: Thu, 24-Mar-94

Press (psi)	K (m/sec)	Flow(ml/sec)
10	1.56e-009	0.001256
15	1.63e-009	0.001971
20	1.52e-009	0.002447
30	1.45e-009	0.003502
40	1.4e-009	0.004514
50	1.46e-009	0.005897
60	1.35e-009	0.006505



Sample ID: NRG1 * BXY * 2 TEST = Ksat — Continued on pg:

DP: 25	Date:		Start time:		Stop Time: 60 min
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	87.7		Confining	17.0	
Inflow	40		Inflow	12.4 13.6	1.1
Outflow	15		Outflow	12.1	0.8
Change in Fluid level					
Confining:		Inflow:		Outflow:	

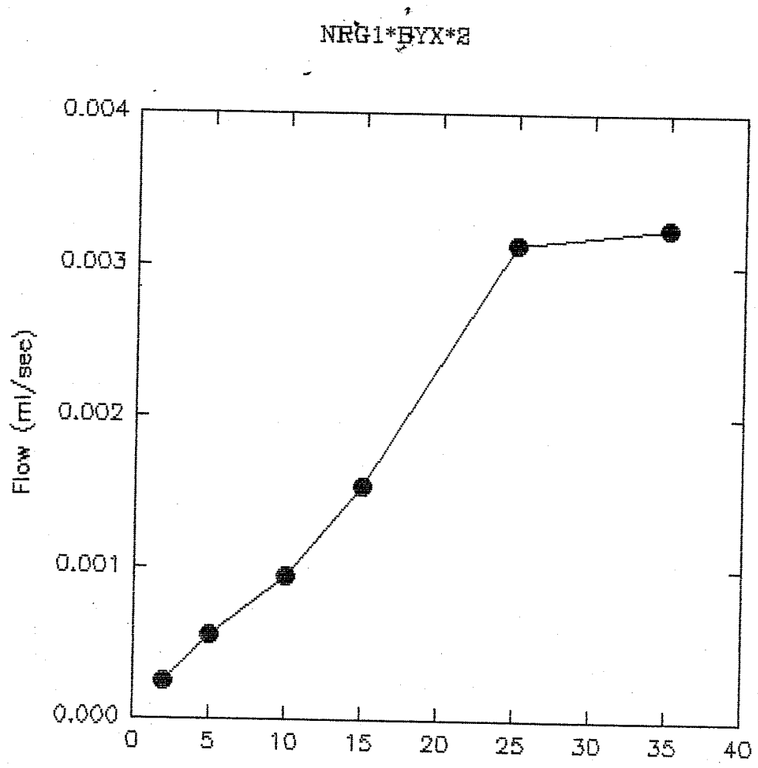
DP: 25	Date:		Start time:		Stop Time: 80 min
Pressures			Fluid Levels 85 min		
	Inital	Final		Inital	Final
Confining			Confining	3/22	
Inflow	40.0		Inflow	20 KM	3.3
Outflow	5.0		Outflow	22.8	5.7
Change in Fluid level					
Confining:		Inflow:		Outflow:	

DP: 2	Date: 3/21/94		Start time: 5:30		Stop Time: 6:10 pm
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining			Confining KM 3/22		
Inflow	40.0		Inflow	21.3 22.9	20.6
Outflow	38.0		Outflow	23.9	23.4
Change in Fluid level					
Confining:		Inflow:		Outflow:	

DP: 5	Date: 3/22/94		Start time: 12:45		Stop Time: 2:00
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	50.5		Confining		
Inflow	40.0		Inflow	20.5	18
Outflow	35.0		Outflow	23.4	20.95
Change in Fluid level					
Confining:		Inflow:		Outflow:	

DP: 15	Date: 3/22/94		Start time: 2:02		Stop Time: 3:04
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining	50.5		Confining		
Inflow	40		Inflow	17.9	12.9
Outflow	25		Outflow	20.8	15.3
Change in Fluid level					

DP: 10	Date:		Start time: 3:08		Stop Time: 4:31
Pressures			Fluid Levels		
	Inital	Final		Inital	Final
Confining			Confining		
Inflow	40		Inflow	12.1	7.6
Outflow	30		Outflow	15.0	10.1
Change in Fluid level					
Confining:		Inflow:		Outflow:	



K1*BYX*2: Tue, 22-Mar-94

Flow(ml/sec)	Press (psi)
0.00025	2
0.00055	5
0.0009438	10
0.0015457	15
0.0031389	25
0.0032549	35

8/9/94

TEST = Ksat

Sample ID: NRG2*BYX*2 Date: 4/5/94

Investigators: KM

Notes:

Start time: 2:28	Date: 4/5/94	Stop time: 2:58	Date: 4/5/94
DP: 60 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	99.5	Confining	20.1	20.1
Inflow	80	Inflow	9.5	15.1
Outflow	20	Outflow	15.6	10.0

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 3:00	Date: 4/5/94	Stop time: 3:32	Date: 4/5/94
DP: 50 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	99.3	Confining	20.1	20.2
Inflow	70.0	Inflow	2.7	7.3
Outflow	20.0	Outflow	21.8	17.1

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 3:33	Date: 4/5/94	Stop time: 4:03	Date: 4/5/94
DP: 40 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	99.3	Confining	20.2	20.2
Inflow	60	Inflow	7.4	10.7
Outflow	20	Outflow	17.0	13.7

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 4:04	Date: 4/5/94	Stop time: 4:40	Date: 4/5/94
DP: 5 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	99.3	Confining	20.2	20.2
Inflow	30	Inflow	10.65	11.15
Outflow	25	Outflow	13.7	13.2

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Continued on page: _____

Sample ID: NRG2*BYX*2 TEST = Ksat Continued on pg:

Start time: 1:14	Date: 4/6/94	Stop time: 2:02	Date: 4/6/94
DP: 30 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	99.9	Confining	6.0	15.9
Inflow	60	Inflow	11.3	15.2
Outflow	30	Outflow	13.3	9.4

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time:	Date: 4/6/94	Stop time:	Date: 7
DP: 20 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	99.9	Confining		
Inflow	50	Inflow		
Outflow	30	Outflow		

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 1400	Date: 4/7/94	Stop time: 1510	Date: 4/7/94
DP: 20 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	80	Confining	14.4	14.6
Inflow	30	Inflow	4.3	8.3
Outflow	10	Outflow	20.4	16.4

Change in Fluid level(ml)

Confining: .2 Inflow: 4.0 Outflow: 4.0

Start time: 1513	Date: 4/7/94	Stop time:	Date: 7
DP: 20 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	80	Confining	14.7	14.9
Inflow	30	Inflow	7.9	
Outflow	10	Outflow	14.2	

Change in Fluid level(ml)

Confining: .2 Inflow: Outflow:

Start time: 1520	Date: 4/8/94	Stop time: 1615	Date: 4/8/94
DP: 20 (psig)	DT: (sec)	Fluid Levels(ml)	

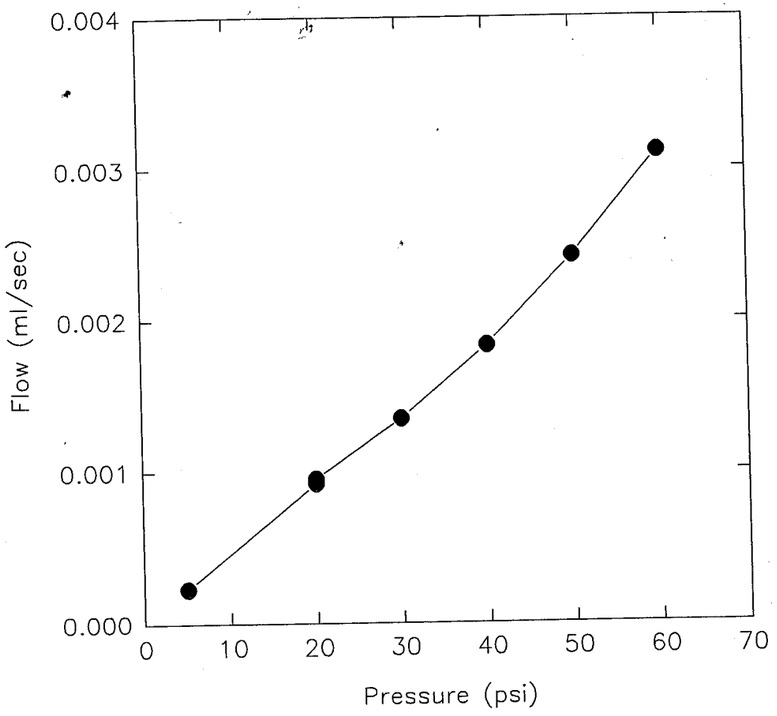
	Set Pressure(psig)		Inital	Final
Confining	80	Confining	14.9	15.3
Inflow	30	Inflow	8.5	11.6
Outflow	10	Outflow	16.2	13.3

Change in Fluid level(ml)

Confining: Inflow: Outflow:

8/9/94

NRG2*BYX*2



K2BYX2.SP5

Flow(ml/sec)	Press (psi)
0.00311	60
0.00242	50
0.00183	40
0.00135	30
0.000952	20
0.000924	20
0.000231	5

4/8/94

TEST = Ksat

Sample ID: NRG2-BZ-3 Date: 4/7/94

Investigators: [illegible]

Notes:

Start time: 1352	Date: 4/7/94	Stop time: 1510	Date: 4/7/94
DP: 60 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	80	Confining	14.2	14.6
Inflow	70	Inflow	3.1	10.4
Outflow	10	Outflow	21.2	13.5

Change in Fluid level(ml)

Confining: .4 Inflow: 7.3 Outflow: 7.7

Start time: 1515	Date: 4/7/94	Stop time: 1615	Date: 4/7/94
DP: 50 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	80	Confining	14.7	14.9
Inflow	60	Inflow	11.1	15.82
Outflow	10	Outflow	12.8	8.3

Change in Fluid level(ml)

Confining: .2 Inflow: 4.1 Outflow: 4.5

Start time: 1520	Date: 4/8/94	Stop time: 1615	Date: 4/8/94
DP: 40 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	80	Confining	14.9	15.3
Inflow	50	Inflow	15.8	18.7
Outflow	10	Outflow	7.2	4.2

Change in Fluid level(ml)

Confining: Inflow: Outflow: [illegible] 4/11

Start time: 2:44	Date: 4/1/94	Stop time: 3:42	Date: ~~3/31~~ 4/1/94
DP: 30 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	79.9	Confining	14.2 4/11	15.5
Inflow	40.0	Inflow 6.1	18.2 4/11	8.6
Outflow	10.0	Outflow	24.6	22.1

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Continued on page: _____

8/8/94

Sample ID: NRG2*BZ*3 TEST = Ksat Continued on pg:

Start time: 3:50 Date: 4/11/94		Stop time: 1705 Date: 4/11/94		
DP: 20 (psig) DT: (sec)		Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	79.9	Confining	15.5	15.9
Inflow	30.0	Inflow	8.9	10.9
Outflow	10.0	Outflow	21.8	19.8
Change in Fluid level(ml)				
Confining: .4		Inflow: 2.0		Outflow: 2.0

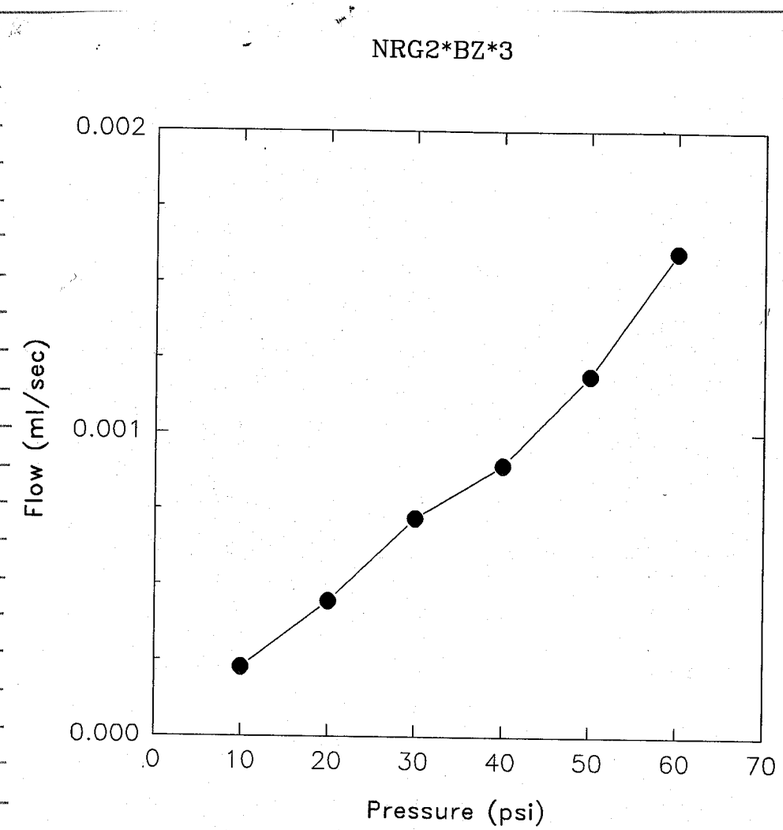
Start time: 12:29 Date: 4/12/94		Stop time: 1:35 Date: 4/12/94		
DP: 10 (psig) DT: (sec)		Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	80.1	Confining	10.2	10.5
Inflow	20.0	Inflow	4.8	5.7
Outflow	10.3	Outflow	19.5	18.6
Change in Fluid level(ml)				
Confining:		Inflow:		Outflow:

Start time: Date:		Stop time: Date:		
DP: (psig) DT: (sec)		Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		
Change in Fluid level(ml)				
Confining:		Inflow:		Outflow:

Start time: Date:		Stop time: Date:		
DP: (psig) DT: (sec)		Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		
Change in Fluid level(ml)				
Confining:		Inflow:		Outflow:

4/12/94

Start time: Date:		Stop time: Date:		
DP: (psig) DT: (sec)		Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		
Change in Fluid level(ml)				
Confining:		Inflow:		Outflow:



K/M

K2BZ3.SP5

Flow (ml/sec)	Press (psi)
0.0016	60
0.00119	50
0.000894	40
0.000718	30
0.000444	20
0.000227	10

TEST = Ksat

Sample ID: NRG2*BZ*2 Date: 4/12/94

Investigators: km

Notes:

Start time: 12:31	Date: 4/12/94	Stop time: 1:35	Date: 4/12/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining	80.1	Confining	10.3 / 10.5
Inflow	20	Inflow	3.9 / 5.2
Outflow	10	Outflow	21.9 / 20.8
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	

Start time: 135	Date: 4/12/94	Stop time: 2:09	Date: 4/12/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining	80.1	Confining	10.5 / 10.5
Inflow	20	Inflow	5.2 / 5.8
Outflow	10	Outflow	20.8 / 20.2
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	

Start time: 2:14	Date: 4/12/94	Stop time: 3:30	Date: 4/12/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining	80.1	Confining	10.2 / 10.2
Inflow	30.0	Inflow	6.0 / 8.7
Outflow	10.0	Outflow	20.1 / 17.5
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	

Start time: 3:31	Date: 4/12/94	Stop time: 4:15	Date: 4/12/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining	80.1	Confining	10.2 / 10.2
Inflow	40	Inflow	8.8 / 11.15
Outflow	10	Outflow	17.4 / 15.1
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	

Continued on page: 157

Sample ID: NRG2*BZ*2 TEST = Ksat Continued on pg:

Start time: 4:16	Date: 4/12/94	Stop time: 4:59	Date: 4/12/94
DP: 40 (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining	80.1	Confining	10.1 / 10.0
Inflow	50.0	Inflow	11.3 / 14.3
Outflow	10.0	Outflow	15.0 / 12.0
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	

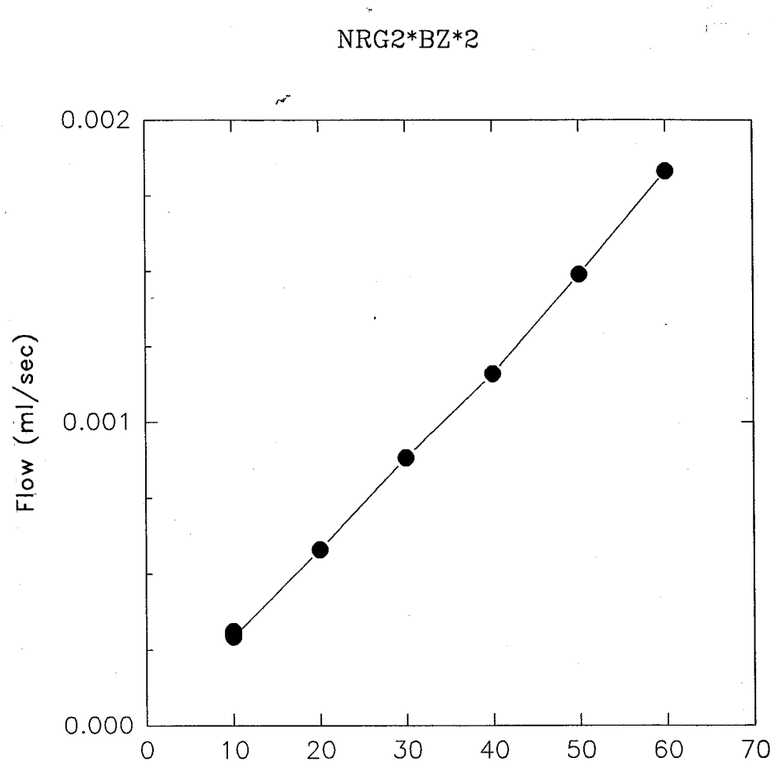
Start time: 5:00	Date: 4/12/94	Stop time: 5:58	Date: 4/12/94
DP: 50 (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining	80.1	Confining	10.0 /
Inflow	60	Inflow	14.5 / 19.7
Outflow	10	Outflow	11.9 / 6.7
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	

Start time: 12:41	Date: 4/13/94	Stop time: 2:41	Date: 4/13/94
DP: 60 (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining	80.1	Confining	10.0 / 9.7
Inflow	70	Inflow	3.4 / 16.6
Outflow	10	Outflow	20.4 / 7.3
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	

Start time:	Date:	Stop time:	Date:
DP: (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining		Confining	
Inflow		Inflow	
Outflow		Outflow	
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	

KM 4/13/94

Start time:	Date:	Stop time:	Date:
DP: (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining		Confining	
Inflow		Inflow	
Outflow		Outflow	
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	



K2BZ2.SP5: Wed, 13-Apr-94

Flow (ml/sec)	Press (psi)
0.000306	10
0.000312	10
0.000294	10
0.000581	20
0.000881	30
0.00116	40
0.00149	50
0.00183	60

TEST = AquaLab

Notes: Initial Saturated weights and Activity

Investigators: Yr. 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG1*AzF*7	3/31	4.257	4.253	.995	28.0
NRG1*AzD*9	3/31	3.027	3.020	.992	27.9
NRG1*AzF*2	3/31	4.345	4.342	.996	27.9
NRG1*AzD*4	3/31	2.833	2.830	.995	27.9
NRG1*AzF*4	3/31	3.988	3.985	.997	27.8
NRG1*AzA*6	3/31	3.202	3.197	.995	27.8
NRG1*AzF*3	3/31	4.376	4.372	.994	27.4
NRG1*AzF*6	3/31	4.069	4.0666	.997	27.8
NRG1*AzD*3	3/31	2.724	2.720	.996	27.7
NRG1*AzF*5	3/31	4.236	4.232	.996	27.7
NRG1*AzA*6	4/1	3.181	3.177	.995	27.8
NRG1*AzD*3	4/1	2.711	2.708	.995	27.9
NRG1*AzD*4	4/1	2.814	2.811	.996	27.9
NRG1*AzD*9	4/1	3.005	3.001	.995	27.8
NRG1*AzF*2	4/1	4.324	4.320	.995	28.0
NRG1*AzF*3	4/1	4.358	4.351	.998	28.0
NRG1*AzF*4	4/1	3.971	3.965	.994	28.0
NRG1*AzF*5	4/1	4.223	4.221	.997	28.0
NRG1*AzF*6	4/1	4.058	4.055	.992	27.9
NRG1*AzF*7	4/1	4.226	4.224	.993	27.9
NRG1*AzA*6	4/4	3.071	3.067	.990	27.4
NRG1*AzD*3	4/4	2.596	2.595	.990	27.5
NRG1*AzD*4	4/4	2.673	2.670	.989	27.4
NRG1*AzD*9	4/4	2.876	2.874	.988	27.5
NRG1*AzF*2	4/4	4.201	4.198	.994	27.4
NRG1*AzF*3	4/4	4.211	4.209	.991	27.5
NRG1*AzF*4	4/4	3.836	3.834	.991	27.6
NRG1*AzF*5	4/4	4.104	4.102	.994	27.6
NRG1*AzF*6	4/4	3.942	3.940	.994	27.6
NRG1*AzF*7	4/4	4.073	4.070	.993	27.6

Continued on page: 160

TEST = AquaLab

Notes: _____

Investigators: _____ YR:1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG1*AzA*6	4/16	3.032	3.030	.987	28.9
NRG1*AzD*3	4/16	2.567	2.564	.989	28.7
NRG1*AzD*4	4/16	2.637	2.637	.983	28.6
NRG1*AzD*9	4/16	2.840	2.838	.986	28.4
NRG1*AzF*2	4/16	4.162	4.161	.992	28.1
NRG1*AzF*3	4/16	4.175	4.173	.992	28.3
NRG1*AzF*4	4/16	3.798	3.792	.991	28.2
NRG1*AzF*5	4/16	4.066	4.059	.991	28.1
NRG1*AzF*6	4/16	3.906	3.902	.993	28.0
NRG1*AzF*7	4/16	4.033	4.028	.988	28.0

4/16/94

Continued on page: _____

9/9/94

TEST = AquaLab

Notes: _____

Investigators: _____ YR:1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG2*AzA*3	3/31	2.525	2.524	.274	26.2
NRG2*AzA*5	3/31	2.863	2.862	.349	26.5
NRG2*AzA*8	3/31	2.419	2.416	.497	26.8
NRG2*AzA*9	3/31	3.283	2.282	.377	26.9
NRG2*AzA*12	3/31	5.306	5.303	.545	27.1
NRG2*AzC*2	3/31	3.053	3.053	.430	27.1
NRG2*AzC*5	3/31	3.459	3.457	.570	27.3
NRG2*AzC*6	3/31	2.961	2.959	.883	27.4
NRG2*AzG*2	3/31	3.724	3.723	.539	27.5
NRG2*AzG*4	3/31	3.368	3.367	.330	27.6
~~NRG2~~ 3/31/94					
NRG2*AzA*8	4/1	2.409	2.409	.325	28.0
NRG2*AzA*12	4/1	5.239	5.236	.874	28.2
NRG2*AzC*2	4/1	3.045	3.044	.292	28.1
NRG2*AzC*5	4/1	3.441	3.441	.227	28.1
NRG2*AzC*6	4/1	2.928	2.927	.468	28.2
NRG2*AzG*2	4/1	3.708	3.708	.246	28.2

4/16/94

Continued on page: _____

TEST = AquaLab

Notes: _____

Investigators: _____ YR: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG2*AzA*3	3/23	2.575	2.573 / 2.571	0.942 / 0.942	29.6 / 29.7
NRG2*AzA*5	3/23	2.917	2.916 / 2.913	0.941 / .943	29.7 / 29.7
NRG2*AzA*8	3/23	2.447	2.445 / 2.444	0.925 / 919	29.8 / 29.9
NRG2*AzA*9	3/23	3.350	3.350 / 3.348	0.947 / 946	29.7 / 29.8
NRG2*AzA*12	3/23	5.373	5.369	.974	29.9
NRG2*AzC*2	3/28	3.133	3.129	.963	27.0
NRG2*AzC*5	3/28	3.532	3.530	.954	27.2
NRG2*AzC*6	3/28	2.996	2.992	.955	27.3
NRG2*AzG*2	3/28	3.825	3.824	.967	27.6
NRG2*AzG*4	3/28	3.460	3.456	.958	27.5
DI H_2O	3/29	—	—	.997	28.5
NRG2*AzA*3	3/28	2.531	2.530 / 2.530	.369 / 360	24.0 / 25.9
NRG2*AzA*5	3/29	2.864	2.863	.374 / 365	28.6 / 28.7
NRG2*AzA*8	3/29	2.425	2.423	.745 / 723	28.8 / 28.9
NRG2*AzA*9	3/29	3.288	3.287	.506 / 478	28.4 / 28.1
NRG2*AzA*12	3/29	5.328	5.321	.960 / .958	27.8 / 27.7
NRG2*AzC*6	3/29	2.972	2.968	.922 / .914	27.5 / 27.5
DI H_2O	3/29	—	—	0.997	27.4
DI H_2O	3/30	—	—	0.997	27.2
NaCl	3/30	—	—	0.753	27.0
NRG2*AzA*3	3/30	2.528	2.528	0.359	28.1
NRG2*AzG*2	3/30	3.766	3.763	0.908	28.5
NRG2*AzG*4	3/30	3.386	3.384	0.716	28.6
NRG2*AzC*5	3/30	3.497	3.496	0.907	28.9
NRG2*AzC*2	3/30	3.076	3.074	0.857	29.1

7/16/94

Continued on page: 161

TEST = AquaLab

Notes: ① Initial activity and weights

Investigators: _____ YR: 1994

	Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
①	NRG2*AzC*2	3/17	3.380	3.377	.994	26.9
	NRG2*AzC*5	3/17	3.794	3.789	.990	27.1
	NRG2*AzA*6	3/17	3.222	3.218	.994	27.2
	NRG2*AzG*4	3/17	3.721	3.720	.993	27.3
	NRG2*AzA*9	3/17	3.622	3.620	.991	27.3
	NRG2*AzA*12	3/17	5.707	5.705	.992	27.0
	NRG2*AzA*8	3/17	2.660	2.656	.995	27.3
	NRG2*AzA*5	3/17	3.139	3.137	.993	27.4
	NRG2*AzG*2	3/17	4.099	4.097	.994	27.4
	NRG2*AzA*3	3/17	2.781	2.780	.990	27.5
	~~NRG2*AzA*3~~	~~3/18~~	~~2.763~~			
	NRG2*AzA*3	3/21	2.690	2.686	.989	26.9
	NRG2*AzA*5	3/21	3.041	3.038	.991	26.9
	NRG2*AzA*8	3/21	2.545	2.541	.986	26.9
	NRG2*AzA*9	3/21	3.485	3.483	.990	26.9
	NRG2*AzA*12	3/21	5.567	5.564	.992	26.7
	NRG2*AzC*2	3/21	3.263	3.261	.991	26.9
	NRG2*AzC*5	3/21	3.656	3.654	.990	27.1
	NRG2*AzC*6	3/21	3.108	3.107	.991	27.1
	NRG2*AzG*2	3/21	3.985	3.983	.990	27.2
	NRG2*AzG*4	3/21	3.592	3.588	.991	27.2
	NRG2*AzA*3	3/22	2.615	2.614	.965	27.6
	NRG2*AzA*5	3/22	2.962	2.961	.967	27.7
	NRG2*AzA*8	3/22	2.476	2.473	.951	27.8
	NRG2*AzA*9	3/22	3.401	3.396	.970	27.9
	NRG2*AzA*12	3/22	5.464	5.452	0.985	28.0
	NRG2*AzC*2	3/22	3.182	3.177	0.976	27.9
	NRG2*AzC*5	3/22	3.581	3.572	0.973	28.0
	NRG2*AzC*6	3/22	3.038	3.034	0.973	28.1
	NRG2*AzG*2	3/22	3.884	3.881	0.982	28.1
	NRG2*AzG*4	3/22	3.513	3.509	0.978	28.1

Continued on page: 162

8/4/94

8/9/94

TEST = AquaLab

Notes: Initial Saturated weight
① Run (1) on samples
② Run (2) on samples (air dry time =

Investigators: Yr: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG3*AzB*6	3/14	4.1168	4.1165	.990	26.9
NRG3*AzB*9	3/14	3.775	3.771	.994	26.8
NRG3*AzC*7	3/14	4.515	4.510	.995	26.8
NRG3*AzC*13	3/14	5.807	5.805	.998	26.7
NRG3*AzB*12	3/14	3.583	3.580	.998	26.7
NRG3*AzB*8	3/14	3.750	3.746	.997	26.7
NRG3*AzC*11	3/14	4.685	4.683	.996	26.5
NRG3*AzC*4	3/14	4.648	4.645	.993	26.6
NRG3*AzB*4	3/14	3.685	3.681	.992	26.6
NRG3*AzC*10	3/14	4.350	4.347	.997	26.5
① NRG3*AzB*4	3/16	3.6664	3.6663	.998	25.8
NRG3*AzB*6	3/16	4.143	4.139	.996	25.9
NRG3*AzB*8	3/16	3.725	3.723	1.000	25.9
NRG3*AzB*9	3/16	3.755	3.752	1.000	25.9
NRG3*AzB*12	3/16	3.5665	3.562	.996	26.1
NRG3*AzC*4	3/16	4.630	4.627	.998	26.0
NRG3*AzC*7	3/16	4.492	4.491	.999	26.3
NRG3*AzC*10	3/16	4.326	4.325	.997	26.2
NRG3*AzC*11	3/16	4.6666	4.6664	.996	26.4
NRG3*AzC*13	3/16	5.780	5.779	1.000	26.2
② NRG3*AzB*4	3/17	3.6016	3.604	.963	27.6
NRG3*AzB*6	3/17	4.071	4.070	.962	27.5
NRG3*AzB*8	3/17	3.626	3.625	.925	27.5
NRG3*AzB*9	3/18	~~3.6618~~ 3/16/94			
NRG3*AzB*12	3/18				
NRG3*AzC*4	3/18				
NRG3*AzC*7	3/18				
NRG3*AzC*10	3/18				
NRG3*AzC*11	3/18				
NRG3*AzC*13	3/18				

Not used

Continued on page: 165

TEST = AquaLab

Notes:

Investigators: Yr: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG3*AzB*4	3/18	3.591	3.589	.862	27.7
NRG3*AzB*6	3/18	4.057	4.055	.922	27.6
NRG3*AzB*8	3/18	3.6116	3.615	.883	27.7
NRG3*AzB*9	3/18	3.657	3.655	.8816	27.7
NRG3*AzB*12	3/18	3.493	3.491	.902	27.7
NRG3*AzC*4	3/18	4.549	4.548	.926	27.7
NRG3*AzC*7	3/18	4.411	4.408	.931	27.6
NRG3*AzC*10	3/18	4.255	4.254	.875	27.7
NRG3*AzC*11	3/18	4.581	4.579	.903	27.7
NRG3*AzC*13	3/18	5.6168	5.6166	.954	27.7
NRG3*AzB*4	3/21	3.581	3.579	.888	25.6
NRG3*AzB*6	3/21	4.045	4.044	.875	26.0
NRG3*AzB*8	3/21	3.604	3.602	.742	26.2
NRG3*AzB*9	3/21	3.641	3.640	.794	26.4
NRG3*AzB*12	3/21	3.485	3.483	.872	26.5
NRG3*AzC*4	3/21	4.539	4.536	.928	26.5
NRG3*AzC*7	3/21	4.397	4.396	.920	26.6
NRG3*AzC*10	3/21	4.243	4.242	.865	26.7
NRG3*AzC*11	3/21	4.562	4.561	.830	26.8
NRG3*AzC*13	3/21	5.647	5.646	.881	26.9
NRG3*AzB*4	3/22	3.574	3.573	.732	26.0
NRG3*AzB*6	3/22	4.039	4.036	.782	26.3
NRG3*AzB*8	3/22	~~3.474~~ 3/22/94 3.597	3.596	.569 3/22/94 .634	26.8
NRG3*AzB*9	3/22	3.635	3.633	.609	27.0
NRG3*AzB*12	3/22	3.474	3.473	.634	26.6
NRG3*AzC*4	3/22	4.529	4.526	.814	27.1
NRG3*AzC*7	3/22	4.388	4.387	.810	27.2
NRG3*AzC*10	3/22	4.240	4.237	.765	27.3
NRG3*AzC*11	3/22	4.552	4.551	.615	27.4
NRG3*AzC*13	3/22	5.640	5.638	.788	27.5

Continued on page: 166

8/9/94

TEST = AquaLab

Notes:

Investigators: YR: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG3*AzB*4	3/23	3.562	3.561	.667	28.0
NRG3*AzB*6	3/23	4.025	4.024	.723	28.1
NRG3*AzB*8	3/23	3.590	3.590	.581	28.1
NRG3*AzB*9	3/23	3.626	3.625	.598	28.1
NRG3*AzB*12	3/23	3.465	3.466	.590	28.3
NRG3*Azc*4	3/23	4.377		.784	28.4
NRG3*Azc*7	3/23	4.377	4.376 / 4.375	.784 / .725	28.4 / 28.5
NRG3*Azc*10	3/23	4.226	4.226 / 4.226	.704 / .674	28.3 / 28.5
NRG3*Azc*11	3/23	4.543	4.541 / 4.541	.651 / .615	28.3 / 28.4
NRG3*Azc*13	3/23				
NRG3*AzC*4	3/23	4.515	4.513 / 4.513	.784 / .745	28.7 / 29.1
				.674 / .635	28.3 / 28.5
NRG3*AzC*4	3/25	4.504	4.503		
NRG3*AzB*4	3/28	3.558	3.557 / 3.556	.388 / .373	24.5
NRG3*AzC*4	3/28	4.496	4.495 / 4.495	.513 / .464	24.4 / 24.3
NRG3*AzB*6					
NRG3*AzB*8					
NRG3*AzB*9					
NRG3*AzB*12					
NRG3*AzC*7					
NRG3*AzC*10					
NRG3*AzC*11					
NRG3*AzC*13					

3/23 KM

3/28/94

4/16/94

Continued on page: 167

TEST = AquaLab

Notes:

Investigators: YR: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG3*AzB*4	3/31	3.554	3.553	.415	27.8
NRG3*AzB*6	3/31	4.010	4.008	.376	27.9
NRG3*AzB*8	3/31	3.586	3.584	.388	28.1
NRG3*AzB*9	3/31	3.619	3.618	.374	28.2
NRG3*AzB*12	3/31	3.463	3.462	.396	28.3
NRG3*Azc*4	3/31	4.496	4.494	.526	28.3
NRG3*Azc*7	3/31	4.353	4.351	.382	28.3
NRG3*Azc*10	3/31	4.217	4.216	.608	28.3
NRG3*Azc*11	3/31	4.523	4.522	.382	28.3
NRG3*AzB*4	4/1	3.549	3.544	.474	28.0
NRG3*AzB*6	4/1				
NRG3*AzB*8	4/1				
NRG3*AzB*9	4/1				
NRG3*AzB*12	4/1				
NRG3*Azc*4	4/1				
NRG3*AzC*7	4/1				
NRG3*AzC*10	4/1				
NRG3*AzC*11	4/1				
NRG3*AzC*4	4/1				
NRG3*AzB*4	4/16				
NRG3*AzB*9	4/16				
NRG3*AzC*4	4/16				
NRG3*AzC*10	4/16				

4/16/94

Continued on page: 168

~~TEST = AquaLab~~

Notes: Saturated weights of NRG3 Samples not used in Aqualab

Investigators: _____ YR: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG3*AzB*14	3/16	3.628			
NRG3*AzC*2	3/16	3.777			
NRG3*AzC*9	3/16	4.529			
NRG3*AzB*5	3/16	3.333			
NRG3*AzB*1	3/16	4.105			
NRG3*AzC*12	3/16	3.772			
NRG3*AzB*7	3/16	3.153			
NRG3*AzB*11	3/16	3.540			
NRG3*AzC*5	3/16	4.288			
NRG3*AzB*10	3/16	3.820			
NRG3*AzB*15	3/16	3.431			
NRG3*AzC*6	3/16	3.910			
NRG3*AzB*2	3/16	4.199			
NRG3*AzC*1	3/16	4.132			
NRG3*AzB*3	3/16	3.935			
NRG3*AzB*13	3/16	3.766			
NRG3*AzB*16	3/16	3.628			
NRG3*AzC*8	3/16	4.456			
NRG3*AzC*3	3/16	3.640			

4/25/94

4/16/94

Continued on page: _____

TEST = AquaLab

Notes: Air Dry time = 20 min

Investigators: _____ YR: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4*AzC*1	2/28	3.951	3.950	.929	24.3
NRG4*AzC*2	2/28	4.071	4.067	.940	24.4
NRG4*AzC*3	2/28	3.469	3.469	.663	24.5
NRG4*AzC*4	2/28	3.587	3.583	.844	24.5
NRG4*AzC*5	2/28	3.296	3.296	.835	24.5
NRG4*AzC*6	2/28	4.013	4.011	.856	24.6
NRG4*AzC*7	2/28	3.413	3.413	.911	24.6
NRG4*AzC*8	2/28	3.380	3.378	.759	25.6
NRG4*AzC*9	2/28	3.497	3.495	.808	26.8
NRG4*AzC*10	3/2	3.545	3.544	.887	27.3
NRG4*AzC*11	3/2	5.500	5.496	.966	27.1
NRG4*AzE*1	3/2	3.0938	3.093	.720	27.4
NRG4*AzE*2	3/2	3.358	3.358	.658	27.5
NRG4*AzE*4	3/2	3.235	3.233	.872	27.4
NRG4*AzE*5	3/2	3.673	3.673	.742	27.4
NRG4*AzF*1	3/2	4.698	4.698	.941	27.4
NRG4*AzF*2	3/2	4.027	4.026	.722	27.4
NRG4*AzF*3	3/2	3.700	3.699	.639	27.3
NRG4*AzF*4	3/2	3.323	3.323	.803	27.4
NRG4*AzF*5	3/2	3.467	3.466	.721	27.3
NRG4*AzF*6	3/3	3.597	3.597	.496	27.5
NRG4*AzF*7	3/3	3.900	3.900	.530	27.6
NRG4*AzF*8	3/3	4.386	4.385	.500	27.7
NRG4*AzF*9	3/3	3.842	3.847	.414	27.8
NRG4*AzF*10	3/3	4.228	4.227	.674	27.8
NRG4*AzF*11	3/3	3.739	3.737	.669	27.8
NRG4*AzF*12	3/3	4.389	4.387	.645	27.8
NRG4*AzF*13	3/3	4.183	4.181	.754	27.7

4/16/94

Continued on page: 170

4/18/94

TEST = AquaLab

Notes: ~~Initial Saturated weights~~
① Run (1) on selected samples

Investigators: YR: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4 * AzC *1	3/11	3.930	3.928	.675	28.5
NRG4 * AzC *2	3/11	4.022	4.021	.417	28.5
NRG4 * AzC *4	3/11	3.563	3.563	.555	28.6
NRG4 * AzC *5	3/11	3.267	3.267	.427	28.6
NRG4 * AzC * 6	3/14	3.995	3.992	.671	25.4
NRG4 * AzC * 7	3/14	3.397	3.396	.748	25.9
NRG4 * AzC * 8	3/14	3.353	3.352	.5116	26.1
NRG4 * AzC * 9	3/14	3.472	3.471	.586	26.3
NRG4 * AzC * 10	3/14	3.520	3.519	.705	26.5
NRG4 * AzC * 11	3/14	5.402	5.402	.748	26.6
NRG4 * AzE * 1	3/14	3.074	3.073	.505	26.6
NRG4 * AzE * 4	3/14	3.202	3.202	.499	26.7
NRG4 * AzE * 3	3/14	3.657	3.656	.548	26.8
NRG4 * AzF * 1	3/14	4.670	4.668	.881	26.9
NRG4 * AzF * 2	3/14	4.003	4.002	.520	26.8
NRG4 * AzF * 4	3/14	3.297	3.296	.488	26.9
NRG4 * AzF * 5	3/14	3.445	3.445	477	26.9
NRG4 * AzF * 13	3/14	4.175	4.174	.652	27.0

① 4/16/94

4/19/94

Continued on page: 171

TEST = AquaLab

Notes: Initial Saturated weight and Activity

Investigators: YR: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4 * AzF * 1	3/31	4.841	4.836	.994	27.6
NRG4 * AzF * 5	3/31	3.547	3.542	.992	27.6
NRG4 * AzE * 3	3/31	3.772	3.768	.991	27.5
NRG4 * AzF * 2	3/31	4.102	4.097	.994	27.5
NRG4 * AzC * 2	3/31	4.129	4.124	.995	27.5
NRG4 * AzF * 4	3/31	3.373	3.370	.991	27.4
NRG4 * AzE * 1	3/31	3.157	3.153	.992	27.4
NRG4 * AzE * 1	4/4	3.135	3.132	.990	27.4
NRG4 * AzE * 3	4/4	3.747	3.745	.993	27.4
NRG4 * AzF * 1	4/4	4.810	4.806	.995	27.3
NRG4 * AzF * 2	4/4	4.085	4.080	.992	27.5
NRG4 * AzF * 4	4/4	3.358	3.356	.991	27.5
NRG4 * AzF * 5	4/4	3.526	3.522	.994	27.4
NRG4 * AzC * 2	4/4	4.102	4.099	.994	27.5

4/16/94

Continued on page: _____

TEST = AquaLab

Initial Notes: _____

YR: 1994

Investigators: GREGORY JAMES: GJ Kristi Meyer KM 3/18

Sample ID	Date	~~Initial Weight(g)~~ Weight in Air (g)	~~Final Weight(g)~~ Weight in Water(g)	Activity	T(C)
NRG1*AzF*6	2/18	4.074	2.193		
NRG1*AzD*8	2/18	~~3.575~~ 2/18/94	1.920		
NRG1*AzD*1	2/18		2.075		
NRG1*AzA*8	2/18		1.626		
~~NRG1*8~~	~~2/18~~		~~2.148~~		
NRG1*AzF*8	2/18		2.147		
NRG1*AzA*12	2/18		2.295		
NRG1*AzF*1	2/18		2.332		
NRG1*AzA*4	2/18		1.432		
NRG1*AzD*4	2/18		1.520		
NRG1*AzD*7	2/18		2.134		
NRG1*AzF*2	2/18		2.38 41		
NRG1*AzA*6	2/18		1.725		
NRG1*AzD*3	2/18		1.467		
NRG1*AzD*2	2/18		1.962		
NRG1*AzF*5	2/18		2.278		
NRG1*AzA*9	2/18		1.835		
NRG1*AzF*3	2/18		2.352		
NRG1*AzF*4	2/18		2.142		
NRG1*AzA*5	2/18		1.997		
NRG1*AzA*3	2/18		1.809		
NRG1*AzF*7	2/18		2.290		
NRG1*AzA*7	2/18		2.052		
NRG1*AzA*10	2/18		1.814		
NRG1*AzA*1	2/18		3.138		
NRG1*AzD*9	2/18		1.625		
NRG1*AzA*2	2/18		2.031		
NRG1*AzF*9	2/18	Destroyed (Cracked)			

3/14/94

Continued on page: _____

TEST = AquaLab

Initial Notes: _____

YR: 1994

Investigators: GJ KM

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG1*AzA*3	2/21	3.392	3.385	.994	27.0
NRG1*AzA*2	2/21	3.792	3.790	.995	26.9
NRG1*AzA*8	2/21	3.017	3.014	.994	27.1
NRG1*AzF*3	2/21	4.379	4.375	.993	27.0
NRG1*AzD*3	2/21	2.729	2.723	.994	27.2
NRG1*AzA*5	2/21	3.729	3.724	.989	27.1
NRG1*AzA*4	2/21	2.649	2.647	.993	27.2
NRG1*AzA*1	2/21	5.861	5.859	.993	27.1
NRG1*AzD*1	2/21	3.875	3.873	.992	27.1
NRG1*AzD*4	2/21	2.836	2.832	.991	27.0
NRG1*AzF*8	2/21	4.009	4.006	.994	26.9
NRG1*AzF*2	2/21	4.351	4.344	.995	27.0
NRG1*AzD*9	2/21	3.030	3.024	.993	26.9
NRG1*AzF*5	2/21	4.242	4.235	.994	27.0
NRG1*AzF*1	2/21	4.327	4.318	.994	27.0
NRG1*AzD*7	2/21	3.956	3.951	.986	26.8
NRG1*AzA*12	2/21	4.252	4.247	.995	27.1
NRG1*AzF*7	2/21	4.257	4.254	.994	26.7
NRG1*AzA*7	2/21	3.805	3.800	.990	27.1
NRG1*AzF*6	2/21	4.089	4.077	.993	27.0
NRG1*AzA*6	2/21	3.201	3.198	.994	27.0
NRG1*AzF*4	2/21	3.994	3.991	.991	27.0
~~NRG1*~~	~~2/21~~ 2/21/94				
NRG1*AzA*10	2/22	3.386	3.376	.996	27.1
NRG1*AzD*2	2/22	3.660	3.656	.996	27.3
NRG1*AzA*9		3.413	3.410	.996	27.3
NRG1*AzD*8		3.540	3.535	.996	27.4

4/14/94

Continued on page: _____

~~TEST = AquaLab~~

Notes: SATURATED Weights - NRG2

Investigators: YR: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG2*AzA*7	3/16	3.446			
NRG2*AzG*1	3/16	3.027			
NRG2*AzA*1	3/16	3.287			
NRG2*AzA*4	3/16	3.377			
NRG2*AzC*4	3/16	3.722			
NRG2*AzA*6	3/16	3.230			
NRG2*AzA*2	3/16	3.104			
NRG2*AzC*5	3/16	3.795			
NRG2*AzC*3	3/16	3.691			
NRG2*AzC*1	3/16	3.445			
NRG2*AzA*12	3/16	5.723			
NRG2*AzA*10	3/16	2.906			
NRG2*AzG*3	3/16	4.261			
NRG2*AzC*2	3/16	3.384			
NRG2*AzA*3	3/16	2.788			
NRG2*AzA*11	3/16	3.102			
NRG2*AzA*9	3/16	3.613			
NRG2*AzA*8	3/16	2.657			
NRG2*AzA*5	3/16	3.139			
NRG2*AzG*4	3/16	3.727			
NRG2*AzG*2	3/16	4.100			

4/25/94

4/26/94

Continued on page: _____

TEST = AquaLab

Initial Notes:

Investigators: Gregory James YR: 1994 Kristi Meyer KM 2/18

Sample ID	Date	~~Initial Weight(g)~~ Weight in Air	~~Final Weight(g)~~ Weight in Water	Activity	T(C)
NRG2*AzA*9	2/18		2.002		
NRG2*AzA*3	2/18		1.543		
NRG2*AzA*12	2/18		3.149		
NRG2*AzC*4	2/18		2.066		
NRG2*AzG*3	2/18		2.353		
NRG2*AzC*1	2/18		1.915		
NRG2*AzA*8	2/18		1.474		
NRG2*AzA*11	2/18		1.716		
NRG2*AzA*1	2/18		1.807		
NRG2*AzA*4	2/18		1.874		
NRG2*AzG*2	2/18		2.269		
NRG2*AzA*6	2/18		1.786		
NRG2*AzC*5	2/18		2.110		
NRG2*AzA*7	2/18		1.909		
NRG2*AzA*10	2/18		1.611		
NRG2*AzA*2	2/18		1.706		
NRG2*AzG*4	2/18		2.062		
NRG2*AzG*1	2/18		1.675		
NRG2*AzC*3	2/18		2.031		
NRG2*AzC*2	2/18		1.866		
NRG2*AzA*5	2/18		1.752		

4/25/94

4/25/94

TEST = AquaLab

Initial Notes:

Investigators: GREGORY JAMES: JJ KM 2/18 YR: 1994

Sample ID	Date	~~Initial Weight(g)~~ Weight in Air	Final Weight(g) Weight in Water	Activity	T(C)
NRG3*AzB*13	2/18		2.171		
NRG3*AzB*15	2/18		1.979		
NRG3*AzB*6	2/18		2.417		
NRG3*AzC*11	2/18		2.683		
NRG3*AzC*12	2/18		2.170		
NRG3*AzC*1	2/18		2.379		
NRG3*AzB*3	2/18		2.360		
NRG3*AzC*13	2/18		3.344		
NRG3*AzC*4	2/18		2.659		
NRG3*AzC*6	2/18		3.240		
NRG3*AzB*4	2/18		2.125		
NRG3*AzB*11	2/18		3.053		
NRG3*AzC*8	2/18		2.570		
NRG3*AzB*9	2/18		2.186		
NRG3*AzC*7	2/18		2.597		
NRG3*AzB*7	2/18		1.834		
NRG3*AzC*5	2/18		2.468		
NRG3*AzB*16	2/18		3.221		
NRG3*AzB*1	2/18		2.377		
NRG3*AzC*10	2/18		2.484		
NRG3*AzC*9	2/18		2.604		
NRG3*AzB*14	2/18		2.092		
NRG3*AzB*8	2/18		2.163		
NRG3*AzB*10	2/18		2.214		
NRG3*AzC*2	2/18		2.178		
NRG3*AzB*2	2/18		2.403		
NRG3*AzB*12	2/18		2.074		
NRG3*AzB*5	2/18		1.934		
NRG3*AzC*3	2/18		3.065		

4/25/94

Continued on page:

TEST = AquaLab

Initial Notes:

Investigators: GREGORY JAMES: JJ YR: 1994

Sample ID	Date	~~Initial Weight(g)~~ Weight in Air	~~Final Weight(g)~~ Weight in Water	Activity	T(C)
NRG4*AzE*3	2/18		2.236		
NRG4*AzC*7	2/18		2.052		
NRG4*AzF*3	2/18	4/25	2.233	4/25	
NRG4*AzE*4	2/18		1.947		
NRG4*AzC*2	2/18		2.443		
NRG4*AzC*5	2/18	3.362	1.988	.993	26.5
NRG4*AzC*10	2/18	4/25	2.132		
NRG4*AzF*5	2/18	3.539	2.090	.995	26.7
NRG4*AzF*1	2/18		2.799		
NRG4*AzF*13	2/18		2.516		
NRG4*AzC*11	2/18	4/25	3.263		
NRG4*AzC*1	2/18		2.371	4/25/94	
NRG4*AzE*1	2/18	4/25	1.867		
NRG4*AzC*8	2/18		2.037		
NRG4*AzF*2	2/18	4.901	2.426	.994	26.2
NRG4*AzF*10	2/18	4/25	2.543		
NRG4*AzC*3	2/18	3.546	2.101	.994	26.8
NRG4*AzF*9	2/18		2.325		
NRG4*AzC*9	2/18	4/25	2.104	4/25	
NRG4*AzF*4	2/18		1.999		
NRG4*AzC*4	2/18	3.645	2.158	.996	25.8
NRG4*AzF*16	2/18	3.670	2.175	.992	26.7
NRG4*AzF*11	2/18	3.797	2.253	.991	26.5
NRG4*AzE*2	2/18	3.439	2.029	.990	26.8
NRG4*AzF*8	2/18	4.458	2.645	.992	26.0
NRG4*AzF*12	2/18	4.461	2.642	.994	26.3
NRG4*AzF*7	2/18	4/25	2.350	4/25	
NRG4*AzC*16	2/18		2.410		

4/25/94

Continued on page:

JJ 4/25/94

TEST = AquaLab

Initial Notes: _____

Investigators: Kim

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4*AzC*2	2/21	4.130	4.125	0.995	23.2
NRG4*AzC*11	2-21	5.629	5.624	0.994	23.3
NRG4*AzF*13	2-21	4.269	4.265	0.993	23.9
NRG4*AzE*5	2-21	3.777 3.569 3.566	3.773	0.994	24.8
NRG4*AzC*9	2-21	3.569 3.566	3.566	0.995	25.0
NRG4*AzC*7	2-21	3.470	3.467	0.996	25.8
NRG4*AzF*9	2/21	3.928	3.924	0.996	26.0
NRG4*AzF*3	2/21	3.769	3.768	0.997	26.1
NRG4*AzE*4	2/21	3.339	3.335	0.994	26.3
NRG4*AzC*6	2/21	4.078	4.076	0.996	26.3
NRG4*AzF*10	2/21	4.297	4.293	0.995	26.3
NRG4*AzC*1	2/21	4.008	4.004	0.996	26.6
NRG4*AzE*1	2/21	3.156g	3.178	0.996	26.7
NRG4*AzC*10	2/21	3.605	3.601	.994	26.8
NRG4*AzC*8	2/21	3.448	3.443	.994	27.1
NRG4*AzF*7	2/21	3.975	3.973	.993	27.0
NRG4*AzF*4	2/21	3.376	3.372	.993	27.1
NRG4*AzF*1	2/21	4.835	4.828	.989	27.1
NRG4*AzF*9	2/25	3.893	3.890	0.995	24.8

2/25/94

Continued on page: _____

TEST = AquaLab

Notes: ① Initial Saturated weights and activities

Investigators:

4/22/94

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG5*AN*1	4/18	4.051	4.046	.994	25.8
NRG5*AN*2	4/18	4.485	4.481	.997	25.9
NRG5*AN*3	4/18	4.135	4.131	.995	26.1
NRG5*AN*4	4/18	3.841	3.837	.988	26.1
NRG5*AN*5	4/18	4.151	4.148	.995	26.2
NRG5*AN*6	4/18	4.088	4.084	.997	26.3
NRG5*AN*7	4/18	3.926	3.923	.992	26.3
NRG5*AN*8	4/18	2.455	2.453	.996	26.3
NRG5*AN*9	4/18	3.492	3.489	.997	26.3
NRG5*AN*1	4/20	4.014	4.011	.991	25.3
NRG5*AN*2	4/20	4.451	4.450	.990	25.4
NRG5*AN*3	4/20	4.106	4.100	.995	25.5
NRG5*AN*4	4/20	3.809	3.808	.990	25.5
NRG5*AN*5	4/20	4.127	4.125	.995	25.6
NRG5*AN*6	4/20	4.062	4.057	.993	25.6
NRG5*AN*7	4/20	3.896	3.892	.994	25.7
NRG5*AN*8	4/20	2.430	2.428	.990	25.7
NRG5*AN*9	4/20	3.467	3.467	.992	25.7
NRG5*AN*1	4/21	3.833	3.832	.975 .959	25.9
NRG5*AN*2	4/21	4.274	4.272	.977	26.0
NRG5*AN*3	4/21	3.932	3.932	.977	26.1
NRG5*AN*4	4/21	3.662	3.660	.976	26.2
NRG5*AN*5	4/21	3.935	3.934	.971	26.2
NRG5*AN*6	4/21	3.900	3.897	.977	26.2
NRG5*AN*7	4/21	3.722	3.720	.972	26.2
NRG5*AN*8	4/21	2.304	2.303	.955	26.3
NRG5*AN*9	4/21	3.310	3.307	.976	26.4

4/21/94

Continued on page: 189

KM

TEST = Ksat

Sample ID: NRG4 *C7*2 Date: 3/28

Investigators: KM

Notes:

Start time: 6:25	Date: 3/28/94	Stop time: 1:15	Date: 3/29/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	96.2	Confining	2.3	3.6
Inflow	70.6	Inflow	5.2	5.5
Outflow	11.0	Outflow	21.6	21.6

Change in Fluid level(ml)

Confining: -1.3 Inflow: -0.3 Outflow: 0.0

Start time:	Date: 3/31/94	Stop time: 2:16	Date: 4/1/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	100.2	Confining	13.5	13.7
Inflow	80.4	Inflow	11.9	12.2
Outflow	3.5	Outflow	15.3	15.0

Change in Fluid level(ml)

Confining: -0.2 Inflow: +0.3 Outflow: +0.3

Start time: 3:50	Date: 4/1/94	Stop time: 11:10	Date: 4/4/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	100.1	Confining		
Inflow	80.4	Inflow	12.25	13.1
Outflow	10.1	Outflow	15.2	14.6

Change in Fluid level(ml)

Confining: 0.0 Inflow: -0.85 Outflow: +0.6

Start time: 12:52	Date: 3/31/94	Stop time: 2:16	Date: 4/1/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	100.6	Confining	14.2	13.6
Inflow	91.9	Inflow	7.0	11.9
Outflow	3.7	Outflow	20.0	15.4

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Continued on page: ———

TEST = Ksat

Sample ID: Plexiglass Date: 3/18/94

Investigators: KM

Initial Notes: Test to be sure there are no leaks in fittings.

KM

DP* 50	Date: 3/18/94	Start time: 2:30pm	Stop Time: 2:40
Pressures		Fluid Levels	

	Inital	Final		Inital	Final
Confining	88.1		Confining	11.0	11.4
Inflow	60.4		Inflow	5.0	4.7
Outflow	9.3		Outflow	6.2	6.2

Change in Fluid level

Confining: Inflow: Outflow:

DP: X 50	Date: 3/18/94	Start time: 3:38	Stop Time: 4:38
Pressures	3/21	Fluid Levels	

	Inital	Final		Inital	Final
Confining	88.1	87.9	Confining	13.8	15.9
Inflow	60.4	60.5	Inflow	4.6	4.5
Outflow	9.3	9.3	Outflow	5.8	5.7

Change in Fluid level

Confining: Inflow: Outflow:

DP: X 80	Date: 3/18/94	Start time: 5:00	Stop Time: 6:30
Pressures		Fluid Levels	

	Inital	Final		Inital	Final
Confining	85.2	85.3	Confining	10.2	10.3
Inflow	80.0	80.0	Inflow	4.5	4.5
Outflow	1.3	1.3	Outflow	15.4	15.4

Change in Fluid level

Confining: Inflow: Outflow:

DP:	Date:	Start time:	Stop Time:
Pressures		Fluid Levels	

	Inital	Final		Inital	Final
Confining			Confining		
Inflow			Inflow		
Outflow			Outflow		

KM 3/18

Change in Fluid level

Confining: Inflow: Outflow:

Continued on page: ———

TEST = Ksat

Sample ID: NRG4*BZ*3 Date: 3/29/94

Investigators: Km

Notes:

Start time: 1:48	Date: 3/29/94	Stop time: 12:44	Date: 3/30/94	
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	100.5	Confining	14.0	14.2
Inflow	90.0	Inflow	12.1	15.85
Outflow	0.0	Outflow	11.9	8.3
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		

Start time: 4:35	Date: 3/31/94	Stop time: 2:16	Date: 4/1/94	
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	100.2	Confining	13.5	13.7
Inflow	80	Inflow	6.3	6.7
Outflow	10	Outflow	19.8	19.4
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		

Start time: 2:50	Date: 4/1/94	Stop time: 11:10	Date: 4/4/94	
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	100.1	Confining	13.7	13.7
Inflow	80	Inflow	6.7	8.1
Outflow	20	Outflow	19.5	18.4
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		

Start time: 11:10	Date: 4/4/94	Stop time: 12:16	Date: 4/5/94	
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	100.1	Confining	13.9	14.0
Inflow	80.0	Inflow	8.1	8.6
Outflow	20.0	Outflow	18.4	18.1
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		

Continued on page: _____

TEST = 15 BAR

Km 3/20/94 SATURATED Samples for use in 15 bar extractor

Km 3/22/94 Set up 15 bar extractor per manuf. specifications using 15 bar plate. Set PN = 10psi

Km 3/25/94

at 10 psi

NRG1*BX*1	27.029g
NRG1*ByX*1	27.919g
NRG1*BZ*1	30.640g
SB*1	131.73g
NRG5*ByX*3	29.835g
NRG5*ByX*2	64.364g
NRG5*BZ*5	28.992g
NRG5*ByX*1	56.841g

left PN at 10psi

Km 3/28/94

NRG1*BZ*1	30.624g
SB*1	131.41g
NRG1*ByX*1	27.888g
NRG1*BZ*1	30.624g
NRG1*BX*1	27.006g
NRG5*ByX*1	56.817g
NRG5*BZ5*	28.975g
NRG5*ByX*2	64.337g
NRG5*ByX*3	28.814g

left PN at 10psi

Km 4/4/94

Nitrogen tank ran out. Replaced tank set PN = 20 psi

Km 4/19/94

SB*1	130.76g
NRG5*ByX*3	29.813g
NRG5*ByX*2	64.340
NRG5*BZ5	28.968
NRG5*ByX*1	56.797

From 183

KM 4/19/94

NRG1 * BX * 1 26.978
NRG1 * BYX * 1 27.854
NRG1 * BZ * 1 30.596

set PN = 30 psi

KM 5/12/94 PN = 30 psi

SB * 1 129.86
NRG1 * BZ * 1 30.498
NRG 5 * BYX * 3 29.782
NRG 5 * BYX * 2 64.261
NRG 5 * BZ * 5 28.925
NRG5 * BYX * 1 56.740
NRG 1 * BX * 1 26.849
NRG 1 * BYX * 1 27.750
Set PN = 40 psi

KM 5/18/94 PN = 40 psi

SB * 1 129.63
NRG1 * BZ * 1 30.302
NRG1 * BYX * 1 27.648
NRG1 * BX * 1 26.718
NRG5 * BYX * 1 56.677
NRG5 * BZ * 5 28.881
NRG 5 * BYX * 2 64.171
NRG5 * BYX * 3 29.726
set PN = 50 psi

cont. PS 184

KM 4/28/94 Measurement of Vacuum pulled for Saturation.

2:50 pm Connected digital manometer to hermetically sealed vessel and turned pump on.

3:50 pm Pulled 11.42 psi. Noted that the pump had reached maximum suction. ENDED TEST.

5/4/94 Saturated weights.

Sample I.d.	Sat (in Air) wt. (g)	Sat (in water) wt (g)
NRG2*Bx4*3	74.525	41.369
NRG1*Cx4*1	78.547	42.260
NRG1*C4x*1	77.328	41.647
NRG2*Cz*2	78.779	43.644
NRG3*Cz*2	84.86	49.390

Km 5/17/94 SATURATED weights

Sample	Sat (in Air) wt. (g)
NRG1*AzA*6	3.199
NRG1*AzF*7	4.254
NRG1*AzD*3	2.721
NRG1*AzD*4	2.831
NRG1*AzD*9	3.014
NRG1*AzF*2	4.340
NRG1*AzF*3	4.369
NRG1*AzF*4	3.981
NRG1*AzF*5	4.231
NRG1*AzF*6	4.066

Km 5/20/94 Dry Wts + SAT WTS

Sample	Wt dry (g)
NRG5*AN*1	3.682
*2	4.088
*3	3.775
*4	3.511
*5	3.790
*6	3.724
*7	3.573
*8	2.241
*9	3.175

Km 5/23/94 SATURATED Weights

Sample	Wt SAT (g)
NRG5*AN*1	4.047
*2	4.472 5/23/94 Km 4.474
*3	4.128
*4	3.834
*5	4.143
*6	4.087
*7	3.922
*8	2.454
*9	3.486

From 184

Km 5/26 PN=51 psi = 3.5163 bar (1cm 6/1)

NRG1 * Bx * 1	26.454
NRG1 * ByX * 1	27.403
NRG1 * Bz * 1	29.937
SB * 1	129.36
NRG5 * ByX * 3	29.670
NRG5 * ByX * 2	64.050
NRG5 * Bz * 5	28.814
NRG5 * ByX * 1	56.571

set PN = 70 psi

Km 6/1 PN = 69.5 psi = ~~4.8263 bar~~ (1cm 6/1) = 4.7918 bar

NRG1 * Bx * 1 =	26.289
NRG1 * ByX * 1 =	27.232
NRG1 * Bz * 1 =	29.720
SB * 1 =	129.21
NRG5 * ByX * 3 =	29.630
NRG5 * ByX * 2 =	63.959
NRG5 * Bz * 5 =	28.773
NRG5 * ByX * 1 =	56.508

set PN = 90 psi

Km 6/6/94 PN = 90 psi

NRG1 * Bx * 1	26.169
NRG1 * ByX * 1	27.096
NRG1 * Bz * 1	29.580
SB * 1	129.11
NRG5 * ByX * 3	29.596
NRG5 * ByX * 2	63.894
NRG5 * Bz * 5	28.743
NRG5 * ByX * 1	56.453

TEST = AquaLab

Notes: _____

Investigators: _____ YR: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG5 * AN * 1	4/22	3.782	3.780	.951	26.5
NRG5 * AN * 2	4/22	4.210	4.207	.959	26.5
NRG5 * AN * 3	4/22	3.877	3.875	.954	26.6
NRG5 * AN * 4	4/22	3.605	3.605	.949	26.5
NRG5 * AN * 5	4/22	3.891	3.890	.949	26.6
NRG5 * AN * 6	4/22	3.842	3.839	.962	26.6
NRG5 * AN * 7	4/22	3.6666	3.6665	.949	26.6
NRG5 * AN * 8	4/22	2.277	2.277	.886	26.5
NRG5 * AN * 9	4/22	3.254	3.253	.943	26.7
NRG5 * AN * 1	4/25	3.738	3.7316	.855	26.2
NRG5 * AN * 2	4/25	4.171	4.170	.932	26.2
NRG5 * AN * 3	4/25	3.835	3.835	.900	26.2
NRG5 * AN * 4	4/25	3.570	3.568	.898	26.2
NRG5 * AN * 5	4/25	3.855	3.854	.904	26.3
NRG5 * AN * 6	4/25	3.798	3.7916	.924	26.3
NRG5 * AN * 7	4/25	3.630	3.627	.892	26.4
NRG5 * AN * 8	4/25	2.259	2.259	.593	26.3
NRG5 * AN * 9	4/25	3.217	3.216	.846	26.3
NRG5 * AN * 1	4/27	3.725	3.722	.741	26.3
NRG5 * AN * 2	4/27	4.150	4.148	.877	26.3
NRG5 * AN * 3	4/27	3.813	3.813	.739	26.2
NRG5 * AN * 4	4/27	3.552	3.552	.783	26.3
NRG5 * AN * 5	4/27	3.836	3.834	.805	26.3
NRG5 * AN * 6	4/27	3.775	3.774	.856	26.3
NRG5 * AN * 7	4/27	3.610	3.610	.703	26.2
NRG5 * AN * 8	4/27	2.257	2.257	.550	26.2
NRG5 * AN * 9	4/27	3.204	3.204 4/27/94	.715	26.3

Continued on page: 190

TEST = AquaLab

Notes: _____

Investigators: _____ YR: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG5*AN*1	4/28	3.717	3.716	.642	25.5
NRG5*AN*2	4/28	4.133	4.133	.778	25.6
NRG5*AN*3	4/28	3.808	3.808	.645	25.6
NRG5*AN*4	4/28	3.547	3.546	.696	25.7
NRG5*AN*5	4/28	3.826	3.826	.687	25.8
NRG5*AN*6	4/28	3.766	3.764	.763	25.9
NRG5*AN*7	4/28	3.605	3.604	.637	26.0
NRG5*AN*8	4/28	2.257	2.257	.479	25.9
NRG5*AN*9	4/28	3.199	3.199	.609	26.0
NRG5*AN*1	4/29	3.715	3.713	.546	26.3
NRG5*AN*2	4/29	4.125	4.124	.679	26.5
NRG5*AN*3	4/29	3.802	3.802	.556	26.9
NRG5*AN*4	4/29	3.540	3.540	.580	27.3
NRG5*AN*5	4/29	3.821	3.821	.607	27.5
NRG5*AN*6	4/29	3.758	3.758	.668	27.9
NRG5*AN*7	4/29	3.601	3.601	.561	28.0
NRG5*AN*8	4/29	2.256	2.255	.480	28.5
NRG5*AN*9	4/29	3.198	3.196	.541	28.7
NRG5*AN*1	5/2	3.711	3.711	.520	25.3
NRG5*AN*2	5/2	4.120	4.120	.594	25.3
NRG5*AN*3	5/2	3.801	3.801	.518 5/14 .518 5/12/94	25.4
NRG5*AN*4	5/2	3.539	3.539	.531	25.5
NRG5*AN*5	5/2	3.818	3.818	.534	25.6
NRG5*AN*6	5/2	3.755	3.754	.593	25.5
NRG5*AN*7	5/2	3.599	3.599	.522	25.6
NRG5*AN*8	5/2	2.256	2.255	.473	25.7
NRG5*AN*9	5/2	3.196	3.196	.492	25.7

Continued on page: 191

TEST = AquaLab

Notes: _____

Investigators: _____ YR: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG5*AN*1	5/4	3.703	3.701	.401	26.1
NRG5*AN*2	5/4	4.111	4.111	.470	26.1
NRG5*AN*3	5/4	3.792	3.792	.417	26.2
NRG5*AN*4	5/4	3.531	3.531	.450	26.2
NRG5*AN*5	5/4	3.810	3.809	.442	26.3
NRG5*AN*6	5/4	3.741	3.741	.389	26.3
NRG5*AN*7	5/4	3.591	3.591	.437	26.4
NRG5*AN*8	5/4	2.252	2.252	.384	26.4
NRG5*AN*9	5/4	3.188	3.188	.409	26.5
D_2H_2O	5/5	NA	NA	1.000	23.8
NaCl	5/5	NA	NA	.755	23.8
NRG5*AN*1	5/5	3.699	3.699	.352	24.8
NRG5*AN*2	5/5	4.107	4.107	.435	25.3
NRG5*AN*3	5/5	3.788	3.788	.327	25.4
NRG5*AN*4	5/5	3.524	3.523	.291	25.9
NRG5*AN*5	5/5	3.804	3.804	.323	24.0
NRG5*AN*6	5/5	3.735	3.735	.235	26.1
NRG5*AN*7	5/5	3.587	3.586	.311	26.2
NRG5*AN*8	5/5	2.251	2.250	.321	25.9
NRG5*AN*9	5/5	3.186	3.186	.324	26.1
D_2H_2O	5/6	NA	NA	.999	24.4
NaCl	5/6	NA	NA	.756	24.8
NRG5*AN*1	5/6	3.699	3.699	.367	25.6
NRG5*AN*2	5/6	4.102	4.102	.326	26.0
NRG5*AN*3	5/6	3.785	3.785	.246	24.3
NRG5*AN*4	5/6	3.526	3.526	.351	26.6
NRG5*AN*5	5/6	3.803	3.803	.277	26.7
NRG5*AN*6	5/6	3.738	3.738	.359	24.8
NRG5*AN*7	5/6	3.587	3.587	.360	26.9
NRG5*AN*8	5/6	2.251	2.251	.368	27.0
NRG5*AN*9	5/6	3.186	3.186	.307	27.1

Continued on page: _____

NRG5 *Bz*4 TEST = Ksat

Sample ID: NRG5*Bz*4 run 5h Date: 5/3/94

Investigators: VM

Notes: used stopwatch for total time.

Start time: 0.0	Date: 5/3/94	Stop time: 1hr. 7min	Date: 5/3/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	90.1	Confining	3.4	3.7
Inflow	20.2	Inflow	5.4	5.85
Outflow	10.0	Outflow	18.5	18.00

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 0.0	Date: 5/3/94	Stop time: 1hr 13m 9sec	Date: 5/3/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	90.1	Confining	3-7	3-7
Inflow	30.1	Inflow	5.9	7.4
Outflow	9.9	Outflow	18.0	17.1

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 0.0	Date: 5/5/94	Stop time: 60min	Date: 5/5/94
DP: 30 (psig)	DT: ~~5/5/94~~ (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	90.1	Confining	11.0 ~~1.5~~ 5/6/94	11.7
Inflow	46.1	Inflow	3.3 ~~2.7~~ 5/5/94	4.5
Outflow	10.1	Outflow	21.6 ~~2.1~~ 5/5/94	20.5

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 0.0	Date: 5/5/94	Stop time: 60min	Date: 5/5/94
DP: 40 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	90.0	Confining	11.9 ~~4.0~~ 5/6/94	11.9
Inflow	~~5/6/94 40.0~~ 5/5/94 50.0	Inflow	4.87 5/5/94	6.3
Outflow	10.0	Outflow	20.4	18.8

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Continued on page: _____

TEST = Ksat

Sample ID: NRG5*Bz*4 Date:

Investigators:

Notes: Used stopwatch for elapsed time

Start time: 0.0	Date: 5/6/94	Stop time: 1:06 hr	Date: 5/6/94
DP: 50 (psig)	DT: 66 min (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	90.0	Confining	10.7	10.7
Inflow	60.0	Inflow	3.6	5.8
Outflow	10.0	Outflow	21.7	19.5

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 0.0	Date: 5/6/94	Stop time: 1:00 hr	Date: 5/6/94
DP: 60 (psig)	DT: 360 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	90.0	Confining	11.6	11.6
Inflow	70.0	Inflow	6.0	8.7
Outflow	10.0	Outflow	19.5	16.9

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 0.0	Date: 5/6/94	Stop time: 1:06 hr	Date: 5/6/94
DP: 70 (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	90.0	Confining	11.7	11.6
Inflow	80.0	Inflow	8.9	12.1
Outflow	10.0	Outflow	16.8	13.7

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: ~~0.0~~ 5/6/94	Date:	Stop time:	Date:
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

Change in Fluid level(ml)

Confining: Inflow: Outflow:

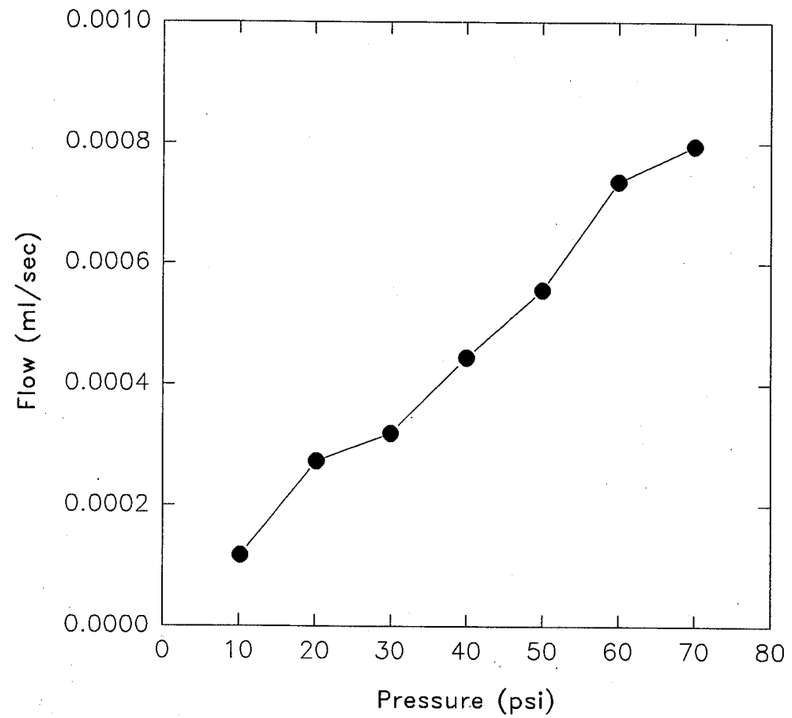
Continued on page: _____

K5BZ4.SP5: Fr

4/9/94

Flow (ml/sec)	Press (psi)
0.000118	10.2
0.000273	20.2
0.000319	30
0.000444	40
0.000556	50
0.000736	60
0.000795	70

NRG5*BZ*4



TEST = Ksat

Sample ID: NRG5 * BN * 2 Date: 4/14/94

Investigators: RM

Notes:

5:08

Start time: 4:57 Date: 4/14/94 Stop time: 6:46 Date:

DP: 4.9 (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	80.4	Confining	10.0	—
Inflow	20.2	Inflow	4.1	4.6
Outflow	10.3	Outflow	14.75	14.25

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 2:01 Date: 4/15/94 Stop time: 2:43 Date: 4/15/94

DP: 20.3 (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	80.9	Confining	6.2	7.1
Inflow	30.8	Inflow	4.1	5.1
Outflow	10.5	Outflow	14.2	13.2

Change in Fluid level(ml)

Confining: Inflow: Outflow:

RM

Start time: 2:45 Date: 4/15/94 Stop time: 4:22 Date: 4/16/94

DP: 29.7 (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	80.7	Confining	7.2	
Inflow	40.1	Inflow	5.7	9.0
Outflow	10.4	Outflow	13.2	10.1

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 4:38 Date: 4/15/94 Stop time: 5:36 Date: 4/15/94

DP: 40.2 (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	80.7	Confining	7.3	
Inflow	50.5	Inflow	9.5	11.6
Outflow	10.3	Outflow	9.6	7.6

Change in Fluid level(ml)

Confining: Inflow: Outflow:

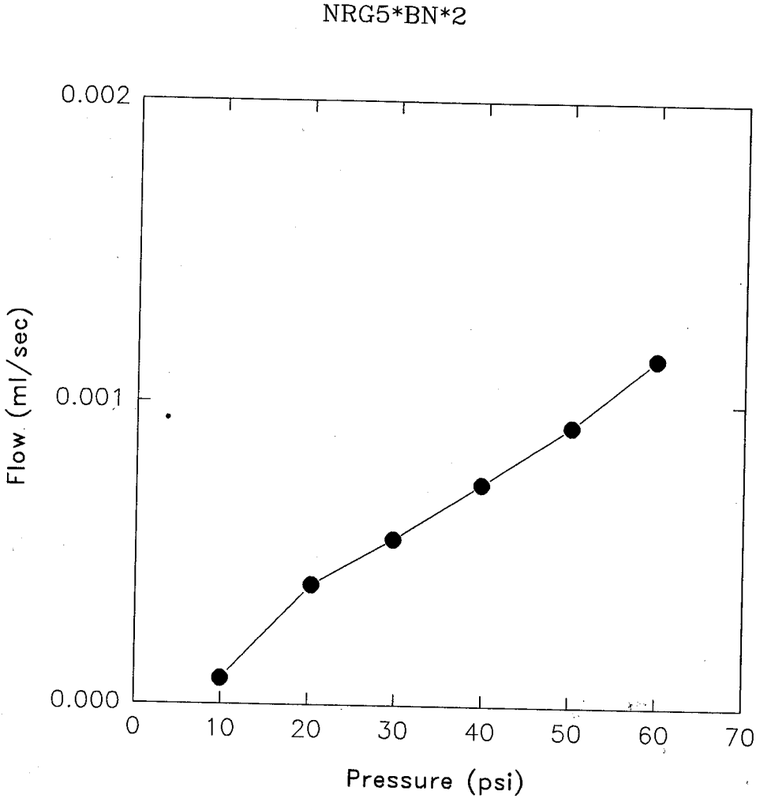
Continued on page: _____

Sample ID: NRG5*BN*2 TEST = Ksat			Continued on pg:	
Start time: 2:16 Date: 4/19/94		Stop time: 3:03 Date: 4/19/94		
DP: 49.7 (psig) DT: (sec)		Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	80.6	Confining	15.4	15.3
Inflow	60.0	Inflow	11.8	14.4
Outflow	10.3	Outflow	7.6	4.9
Change in Fluid level(ml)				
Confining:		Inflow:	Outflow:	
Start time: 3:05 Date: 4/19/94		Stop time: 4:46 Date: 4/19/94		
DP: 59.8 (psig) DT: (sec)		Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	80.1	Confining	15.3	15.3
Inflow	70.1	Inflow	4.0	10.9
Outflow	10.3	Outflow	20.0	13.0
Change in Fluid level(ml)				
Confining:		Inflow:	Outflow:	
Start time: 2:28 Date: 4/22/94		Stop time: 4:07 Date: 4/22/94		
DP: (psig) DT: (sec)		Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	80.8	Confining	16.3	16.0
Inflow	60.4	Inflow	2.7	8.2
Outflow	10.3	Outflow	16.3	10.8
Change in Fluid level(ml)				
Confining:		Inflow:	Outflow:	
Start time: 3:06 Date: 4/25/94		Stop time: 4:47 Date: 4/25/94		
DP: (psig) DT: (sec)		Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	80.1	Confining	17.3	
Inflow	50.1	Inflow	8.1	12.5
Outflow	10.3	Outflow	20.1	15.6
Change in Fluid level(ml)				
Confining:		Inflow:	Outflow:	
Start time: 1:57 Date: 5/2/94		Stop time: Date:		
DP: (psig) DT: (sec)		Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	89.4	Confining	11.9	12.0
Inflow	58.5	Inflow	11.3	13.5
Outflow	8.9	Outflow	15.6	13.4
Change in Fluid level(ml)				
Confining:		Inflow:	Outflow:	

8/9/94

K5BN2.SP5:

Flow (ml/sec)	Press (psi)
8.5e-005	9.9
0.000397	20.3
0.00055	29.7
0.000734	39.8
0.000926	50.1
0.00115	59.8



TEST = Ksat

Sample ID: NRGS * BN * 1 Date: _____

Investigators: _____

Notes: _____

4/14/94 5:08

Start time: ~~4:59~~ 5:08	Date: 4/14/94	Stop time: 5:45	Date: 4/14/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	80.4	Confining	10.0	—
Inflow	20.0	Inflow	2.3	2.7
Outflow	10.0	Outflow	20.7	20.3

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 2:02	Date: 4/15/94	Stop time: 2:43	Date: 4/15/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	80.9	Confining	6.3	7.1
Inflow	30.0	Inflow	2.2	3.5
Outflow	10.0	Outflow	20.3	19.6

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 2:46	Date: 4/15/94	Stop time: 4:35	Date: 4/15/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	80.7	Confining	7.2	—
Inflow	40	Inflow	3.6	6.7
Outflow	10	Outflow	19.5	16.4

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 4:36	Date: 4/15/94	Stop time: 5:37	Date: 4/15/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	80.6	Confining	7.2	
Inflow	50	Inflow	6.8	8.7
Outflow	10	Outflow	16.4	14.5

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Continued on page: _____

Sample ID: NRGS * BN * 1 TEST = Ksat Continued on pg:

Start time: 2:08	Date: 4/19/94	Stop time: 4:37	Date: 4/19/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	80.1	Confining	15.5	15.3
Inflow	60.0	Inflow	4.7	9.5
Outflow	10.0	Outflow	20.9	16.1

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 2:08	Date: 4/22/94	Stop time: 2:52	Date: 4/22/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	80.8	Confining	16.3	16.3
Inflow	70.0	Inflow	5.4	8.6
Outflow	10.0	Outflow	21.7	18.5

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 2:08	Date: 4/22/94	Stop time: 4:08	Date: 4/22/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining		Confining	16.3	16.0
Inflow	10m 75	Inflow	5.4	13.8
Outflow	5/2/94 ~~5~~	Outflow	21.7	13.3

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 1:59	Date: 5/2/94	Stop time: 4:38	Date: 5/2/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	89.4	Confining	12.0	
Inflow	75	Inflow	6.2	16.5
Outflow	5.0	Outflow	17.9	7.7

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time:	Date:	Stop time:	Date:
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

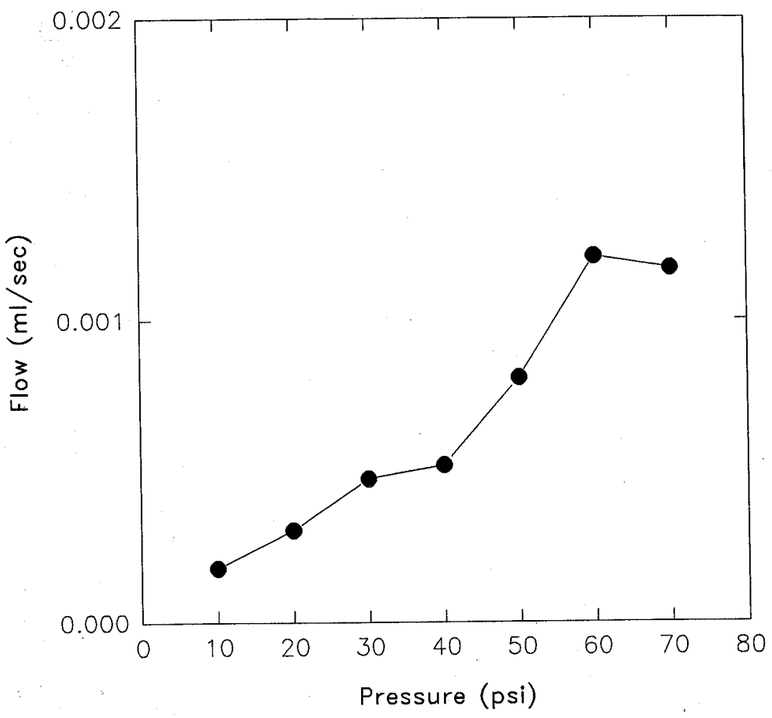
Change in Fluid level(ml)

Confining: Inflow: Outflow:

K5BN1.SP5:

Flow (ml/sec)	Press (psi)
0.00018	10
0.000305	20
0.000474	30
0.000519	40
0.000808	50
0.00121	60
0.00117	70

NRG5*BN*1



TEST = Ksat

Sample ID: NRG3*BY*6 Date: 5/20/94

Investigators: Kmeyer

Notes: * Outflow vented, not pressurized to 5.0 psi

Start time: 2:44 Date: 5/20/94 Stop time: 9:30am Date: 5/23/94

DP: (psig)	DT: (sec)		Fluid Levels(ml)	
Set Pressure(psig)			Inital	Final
Confining	103.4	Confining	1.6	
Inflow	94.8	Inflow	3.6	5.9
Outflow	4.0	Outflow	19.3	17.4

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 1:49 Date: 5/24/94 Stop time: 10:45am Date: 5/25/94

DP: (psig)	DT: (sec)		Fluid Levels(ml)	
Set Pressure(psig)			Inital	Final
Confining	101.9	Confining	1.8	4.7
Inflow	94.4	Inflow	6.7	7.3
Outflow	10.0	Outflow	20.5	19.9

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 10:47 Date: 5/25/94 Stop time: 11:40 Date: 5/26/94

DP: (psig)	DT: (sec)		Fluid Levels(ml)	
Set Pressure(psig)			Inital	Final
Confining	104.8	Confining	4.8	4.9
Inflow	96.1	Inflow	7.3	7.9 *
Outflow	5.0	Outflow	19.9	19.4

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 10:11:46 Date: 5/26/94 Stop time: 5:32 Date: 5/30/94

DP: (psig)	DT: (sec)		Fluid Levels(ml)	
Set Pressure(psig)			Inital	Final
Confining	4.9	Confining	5.0	2.7
Inflow	80.6	Inflow	7.8	8.7
Outflow	4.9	Outflow	19.4 19.5	18.9

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Continued on page: 209

RM 6/3/94

Sample	Dry Wt (6/3/94)	Sat Wt (6/6/94)
NRG4*BZ*2	17.951	18.470
NRG4*BXY*1	15.690	16.312
NRG4*BYX*2	12.669	13.145
NRG4*BXY*2	17.842	18.479
NRG4*BZ*1	21.983	22.872
NRG4*BXY*3	26.557	27.439
NRG1*AZF*6	3.583	4.065
NRG1*AZD*4	2.477	2.830
NRG1*AZD*3	2.385	2.718
NRG1*AZF*7	3.741	4.251
NRG1*AZF*2	3.816	4.342
NRG1*AZA*6	2.805	3.195
NRG1*AZF*5	3.720	4.231
NRG1*AZF*3	3.841	4.368
NRG3*AZB*8	3.561	3.734
NRG3*AZD*12	3.313	3.404
NRG3*AZB*15	3.313	3.394
NRG3*AZB*16	5.468	5.558
NRG3*AZE*1	5.590	5.713
NRG3*AZC*13	5.563	5.741
NRG3*AZD*8	4.033	4.149
NRG3*AZC*11	4.495	4.620
NRG3*AZC*7	4.324	4.448
NRG3*AZB*1	3.936	4.068
NRG3*AZD*14	3.563	3.674
NRG3*AZD*13	3.134	3.218
NRG3*AZC*9	4.343	4.476
NRG3*AZD*18	3.607	3.703
NRG3*AZB*3	3.789	3.886
NRG3*AZC*8	4.254	4.418
NRG3*AZB*11	3.383	3.517
NRG3*AZC*12	3.623	3.726
NRG3*AZB*10	3.647	3.795

NRG3*AZB*12	3.435	3.549 ~~2.599~~ g.w. 6/6/94
NRG3*AZD*7	2.498	~~2.978~~
NRG3*AZB*5	3.195	3.310
NRG3*AZB*7	3.016	3.141
NRG3*AZB*2	4.043	4.138
NRG3*AZD*9	2.874	2.978
NRG3*AZC*4	4.454	4.576
NRG3*AZC*6	3.767	3.852
NRG3*AZD*17	2.509	2.589
NRG3*AZD*3	3.567	3.685
NRG3*AZC*2	3.618	3.739
NRG3*AZC*1	3.970	4.083
NRG3*AZB*6	3.983	4.148
NRG3*AZB*14	3.482	3.584
NRG3*AZD*1	3.254	3.373
NRG3*AZC*10	4.179	4.281
NRG3*AZD*15	2.357	2.430
NRG3*AZD*6	2.985	3.095
NRG3*AZB*4	3.528	3.649
NRG3*AZC*5	4.151	4.238
NRG3*AZC*3	3.441	3.600
NRG3*AZB*13	3.619	3.711
NRG3*AZB*9	3.595	3.761

RM 6/6/94 Samples put under vacuum.
Saturated samples

6/6/94 KM Remeasurement of NRG1-A2A-7 and NRG1-A2A-8.

Height of samples were switched giving erroneous bulk density, porosity ect..

Coerect heights are ... A2A-7 = 0.61 cm
... A2A-8 = 0.50 cm.

Charted and changed on File NRG1-5.PRN.

KM 6/7/94

NRG1-BX-1
NRG5-BYX-3

6/9/94
6/8/94 JW Using pycnometer, found pressure of reservoir and combined system with and without samples and used that info to find effective porosity.

	w/o sample		w/ sample		volume
Sample	P_r	P	P_r	P	of sample
NRG1-CXY-1	15.00	3.82	15.00	4.15	37.592

P_r = absolute air pressure of reservoir
P_c = atmospheric pressure (drops out of equation)
P = absolute pressure of combined system
V_r = volume of reservoir = 89.816
V_c = volume of air in sample chamber
V_s = volume of sample
η_{eff} = effective porosity

To calculate η_{eff}, the following formulas were used:

$$V_c = (P_r - P)V_r / P$$

~~$\eta_{eff} = V_s - (V_{c\ w/o\ sample})$~~ 6/9/94 J.W.

$$\eta_{eff} = \frac{V_s - (V_{c\ w/o\ sample} - V_{c\ w/\ sample})}{V_s}$$

So the following results were found for NRG1-CXY-1

$V_c = (15.00 - 3.82)(89.816)/3.82$ (w/o sample)
$V_c = 262.86$

$V_{c\ w/\ sample} = (15.00 - 4.15)(89.816)/4.15$
$= $ ~~234.86~~ JW 4/9/94 234.82

$$\eta_{eff} = \frac{37.592 - (262.86 - 234.82)}{37.592}$$

$\eta_{eff} = .25$

All samples' porosity were calculated ~~the~~ 6/9/94 GW using the method described on page 205.

Sample	w/o Sample P_r	w/o Sample P	w/ Sample P_r	w/ Sample P	Volume of Sample	Porosity (%)
NRG1·CXY·1	15.00	3.82	15.00	4.15	37.592	.25
NRG1·CYX·1	14.10	3.59	14.10	3.89	37.133	.27
NRG2·BXY·3	15.40	6.09	15.40	6.90	35.090	.24
NRG2·BYX·2	15.20	6.01	15.20	6.72	29.965	.20
NRG2·CZ·2	14.00	3.57	14.00	3.88	35.758	.21
NRG3·BZ·2	15.40	6.08	15.40	6.18	3.548	-.04
6/9/94 GW ~~NRG3·BXY·3~~						

NRG3·BZ·2 would give a negative porosity. A new volume of the reservoir was found to be 86.63 and new calculations were made.

NRG1·CXY·1	.28
NRG1·CYX·1	.29
NRG2·BXY·3	.27
NRG2·BYX·2	.23
NRG2·CZ·2	.24
NRG3·BZ·2	-.0001

Concluded that NRG3·BZ·2 is too small to obtain an accurate reading.

6/9/94 GW	NRG3·BXY·3	15.90	6.26	15.90	6.79	18.136	.05
	~~NRG3·BZ·2~~	~~15.40~~	~~6.08~~	~~15.40~~			
	NRG3·BYX·1	15.00	5.91	15.00	6.34	15.771	.05
	NRG3·BYX·2	15.50	6.10	15.50	6.54	15.179	.02
6/10/94 GW	NRG4·BZ·3	14.00	5.53	14.00	6.43	31.739	.03
	NRG4·BYX·1	15.20	6.03	15.20	6.15	4.928	.14
	NRG4·BYX·3	14.00	5.53	14.00	5.92	15.771	.08
	NRG4·BYX·4	15.00	5.94	15.00	6.85	32.330	.10
	NRG4·CZ·1	14.20	3.63	14.20	4.45	91.228	.32
6/10/94 GW	NRG4·CZ·2	14.00	3.58	14.00	4.75	67.848	-.23
	~~NRG3~~ NRG4·CZ·3	14.00	3.57	14.00	3.97	35.758	.04

NRG4·CZ·4	15.00	3.82	15.00	4.06	19.713	-.02
NRG5·BYX·1	14.50	5.73	14.50	6.30	24.642	.20
NRG5·BYX·2	14.00	5.54	14.00	6.21	28.190	.16
NRG5·BZ·1	15.00	5.92	15.00	6.19	12.025	.20
NRG5·BZ·2	15.00	5.93	15.00	6.27	14.785	.20
NRG5·BZ·3	16.00	6.31	16.00	6.60	11.828	.18
NRG5·BZ·4	14.50	5.73	14.50	6.26	22.671	.18
NRG5·BZ·5	14.10	5.59	14.10	5.91	12.222	.03
NRG5·BZ·6	15.10	5.97	15.10	6.25	11.828	.17
NRG5·BN·1	15.00	5.93	15.00	6.86	37.653	.21
NRG5·BN·2	14.00	5.51	14.00	6.31	37.456	.25
NRG3·CZ·2	14.00	3.57	14.00	3.93	31.632	.02
NRG3·BYX·4	15.50	6.11	15.50	6.54	4.928	-.07

Sample ID: NRG3 *BYX*6 TEST = Ksat Continued on pg:

Start time: 9:55	Date: 6/1/94	Stop time: ~~11~~ 8:45	Date: 6/2/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	103.7	Confining	12.2	12.4
Inflow	80.2	Inflow	4.9	5.6
Outflow	4.7	Outflow	17.6	17.4

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 8:45	Date: 6/2/94	Stop time: 1:35	Date: 6/3/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	103.5	Confining	12.2	11.7
Inflow	80.2	Inflow	5.6	5.9
Outflow	4.7	Outflow	17.4	17.3

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 8:45	Date: 6/2/94	Stop time: 8:30	Date: 6/6/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	102.7	Confining		12.9
Inflow	80.2	Inflow		6.4
Outflow	4.7	Outflow		16.9

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time:	Date:	Stop time:	Date:
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time:	Date:	Stop time:	Date:
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

Change in Fluid level(ml)

Confining: Inflow: Outflow:

6/15/94

Km 6/10/94 SATURATED samples and 3 bar plate

Km 6/13/94 set Pressure (using in-house air) to ~~8.5~~ "H_2O. 6/16/94 17" H_2O Km
Km 6/13/94

Km 6/16/94	NRG4 * BZ * 2	18.463
	NRG4 * BXY * 3	27.440
	NRG4 * BZ * 1	22.857
	NRG4 * BXY * 1	16.288
	NRG4 * BXY * 2	18.461
	NRG4 * BYX * 2	13.102

set P_g = 24" H_2O
Km set P_S = 42" H_2O Date is 5:25pm on 6/16/94

Km 6/17/94 FOUND LEAK (AIR) AROUND LID.

Km 6/16/94

6/17/94 KM

SAMPLE	Dry Wt	SAT. Wts
NRG5*BZ*1,	25.430	27.735
NRG5*BZ*3	24.555	26.824
NRG5*BZ*5	26.619	KM 6/21/94 ~~26~~ 29.085
NRG4*CZ*4	46.965	48.277
NRG4*BYX*4	74.140	76.227
NRG4*AZB*21	2.911	—
NRG3*BYX*3	20.989	21.580
NRG3*BYX*2	34.440	35.207
NRG3*BZ*3	18.102	18.650
NRG3*BYX*1	34.723	35.473
NRG4*BYX*3	36.110	37.297
NRG3*BXY*3	40.592	41.262
		NRG4*AZB*21 3.073
		NRG4*BZ*3 76.186

KM 6/21/94

SAT WT NRG1*BYX*2 = 93.71g
height = 2.15 cm

SAT WT NRG2*BYX5 = 84.36 g
height = 1.92 cm

6/20/94 Various Nopal Samples were cut, some of which will be sent ~~for~~ 6/20/94 J.W. for thermal conductivity testing. All samples have ~~as~~ 6/20 J.W. diameter of ~~5.09~~ 5.01 cm. 6/24/94 J.W.

NRG1·BYX was cut into two peices but one was ~~an~~ a jagged end. 6/24/94 J.W.

NRG1·BYX·4 length - 5.49 volume - ~~4~~ 6/24/94 J.W. ~~111.711~~ 108.228 cm³

~~NRG1·BYX·5 Jagged piece~~ 6/20/94 J.W.

NRG4·BXY was cut into three peices

NRG4·BXY·4 length - 1.12 cm volume - 6/24/94 J.W. ~~22.790~~ 22.080 cm³

NRG4·BXY·5 length - 4.14 cm volume - 6/24/94 J.W. ~~84.241~~ 81.614 cm³

NRG4·BXY·6 length - 6.68 cm volume - 6/24/94 J.W. ~~135.926~~ 131.687 cm³

NRG4·BZ was cut into three peices

NRG4·BZ·4 length - 1.70 cm volume - 6/24/94 J.W. ~~34.592~~ 33.513 cm³

NRG4·BZ·5 length - 4.50 cm volume - 6/24/94 J.W. ~~91.567~~ 88.711 cm³

NRG4·BZ·6 length - 5.18 cm volume - 6/24/94 J.W. ~~105.484~~ 102.116 cm³

One peice of NRG5 was obtained

NRG5·BN·3 length - 5.23 cm volume = 6/24/94 J.W. ~~106.421~~ 103.102 cm³

One piece of SRM 19.1.D was obtained

SRM 19.1.D length = 6.95 cm ~~not~~ 6/20/94 J.W. volume = 6/24/94 J.W. ~~131.246~~ 127.153 cm³

6/23/94 g.w. Those Nopal Samples w/ abnormal porosity results were retested and the following recalculations were made using the same formulas and techniques described on page 205 on 6/9/94. As much space as possible was occupied in this run.

Sample	P_r	$P_{w/o\ sample}$	$P_{w/\ sample}$	Volume	Porosity
NRG3·BXY·3	15.00	5.11	5.45	18.136	.13
NRG3·BZ·2	15.00	6.21	6.36	3.548	.16
NRG3·CZ·1	15.00	3.86	4.88	73.808	.05
NRG3·CZ·2	15.00	4.47	5.00	31.632	.03
NRG4·BYX·2	14.00	6.50	6.67	5.323	.11
NRG4·BYX·3	15.00	6.95	7.50	15.771	.13
NRG4·BYX·4	15.00	5.96	6.96	32.330	.08
NRG4·BXY·1	15.00	6.24	6.42	6.505	.10
NRG4·BXY·2	14.00	6.51	6.75	7.491	.12
NRG4·BXY·3	15.00	6.24	6.56	11.631	.13
NRG4·BZ·1	15.00	6.24	6.50	10.054	.17
NRG4·BZ·3	15.00	5.62	6.47	31.739	.04
NRG4·CZ·1	15.00	4.14	5.18	91.228	.31
NRG4·CZ·3	15.00	4.45	5.08	35.758	.07
NRG4·CZ·4	15.00	5.61	6.10	19.713	.06
NRG5·BYX·2	15.00	6.22	6.97	28.190	.20
NRG5·BZ·3	15.00	7.03	7.38	11.828	.26
NRG5·BZ·4	15.00	5.58	6.06	22.671	.19
NRG5·BZ·5	15.00	7.01	7.41	12.221	.18
NRG5·BZ·6	15.00	6.96	7.32	11.828	.22
NRG5·C·1	15.00	3.08	4.07	130.195	.21

Low a negative results were found for the following three samples.

NRG3·BYX·4:	P_r	$P_{w/o\ sample}$	$P_{w/\ sample}$	Volume	Porosity
1st run -	15.00	6.21	6.38	4.928	-.13
2nd run -	15.00	6.22	6.39	4.928	-.13
3rd run -	15.00	6.21	6.38	4.928	-.13
4th run -	14.00	5.84	5.99	4.928	-.06

NRG4·BZ·2:	P_r	$P_{w/o\ sample}$	$P_{w/\ sample}$	Volume	Porosity
1st run -	15.00	6.24	6.46	7.294	.03
2nd run -	14.00	5.84	6.05	7.294	.01
3rd run -	14.00	6.50	6.78	7.294	-.06

NRG4·CZ·2:	P_r	$P_{w/o\ sample}$	$P_{w/\ sample}$	Volume	Porosity
1st run -	15.00	3.87	5.14	67.848	-.22
2nd run -	14.00	3.63	4.59	67.848	-.03

6/24/94 More Nopal samples were cored and cut to be sent for testing of thermal conductivity

NRG1·AXY·1 dia - 1.9cm length - 1.47cm volume - 4.168 cm^3

NRG1·AZC·3 dia - 1.9cm length - 2.44 cm volume - 6.244 cm^3

NRG1·BZ·2 dia - ~~5.09 cm~~ 5.01 cm 4/24/94 g.w. length - 6.71 cm volume - ~~136.536 cm^3~~ 132.278 6/24/94 g.w.

NRG1·BZ·3 (NOT TO BE TESTED) dia - ~~5.09~~ 5.01 4/24/94 g.w. length - .94 cm volume - ~~19.127 cm^3~~ 18.531 4/24/94 g.w.

NRG4·BYX·6 dia - ~~5.09 cm~~ 5.01 cm 4/24/94 g.w. length - 5.54 cm volume - ~~112.729 cm^3~~ 109.213 6/24/94 g.w.

NRG5·AN·1 dia - 1.9cm length - 2.18cm volume - 6.181 cm^3

NRG5·AN·2 dia - 1.9cm length - 2.18cm volume - 6.181 cm^3

NRG5·AN·3 (NOT TO BE TESTED) dia - 1.9cm length - 3.18cm volume - 9.016 cm^3

NRG5·BXY·4 dia - ~~5.09 cm~~ 5.01 cm 4/24/94 g.w. length - 4.95 cm volume - ~~100.723 cm^3~~ 97.582 4/24/94 g.w.

Apache Leap samples were cored and cut from SRM.19.1.1D.

AL·AN·1 dia - 1.9cm length - ~~2.41 cm~~ 2.39 cm 6/24/94 g.w. volume - 6.776 cm^3

AL·AN·2 dia - 1.9cm length - ~~2.36 cm~~ 2.34 cm 6/24/94 g.w. volume - 6.635 cm^3

AL·AN·3 dia - 1.9cm length - 2.18 cm volume - 6.181 cm^3

6/27/94 g.w. 6/27/94 g.w.

NRG4·AZF·~~2~~14 dia - 1.9cm length - 2.06 cm volume - 5.841 cm^3

TEST = AquaLab

Initial Notes: _____

Investigators: JW. YR: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG5*AN*1	6/1	3.902	3.899	.991	24.7
NRG5*AN*2	6/1	4.167	4.163	.916	25.0
NRG5*AN*3	6/1	3.903	3.899	.964	24.9
NRG5*AN*4	6/1	3.732	3.728	.993	25.0
NRG5*AN*5	6/1	4.034	4.023	.988	25.1
NRG5*AN*6	6/1	3.796	3.793	.912	25.6
NRG5*AN*7	6/1	3.800	3.795	.992	25.4
NRG5*AN*8	6/1	2.355	2.349	.981	25.5
NRG5*AN*9	6/1	3.291	3.287	.969	25.7

6/24/94

Continued on page: _____

TEST = AquaLab

Notes: 4/29/94 Placed ~~NRG5~~ NRG1 Samples in Oven to dry

5/26 NaCl .756 at 21°C Equilibrating time = 6 days
H_2O 1.000 at 20.9

Investigators: YM YR: 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG1*AzA*6	5/26	2.817	2.817	.552	21.5
NRG1*AzD*3	5/26	2.443	2.442	.948	21.9
NRG1*AzD*9	5/26	2.839	2.837	.990	22.4
NRG1*AzF*2	5/26	3.824	3.823	.543	23.5
NRG1*AzF*3	5/26	3.857	3.856	.529	23.5
NRG1*AzD*4	5/26	2.479	2.480	.537	23.7
NRG1*AzF*4	5/26	3.749	3.747	.988	23.8
NRG1*AzF*5	5/26	3.746	3.746	.801	23.9
NRG1*AzF*6	5/26	3.594	3.594	.534	23.9
NRG1*AzF*7	5/26	4.002	4.001	.985	23.9

6/24/94

Continued on page: 216

TEST = AquaLab

Initial Notes:

Investigators: J.W. 6/1 1994

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NaCl before	6/1	—	—	~~.754~~ .755	~~23.8~~ 21.0
DI before	6/1	—	—	.998	24.2
NRG1·AZF·4	6/1	3.596 g	3.590	.959	24.6
NRG1·AZD·9	6/1	2.716	2.712	.950	24.7
~~NRG5·AN·1~~	~~6/1~~	~~—~~	~~—~~	~~.991~~	~~24.7~~

6/28/94

Continued on page: 217

TEST = AquaLab

Initial Notes: Air temp - 22°C
48% RH
Temp of water entering machine - 20°C

Investigators: J.W. 6/22/94

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
DI before	6/22	—	—	1.000	20.5
NaCl before	6/22	—	—	.756	20.5
NRG1·AZF·4	6/22	3.533	3.531	.823	20.8
6/23/94 J.W.					
Air temp - 22°C					
58% RH					
DI before	6/23	—	—	.999	20.4
NaCl before	6/23	—	—	.756	20.5
NRG1·BYX·1	6/23	9.312	9.303	.994	20.7
NRG1·AZD·9	6/23	2.665	2.665	.643	20.7
NRG1·BZ·1	6/23	7.247	7.238	.998	20.7
NRG5·BYX·3	6/23	9.585	9.576	.987	20.8
NRG1·BYX·2	6/23	4.883	4.876	.991	20.7
DI After	6/23	—	—	.999	20.5
NaCl After	6/23	—	—	.757	20.5
FINAL AIR TEMP -		22°C			
		54% RH			

6/28/94

Continued on page:

15 bar

KM 6/20/94 SATURATED 3 bar plate

6/21/94 Set up test using the following samples:

	SAT Wt	Dry Wt
NRG4*BYX*4	76.662	74.803
NRG4*CZ*4	48.372	46.904
NRG4*AZB*21	3.053	2.912
NRG4*BYX*3	37.464	36.101
NRG4*BZ*3	76.951	74.690
NRG3*BZ*3	18.819	18.109
NRG3*BYX*3	21.580	21.021
NRG3*BYX*2	35.666	34.489
NRG3*BXY*2	22.274	21.592
NRG5*BZ*3	24.531 DRY	26.778 SAT
NRG5*BZ*5	26.632 DRY	29.050 SAT
NRG5*BZ*1	25.408 DRY	27.715 SAT
NRG2*BYX*1	26.344	23.860
NRG2*~~BYX*5~~ BXY*5	KM 6/28/94	~~27.240~~ KM 6/28
NRG2*~~BYX*2~~ BXY*2	KM 6/28/94 27.240	24.709
NRG2*BZ*1	25.439	22.979
NRG1*BYX*3		
NRG1*BYX*2		

set P_g = 13" H_2O

6/24/94 P_g = 13" H_2O

		% SAT
NRG4*BYX*4	76.354g	0.880
NRG4*CZ*4	48.322g	0.966
NRG4*AZB*21	3.066g	1.092
NRG4*BYX*3	37.284g	0.868
NRG4*BZ*3	76.260g	0.694

NRG3*BZ*3	18.713g	0.851
NRG3*BYX*3	21.573g	0.987
NRG3*BYX*2	35.244g	0.641
NRG5*BZ*3	26.778g	1.000
NRG5*BZ*5 KM 6/28/94	29.002g	0.980
NRG5*BZ*1	27.692 ~~26.692~~	0.557
NRG2*BYX*1	26.309	0.986
NRG2*~~BYX*5~~ BXY*5 KM 6/28/94	84.17	
NRG2*~~BYX*2~~ BXY*2	27.249	1.004
NRG2*BZ*1	25.427	0.995
NRG1*BYX*3	76.707	
NRG1*BYX*2	93.58	0.

set P_g = 50" H_2O

KM 6/28/94 P_g = 58.6" H_2O

		% SAT
NRG4*BYX*4	76.398	0.897
NRG4*CZ*4	48.279	0.937
NRG4*AZB*21	3.054	1.007
NRG4*BYX*3	37.253	0.845
NRG4*BZ*3	76.320	0.721
NRG3*BZ*3	18.695	0.825
NRG3*BYX*3	21.573	0.987
NRG3*~~BYX*2~~ KM KM 6/28/94	31.287	
NRG3*BYX*2	35.267	0.661
NRG5*BZ*3	26.763	0.985
NRG5*BZ*5	28.993	0.976
NRG5*BZ*1	27.684	0.969

	NRG2 * BYX * 1	26.304	
	NRG2 * BYX * 5 xy 6/29/94 km	84.20	
	NRG2 * BYX * 2 xy km 6/28/94 km	27.259	
	NRG2 * BZ * 1	25.424	0.993
	NRG1 * BYX * 3	76.719	
	NRG1 * BYX * 2	93.59	
			% SAT
6/30/94	NRG 4 * BYX * 4	76.383	0.891
P_g = 15 psi	NRG 4 * CZ * 4	48.206	0.887
	NRG 4 * AZA * 21	3.045	0.943
	NRG 3 * BZ * 3	18.689	0.817
	NRG 4 * BYX * 3	37.221	0.822
	~~NRG 3 * BYX * B2~~	~~41.276~~ gg	omitted 6/30/94
	NRG 4 * BZ * 3	76.287 gg 6/30/94	0.706
	NRG 3 * BYX * 3	21.524	0.900
	NRG 3 * BYX * 2	35.233	0.632
	NRG 5 * BZ * 3	26.727	0.977
	NRG 5 * BZ * 5	28.956	0.961
	NRG 5 * BZ * 1	27.658	0.975
	NRG 1 * BYX * 3	76.650	
	NRG 2 * BYX * 1	26.282	0.975
	NRG 2 * BYX * 2	93.470	
	NRG 2 * BXY * 5	84.060	
	NRG 2 * BXY * 2	27.207	0.987
	NRG 2 * BZ * 1	25.382	0.977

km 6/30/94

Saturation percentage don't make sense for some samples
Possible reasons: not originally saturated completely
: leak in system.

Set P_S = 44 psi.

		WT. (g)
km 7/8/94	NRG4 * BYX * 3	37.089
	NRG4 * BYX * 4	76.408
	NRG4 * CZ * 4	48.144
	NRG4 * AZA * 21	3.023
	NRG4 * BZ * 3	76.297
	NRG3 * BZ * 3	18.643
	NRG3 * BYX * 3	21.517
	NRG3 * BYX * 2	35.249
P_g = 44 psi	NRG5 * BZ * 3	26.622
	NRG5 * BZ * 5	28.844
	NRG5 * BZ * 1	27.551
	~~NRG2 BYX * 2~~ km 7/8/94	km 7/8/94
	NRG2 * BYX * 1	~~76.5115~~ 26.104
	NRG2 * BXY * 5	83.650
	NRG2 * BXY * 2	26.923
	NRG2 * BZ * 1	25.203
	NRG1 * BYX * 3	75.816
	NRG1 * BYX * 2	92.490

RH in Room @ ≈ 55 % T = 23°C

The line out above was apparently for NRG4 * BYX * 4
The difference in weight leads me to believe that much evaporation takes place during readings.

7/15/94 km PH_{gas} = 56 psi

NRG4 * BYX * 3	37.064
NRG4 * BYX * 4	76.411
NRG4 * CZ * 4	48.121
NRG4 * AZA * 21	3.014
NRG4 * BZ * 3	76.476
NRG3 * BZ * 3	18.649
NRG3 * BYX * 3	21.547
NRG3 * BYX * 2	35.291
NRG5 * BZ * 5	28.806
NRG5 * BZ * 3	26.574
NRG5 * BZ 1	27.511
NRG2 * BYX * 1	25.845

km cont P_S = 45

Sample ID: NRG1*BYX*2 TEST = Ksat Continued on pg:

Start time: 2:37 Date: 6/17/94 Stop time: 4:38 Date: 6/17/94

DP: (psig) DT: (sec)

	Set Pressure(psig)		Fluid Levels(ml) Inital	Final
Confining	102.9	Confining	2.2	2.6
Inflow	15.2	Inflow	2.8	8.1
Outflow	5.2	Outflow	21.3	16.2

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 10:54 Date: 6/21/94 Stop time: 1:00 Date: 6/21/94

DP: (psig) DT: (sec)

	Set Pressure(psig)		Fluid Levels(ml) Inital	Final
Confining	103.3	Confining	4.7	4.6
Inflow	25.0	Inflow	8.2	17.7
Outflow	5.5	Outflow	16.0	6.5

Change in Fluid level(ml)

Confining: Inflow: Outflow:

6/20/94

Start time: 1:04 Date: 6/21/94 Stop time: 2:45 Date: 6/21/94

DP: (psig) DT: (sec)

	Set Pressure(psig)		Fluid Levels(ml) Inital	Final
Confining	103.3	Confining	4.6	4.5
Inflow	35.0	Inflow	1.7	13.7
Outflow	5.5	Outflow	22.0	10.1

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 2:48 Date: 6/21/94 Stop time: 4:18 Date: 6/21/94

DP: (psig) DT: (sec)

	Set Pressure(psig)		Fluid Levels(ml) Inital	Final
Confining	103.3	Confining	4.5	4.4
Inflow	45.0	Inflow	5.2	19.6
Outflow	5.5	Outflow	19.4	5.0

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: Date: Stop time: Date:

DP: (psig) DT: (sec)

	Set Pressure(psig)		Fluid Levels(ml) Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

Change in Fluid level(ml)

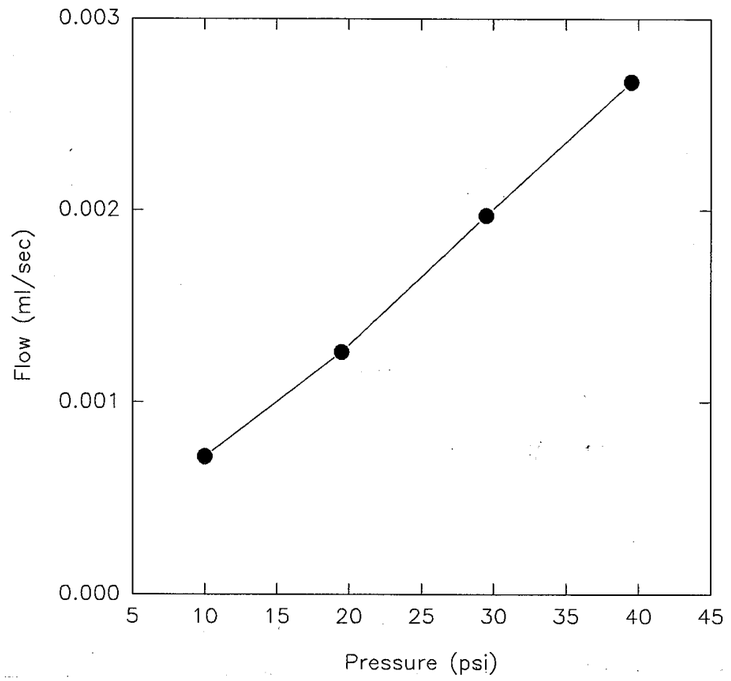
Confining: Inflow: Outflow:

K1BYX2.SP5: Tue, 21-Jun-94

Flow(ml/sec)	Press (psi)
0.000716	10
0.00126	19.5
0.00197	29.5
0.00267	39.5
--	
--	
--	

6/20/94

NRG1*BYX*2



Sample ID: NRG1×BZ×2 TEST = Ksat Continued on pg:

Start time: 1:09 Date: 6/16/94 Stop time: 2:15 Date: 6/16/94

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	102.9	Confining	4.3	4.3
Inflow	45.1	Inflow	3.8	14.9
Outflow	5.2	Outflow	21.5	10.4

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 2:59 Date: 6/16/94 Stop time: 4:04 Date: 6/16/94

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	102.9	Confining	4.3	4.3
Inflow	55.2	Inflow	2.6	16.1
Outflow	5.2	Outflow	21.7	8.2

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 4:05 Date: 6/16/94 Stop time: 5:00 Date: 6/16/94

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	102.9	Confining	4.3	4.3
Inflow	65.6	Inflow	0.5	15.0
Outflow	5.2	Outflow	22.8	8.5

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: Date: Stop time: Date:

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: Date: Stop time: Date:

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

Change in Fluid level(ml)

Confining: Inflow: Outflow:

6/28/94

TEST = Ksat

Sample ID: NRG1×BZ×2 Date: 6/15/94

Investigators: KM

Notes:

Start time: 12:47pm Date: 6/15/94 Stop time: 3:47 Date: 6/15/94

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	103.4	Confining	1.5	2.1
Inflow	14.9	Inflow	5.8	14.4
Outflow	5.1	Outflow	22.2	13.8

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 3:56 Date: 6/15/94 Stop time: Date:

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	103.4	Confining	2.1	
Inflow	25.0	Inflow	14.7	
Outflow	4.9	Outflow	13.6	

KM 6/16/94

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 10:14 Date: 6/16/94 Stop time: 12:01 Date: 6/16/94

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	102.5	Confining	4.1	
Inflow	25.1	Inflow	11.4	20.3
Outflow	5.2	Outflow	20.5	11.5

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 12:04 Date: 6/16/94 Stop time: 1:06 Date: 6/16/94

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	102.9	Confining	4.2	4.3
Inflow	35.1	Inflow	2.1	9.9
Outflow	5.2	Outflow	22.4	14.1

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Continued on page: _____

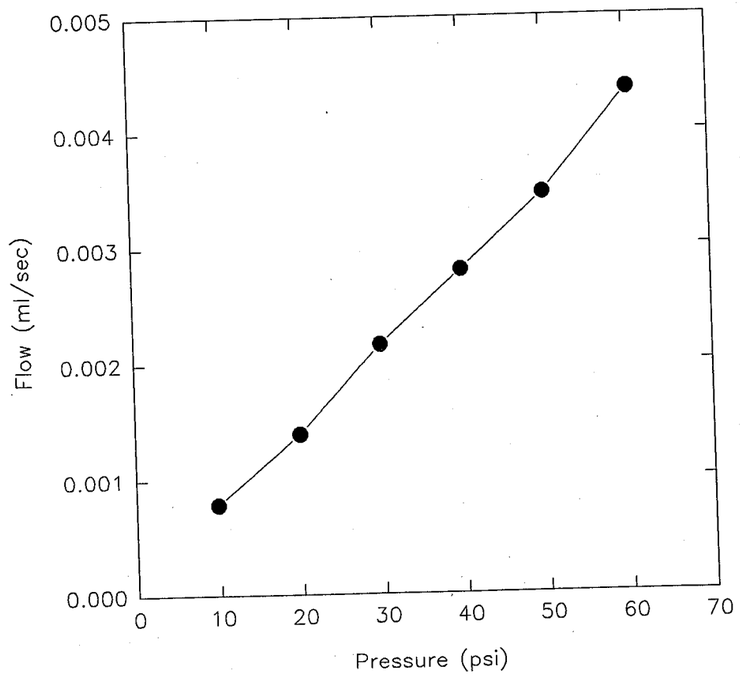
6/28/94

K1BZ2.SP5: Fri, 17-Jun-94

Flow(ml/sec)	Press (psi)
0.000787	9.8
0.00139	19.9
0.00216	29.9
0.0028	39.9
0.00346	50
0.00436	60.4

6/28/94

NRG1*BZ*1



TEST = Ksat

Sample ID: NRG2*BYX*1 Date: 6/15/94

Investigators: CM

Notes:

Start time: 12:46pm Date: 6/15/94		Stop time: 3:47 Date: 6/15/94		
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	103.3	Confining	1.5	2.0
Inflow	14.0	Inflow	2.5	13.5
Outflow	4.0	Outflow	20.8	9.6
Change in Fluid level(ml)				
Confining:		Inflow:	Outflow:	

Start time: ~~12:15~~ 3:56 Date: 6/15/94		Stop time: Date:		
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	103.3	Confining	2.0	
Inflow	24.0	Inflow	3.0	
Outflow	4.0	Outflow	23.0	
Change in Fluid level(ml)				
Confining:		Inflow:	Outflow:	

~~Kim 6/16/94~~

Start time: 10:15 Date: 6/16/94		Stop time: 12:02 Date 6/16/94		
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	102.5	Confining	4.1	4.1
Inflow	24.0	Inflow	3.7	15.05
Outflow	4.0	Outflow	20.9	9.5
Change in Fluid level(ml)				
Confining:		Inflow:	Outflow:	

Start time: 12:03 Date: 6/16/94		Stop time: 1:06 Date: 6/16/94		
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	102.9	Confining	4.2	4.3
Inflow	34.0	Inflow	1.8	12.3
Outflow	4.0	Outflow	22.9	12.4
Change in Fluid level(ml)				
Confining:		Inflow:	Outflow:	

Continued on page: _____

6/28/94

Sample ID: NRG2*BYX*1 TEST = Ksat Continued on pg:

Start time: 1:10	Date: 6/10/94	Stop time: 2:15	Date: 6/16/94	
DP: (psig)	DT: 1 (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	102.9	Confining	4.3	4.3
Inflow	44.0	Inflow	3.7	18.1
Outflow	4.0	Outflow	22	7.6
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		

Start time: 2:16	Date: 6/16/94	Stop time: 3:00	Date: 6/16/94	
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	102.9	Confining	4.3	4.3
Inflow	54.0	Inflow	2.8	15
Outflow	4.0	Outflow	22.5	10.2
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		

6/28/94

Start time: 3:01	Date: 6/16/94	Stop time: 4:03	Date: 6/16/94	
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	102.9	Confining	4.3	4.3
Inflow	64.0	Inflow	2.9	23.7
Outflow	4.0	Outflow	81.1	0.1
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		

Start time: 4:06	Date: 6/16/94	Stop time: 5:00	Date: 6/16/94	
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	102.9	Confining	4.3	
Inflow	74.0	Inflow	3.0	24.5
Outflow	4.0	Outflow	22.5	1.0
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		

Start time:	Date:	Stop time:	Date:	
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		

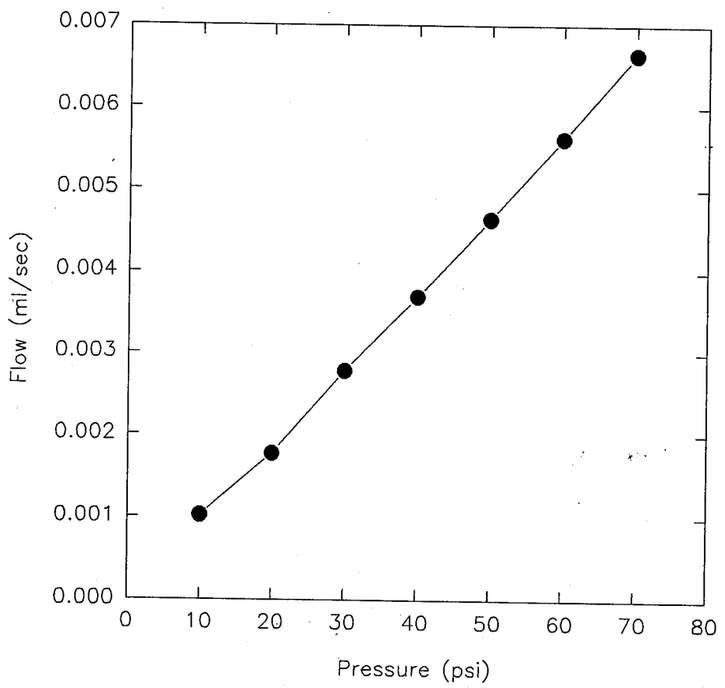
10m 6/29/94

K2BYX1.SP5: Fri, 17-Jun-94

Flow(ml/sec)	Press (psi)
0.00102	10
0.00177	20
0.00278	30
0.00369	40
0.00464	50
0.00562	60
0.00664	70

6/20/94

NRG2*BYX*1



Sample ID: NRG2*BXY*5 TEST = Ksat _ Continued on pg:

Start time: 2:38 Date: 6/17/94 Stop time: 4:37 Date: 6/17/94

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	102.9	Confining	2.2	2.6
Inflow	14.0	Inflow	5.1	7.95
Outflow	4.0	Outflow	22.1	19.85

Change in Fluid level(ml)

Confining: Inflow: Outflow:

~~Start~~ time: 10:57 Date: 6/21/94 Stop time: 1:00 Date: 6/21/94

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	103.3	Confining	4.7	4.7
Inflow	24.0	Inflow	7.6	7.6
Outflow	4.0	Outflow	21.9	21.9

Change in Fluid level(ml) inflow valve off

Confining: Inflow: Outflow:

~~Start~~ time: 1:00 Date: 6/21/94 Stop time: 2:45 Date: 6/21/94

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	103.3	Confining	4.6	4.5
Inflow	24.0	Inflow	7.7	11.4
Outflow	4.0	Outflow	21.8	18.1

Change in Fluid level(ml)

Confining: Inflow: Outflow:

~~Start~~ time: 2:46 Date: 6/21/94 Stop time: ~~2:46~~ 4:48 Date: 6/21/94

DP: (psig) DT: (sec) 4:18 Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	103.3	Confining	4.5	4.4
Inflow	~~6/21/94~~ 34.0	Inflow	4.2	9
Outflow	4.0	Outflow	20.8	16

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 4:19 Date: 6/21/94 Stop time: 5:00 Date: 6/21/94

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	103.3	Confining	4.4	4.4
Inflow	44.0	Inflow	9.1	11.8
Outflow	4.0	Outflow	16.0	13.3

Change in Fluid level(ml)

Confining: Inflow: Outflow:

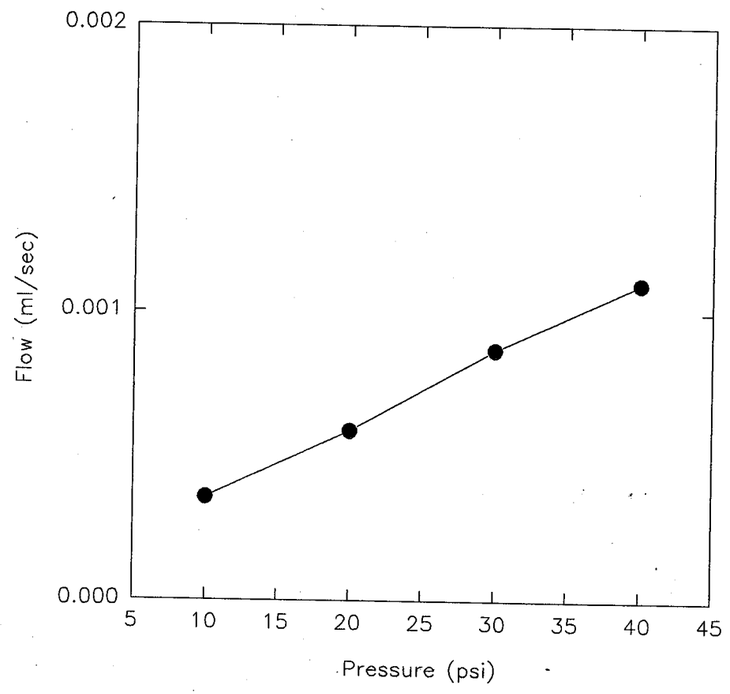
6/28/94

K2BXY5.SP5: Tue, 28-Jun-94

Flow(ml/sec)	Press (psi)
0.000357	10
0.000587	20
0.00087	30
0.0011	40

6/28/94

NRG2*BXY*5



Sample ID: NRG2*BYX*6 TEST = Ksat Continued on pg:

Start time: 11:00	Date: 6/23/94	Stop time: 12:36	Date: 6/23/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining	103.2	Confining	4.6 / 6.0
Inflow	15.0	Inflow	6.5 / 8.6
Outflow	5.2	Outflow	17.2 / 15.2
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	

Start time: 12:37	Date: 6/23/94	Stop time: 2:16	Date: 6/23/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining	103.2	Confining	5.9 / 6.3
Inflow	25.0	Inflow	3.3 / 7.3
Outflow	5.2	Outflow	18.9 / 14.9
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	

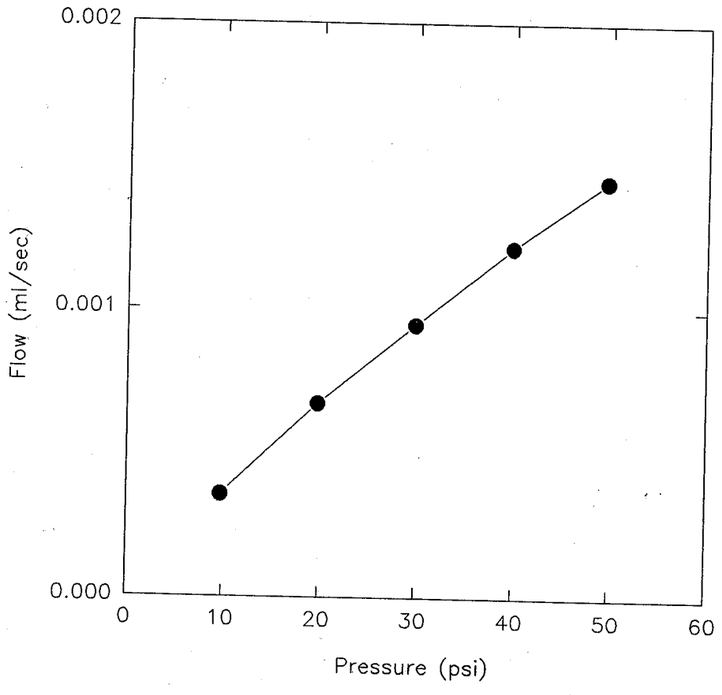
Start time: 2:17	Date: 6/23/94	Stop time: 5:48	Date: 6/23/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining	103.2	Confining	6.3 / 6.7
Inflow	35.1	Inflow	2.9 / 14.9
Outflow	5.2	Outflow	22.1 / 10.1
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	

Start time: 11:44	Date: 6/24/94	Stop time: 1:10pm	Date: 6/24/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining	103.4	Confining	8.0 / 8.0
Inflow	45.1	Inflow KM 6/24/94	6.1 / 6.3 / 12.4
Outflow	5.4	Outflow	20.0 / 13.8
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	

Start time: 1:12	Date: 6/24/94	Stop time: 2:50	Date: 6/24/94
DP: (psig)	DT: (sec)	Fluid Levels(ml)	
Set Pressure(psig)			Inital / Final
Confining	103.4	Confining	8.0 / 7.8
Inflow	55.0	Inflow	5.1 / 13.7
Outflow	5.4	Outflow	22.2 / 13.7
Change in Fluid level(ml)			
Confining:	Inflow:	Outflow:	

K2BYX6.SP5: Wed, 29-Jun-94

Flow(ml/sec)	Press (psi)
0.000356	9.8
0.000673	19.8
0.000948	29.9
0.00122	39.9
0.00145	49.6



6/24/94

NRG3*A2B*2 - DABBED to get "extra" water off and sealed

NRG3*AZC*4 - Removed All water possible w/ Kimwipes sealed

NRG3*AZB*11 km 6/24/94 - Removed All water possible w/ Kimwipes
Air dry until got white haze, sealed

NRG3*AZC*7 - PATTED DRY. Let sit open to air (on it's side) for 2.5 min - sealed

NRG3*AzD*4 - 5 min air dry

NRG3*AzD*3 7 min air dry

NRG3*AzB*13 9 min air dry

NRG3*AzD*16 10 min air dry

7/5/94 NRG3*AzB*15 11 min air dry

NRG3*AzB*14 12 min air dry

NRG3*AzD*10 13 min air dry

NRG3*AzB*5 17 min air dry

NRG3*AzD*2 18 min air dry

NRG3*AzB*4 19 min air dry

NRG3*AzD*12 20 min air dry

NRG3*AzD*8 21 min air dry

NRG3*AzB*7 22 min air dry

NRG3*AzC*12 ~~30~~ 35 min air dry km 6/24/94

NRG3*AzB*10 53 min air dry

NRG3*AZB*9 1 hr 26 min air dry

NRG3*AzC*5 2 hrs 45 min air dry

NRG3*AZC*2 3 hrs 10 min air dry

KM 7/5/94

TEST = AquaLab

Notes: ① Some condensation on rocks and containers: water patted off w/ Kimwipes

File = NRG3 ALC. DAT

Investigators: KM

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
Dr H_2O (Initial)	6/28/94			.999	19.9
NaCl (Initial)	6/28/94			.759	16.6
NRG3*AzD*2	6/28/94	4.561	4.555	.993	16.6
NRG3*AzB*2	6/28/94	4.174	4.171	1.004	16.8
NRG3*AzC*2	6/28/94	3.683	3.681	.965	16.9
NRG3*AzB*14	6/28/94	3.592	3.591	1.003	16.9
NRG3*AzB*4	6/28/94	3.616	3.614	.981	16.8
NRG3*AzD*8	6/28/94	4.139	4.137	.988	16.8
NRG3*AzB*9	6/28/94	3.677	3.676	977	16.8
NRG3*AzD*12	6/28/94	3.382	3.380	.981	16.8
NRG3*AzC*5	6/28/94	4.218	4.217	.955	16.8
NRG3*AzB*11	6/28/94	3.487	3.487	1.000	16.6
NRG3*AzB*15	6/28/94	3.380	3.378	.987	16.7
NRG3*AzB*5	6/28/94	3.853	3.853	.986	16.7
NRG3*AzD*4	6/28/94	2.761	2.759	.996	16.8
NRG3*AzC*4	6/28/94	4.605	4.591	.997	16.8
NRG3*AzD*3	6/28/94	3.661	3.657	.994	16.9
NRG3*AzC*7	6/28/94	4.464	4.457	.990	16.7
NRG3*AzB*7	6/28/94	3.095	3.092	.992	16.7
NRG3*AzC*12	6/28/94	3.699	3.697	.995	16.8
NRG3*AzD*10	6/28/94	3.326	3.321	.990	16.7
NRG3*AzB*10	6/28/94	3.729	3.729	.977	16.9
NRG3*AzB*13	6/28/94	3.713	3.710	1.001	16.8
NRG3*AzD*16	6/28/94	3.561	3.561	.991	16.9
Dr H_2O (Final)	6/28/94			.999	16.7
NaCl (Final)	6/28/94			.758	16.6
			~~4.207~~		

Continued on page: 244

Sample	Air dry time	SAT. %
5·AzA·4	0	95
5·AzB·9	0	90
5·AzB·2	2:00	85
5·AzB·16	4:36	80
5·AzB·14	1:39	75
5·AzA·11	18:15	70
5·AzA·17	32:09	65
5·AzA·6	32:30	60
5·AzB·15	37:08	55
4·AzE·1	0	
4·AzE·3	1:00	
4·AzE·4	2:00	
4·AzF·1	0	
4·AzF·2	1:00	
4·AzF·3	2:00	
4·AzF·4	3:00	
4·AzF·6	4:00	
4·AzF·7	5:00	
4·AzF·8	6:00	
4·AzF·9	10:00	
4·AzF·10	15:00	
4·AzF·12	20:00	
4·AzF·13	25:00	
4·AzC·1	0	
4·AzC·3	2:00	
4·AzC·5	4:00	
4·AzC·7	10:00	
4·AzC·8	15:00	
4·AzC·9	25:00	
4·AzC·10	30:00	
4·AzB·1	0	
4·AzB·2	2:00	
4·AzB·4	4:00	
4·AzB·5	6:00	
4·AzB·6	8:00	
4·AzB·9	10:00	
4·AzB·11	12:00	
4·AzB·13	15:00	
4·AzB·14	20:00	
4·AzB·18	25:00	

6/27/94

File = NRG4 AIC.dat
7/5/94 Km

TEST = AquaLab

Notes: After reading all Samples air-dried for 5 min 6/30/94

Investigators:

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4*AzB*13	6/30/94	3.537	3.535	.975	16.1
NRG4*AzB*11	6/30/94	3.034	3.033	.987	16.2
NRG4*AzF*12	6/30/94	4.407	4.406	.984	16.0
NRG4*AzC*7	6/30/94	3.423	3.423	.988	16.0
NRG4*AzC*9	6/30/94	3.512	3.512	.971	16.1
NRG4*AzB*14	6/30/94	3.518	3.518	.975	16.1
NRG4*AzF*10	6/30/94	4.241	4.241	.966	16.2
NRG4*AzC*10	6/30/94	3.551	3.551	.954	16.2
NRG4*AzB*18	6/30/94	4.481	4.480	.989	16.3
NRG4*AzF*13	6/30/94	4.206	4.206	.987	16.1
NRG4*AzE*3	6/30/94	3.737	3.737	.996	16.0
NRG4*AzF*2	6/30/94	4.064	4.064	.993	15.8
NRG4*AzB*1	6/30/94	4.193	4.193	.997	16.0
NRG4*AzC*1	6/30/94	3.974	3.974	.996	16.0
NRG4*AzF*1	6/30/94	4.823	4.823	.995	16.0
NRG4*AzE*1	6/30/94	3.125	3.125	.996	16.0
NRG4*AzC*3	6/30/94	3.510	3.510	.993	16.0
NRG4*AzB*2	6/30/94	4.496	4.494	.996	15.8
NRG4*AzF*4	6/30/94	3.337	3.337	.989	16.0
NRG4*AzF*3	6/30/94	3.727	3.727	.985	15.9
NRG4*AzE*4	6/30/94	3.309	3.309	.997	15.9
NRG4*AzF*16	6/30/94	3.630	3.630	.987	15.8
NRG4*AzB*5	6/30/94	4.401	4.386	.793	16.0
NRG4*AzF*7	6/30/94	3.931	3.930	.981	15.9
NRG4*AzC*5	6/30/94	3.323	3.320	.996	16.0
NRG4*AzB*4	6/30/94	3.839	3.838	.995	16.0
NRG4*AzB*9	6/30/94	4.053	4.053	.983	15.9
NRG4*AzF*9	6/30/94	3.871	3.870	.953	16.3
NRG4*AzB*6	6/30/94	3.590	3.589	.952	16.0
NRG4*AzF*8	6/30/94	4.420	4.420	.975	16.2
NRG4*AzC*8	6/30/94	3.403	3.401	.979	16.1
DI H_2O (Final)	6/30/94			1.000	16.2
NaCl (Final)	6/30/94			.758	16.1

Continued on page: _____

TEST = AquaLab

Initial Notes: AIR TEMP - 22°C
49% RH
TEMP OF WATER GOING INTO MACHINE - 20°C

Investigators: J.W. 6/21/94

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
DI before	6/21	—	—	1.000	20.6
NaCl before	6/21	—	—	.756	20.6
NRGS·AN·1	6/21	3.858	3.857	.981	20.5
NRGS·AN·2	6/21	4.119	4.118	.551	20.8
NRGS·AN·3	6/21	3.807	3.806	.594	20.7
NRGS·AN·4	6/21	3.709	3.704	.987	20.6
NRGS·AN·5	6/21	3.929	3.927	.968	20.6
NRGS·AN·6	6/21	3.754	3.753	.555	20.8
NRGS·AN·7	6/21	3.734	3.729	.977	20.6
NRGS·AN·8	6/21	2.275	2.273	.837	20.7
NRGS·AN·9	6/21	3.254	3.252	.945	20.7
DI After	6/21	—	—	.999	20.5
NaCl After	6/21	—	—	.756	20.5
FINAL AIR TEMP =		22°C			
		47% RH			
DI H2O (initial)	7/1/94			1.000	15.0
NaCl (initial)	7/1/94	~~3.209~~ 7/1/94		.760	15.0
NRG5*AN*9	7/1/94	3.209		.782 ~~.796~~ 7/1/94	15.1 ~~15.7~~ 7/1/94
"	7/1/94		3.208	.779 ~~.795~~ 7/1/94	15.2 ~~15.8~~ 7/1/94
NRG5*AN*8	7/1/94	2.259		.654	15.2
"	7/1/94		2.258	.652	15.2
NRG5*AN*5	7/1/94	3.860		.918	15.3
"	7/1/94		3.859	.918	15.2
NRG5*AN*4	7/1/94	3.647		.985	15.5
"	7/1/94		3.647	.986	15.4
NRG5*AN*1	7/1/94	3.795		.978 ~~.985~~ 7/1/94	15.5 ~~15.5~~ 7/1/94
"	7/1/94		3.795	.979 ~~.990~~ 7/1/94	15.2 ~~15.4~~ 7/1/94
NRG5*AN*6	7/1/94	3.750		.637	15.4
"	7/1/94		3.750	.637	15.5
NRG5*AN*7	7/1/94	3.674		.977	15.3
"	7/1/94			.977	15.3
"	7/1/94		3.674	.977	15.1

Continued on page: _____

7/5/94

TEST = AquaLab

Notes: ~~All test repeated for precision check.~~ 7/1/94

Investigators:

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG5*AN*2	7/1/94	4.116		.668	15.3
"	7/1/94		4.116	.665	15.2
NRG5*AN*3	7/1/94	3.801		.665	15.4
"	7/1/94		3.801	.660	15.3
NRG5*BzA*5	7/1/94	9.547		.660	14.7
"	7/1/94			1.006	15.7
"	7/1/94			.991	15.6
"	7/1/94			.987	15.4
"	7/1/94		9.542	.988	15.4
NRG5*AzB*15	7/1/94	2.559		.991	15.4
"	7/1/94		2.559	.992	15.3
NRG5*AzA*6	7/1/94	3.047		.993	15.3
"	7/1/94			.997	15.3
"	7/1/94		3.046	.996	15.3
NRG5*AzA*17	7/1/94	3.543		.993	15.5
" B	7/1/94		3.543	.993	15.4
NRG5*AzA*4	7/1/94	2.553		.998	15.4
~~BB~~ 7/6/94	7/1/94		2.552	.999	15.3
NRG5*~~BzB~~*9 AzA	7/1/94	2.435		1.002	15.4
	7/1/94		2.432	1.001	15.3
NRG5*AzB*2	7/1/94	2.945		.998	15.4
"	7/1/94		2.944	.997	15.3
NRG5*AzB*14	7/1/94	2.453		1.000	15.4
"	7/1/94		2.448	1.000	15.4
NRG5*AzB*11	7/1/94	2.925		.978	15.5
"	7/1/94			.984	15.5
"	7/1/94		2.925	.984	15.2
~~7/5/94~~ NRG5*~~BzB~~*16 AzB	7/1/94	3.458		.988	15.5
	7/1/94		3.458	.986	15.2

Continued on page: _____

7/5/94

Sample	Air Dry time (min)
2·AzA· 1	1
2·AzC· 1	1
2·AzA· 2	2
2·AzC· 4	2
2·AzA· 4	3
2·AzC· 3	3
2·AzA· 7	4
2·AzG· 3	4
2·AzA· 10	5
2·AzG· 1	5
2·AzA· 11	10

7/1/94

7/5/94

Samples test twice: immediate Re-read on aqualab | Aqualab: Time Test | Temp: Aqualab Sample temp Time: Time for sample Completion

6/29/94

Sample	Activity	Time (s)	RH (%)	Temp (c)
2·AzA·10	1.009	4:37	56	16.5
	1.000	5:00	55	16.5
2·AzC·3	1.000	1:23	54	17.4
	1.015	7:06	56	16.3
2·AzA·2	1.004	6:34	54	16.5
	.997	4:31	55	16.4
2·AzG·1	.998	7:37	55	16.6
	.995	3:25	54	16.5
2·AzC·4	1.000	10:30	56	16.5
	.999	2:46	54	16.5
2·AzA·7	1.012	5:33	55	16.7
	1.001	3:49	56	16.6
2·AzA·4	.995	16:27	55	16.5
	.995	3:55	55	16.5
2·AzA·1	1.010	6:00	56	16.5
	1.002	4:46	56	16.4
2·AzC·1	.998	7:50	59	16.7
	.996	4:00	56	16.5
2·AzA·11	1.012	6:00	55	16.6
	1.001	3:49	56	16.4
2·AzG·3	1.001	1:56	56	17.3
	1.012	2:35	55	16.6

14:53 Door opened to Lab
Temp + RH increase
Ambient temp = 22
15:03 Door closed

7/5/94

7/6/94

TEST = AquaLab

Notes: ① 7/5/94 0834 Door opened to Lab. Max RH = 87% Max Ta = 23°C
② 7/5/94 1008 Door closed
③ Problems with aqualab noted in Lab book pg. 7/5/94

Investigators:

	Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
③ ①	NRG3*AzB*13	7/5/94	3.670		.987	17.3
	~~NRG3*AzC*2~~ 7/6/94	7/5/94			.983	17.4
	"	7/5/94			.980	17.6
	"	7/5/94			.978	17.7
	"	7/5/94	3.670	3.670	.977	17.7
	NRG3*AzC*2	7/5/94	3.659		.981	16.1
	"	7/5/94		3.659	.982	16.1
	NRG3*AzD*4	7/5/94	2.717		.990	16.1
	"	7/5/94		2.717	.992	16.1
	NRG3*AzB*10	7/5/94	3.705		.980	16.3
	"	7/5/94		3.705	.982	16.3
	NRG3*AzB*15	7/5/94	3.346		.959	16.4
	"	7/5/94			.977	16.4
	"	7/5/94		3.346	.976	16.2
	NRG3*AzB*7	7/5/94	3.072		.983	16.4
	"	7/5/94		3.072	.982	16.4
	NRG3*AzD*2	7/5/94	4.532		.989	16.4
		7/5/94		4.532	.990	16.4
	NRG3*AzD*12	7/5/94	3.369		.977	16.6
	"	7/5/94			.986	16.2
	"	7/5/94		3.368	.985	16.3
	NRG3*AzB*2	7/5/94	4.138		.994	16.5
	"	7/5/94		4.138	.994	16.4
	NRG3*AzD*3	7/5/94	3.636		.979	16.6
	"	7/5/94		3.636	.982	16.5
	NRG3*AzC*12	7/5/94	3.686		.982	16.5
	"	7/5/94			.988	16.4
	"	7/5/94		3.686	.987	16.5
	NRG3*AzC*5	7/5/94	4.199		.993	16.6
	"	7/5/94		4.199	.993	16.5
	NRG3*AzD*16	7/5/94	3.538		.982	16.5
		7/5/94		3.537	.984	16.5
	NRG3*AzC*4	7/5/94	4.549		.985	16.5

Continued on page: 242

KM 7/6/94

TEST = AquaLab

Notes: ① Samples Air dried for 5 min after reading.

Investigators: [illegible]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG3 * AzC * 4	7/5/94		4.547	.986	16.5
NRG3 * AzC * 7	7/5/94	4.414		.980	16.8
"	7/5/94		4.414	.982	16.8
NRG3 * AzB * 11	7/5/94	3.462		.991	16.5
"	7/5/94		3.462	.991	16.5
NRG3 * AzB * 4	7/5/94	3.588		.970	16.6
"	7/5/94		3.585	.969	16.7
NRG3 * AzD * 8	7/5/94	4.109		.982	16.8
"	7/5/94			.985	16.8
NRG3 * AzD * 10	7/5/94	3.292		.988	16.8
"	7/5/94		3.292	.989	16.8
NRG3 * AzB * 14	7/5/94	3.556		.990	16.8
"	7/5/94		3.556	.989	16.7
NRG3 * AzB * 9	7/5/94	3.644		.914	16.9
" ①	7/5/94		3.644	.916	16.9

KM 7/6/94

Continued on page: 244

KM 7/7/94 Sample	Dry Wt (g)	KM 7/11/94 Sat wt (g)
NRG4 * Bxy * 2	17.832	18.502
NRG4 * BYX * 2	12.662	13.166
NRG4 * Bxy * 1	15.678	16.314
NRG4 * Bz * 1	21.976	22.886
NRG4 * Bxy * 3	26.549	27.479
NRG4 * Bz * 2	17.944	18.484
NRG4 * Byx * 1	12.714	13.107
NRG4 * AzC * 11	5.358	
NRG4 * AzF * 11	3.695	
NRG4 * AzC * 2	4.000	
NRG4 * AzC * 6	3.956	
NRG4 * AzB * 7	3.183	
NRG4 * AzB * 3	3.590	
NRG4 * AzB * 20	3.421	
NRG4 * AzB * 8	2.682	
NRG4 * AzB * 16	4.133	
NRG4 * AzF * 5	3.428	
NRG4 * AzE * 2	3.335	
NRG4 * AzB * 12	3.716	
NRG4 * AzB * 17	3.172	
NRG4 * AzB * 10	2.964	

KM 7/25/94 Sample	Dry WT.
NRG3 * AzB * 16	5.465
NRG3 * AzC * 8 KM 7/25/94	4.250
NRG3 * AzC * 9	4.339
NRG3 * AzC * 6	3.761
NRG3 * AzD * 15	2.353
NRG3 * AzD * 13	3.131
NRG3 * AzB * 1	3.932
NRG3 * AzD * 17	2.507
NRG3 * AzD * 11	2.919
NRG3 * AzE * 1	5.587
NRG3 * AzC * 1	3.966

cont pg 259

TEST = AquaLab

Notes: From pg 242 km 7/12/94

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG3 * AzB * 10	7/12/94	3.685		.820	17.1
"	7/12/94		3.685	.822	17.0
NRG3 * AzC * 7	7/12/94	4.390		.942	17.7
"	7/12/94		4.390	.941	17.7
NRG3 * AzD * 2	7/12/94	4.495		.912	17.5
"	7/12/94		4.495	.913	17.4
NRG3 * AzD * 4	7/12/94	2.702		.885	17.3
"	7/12/94		2.700	.882	17.3
NRG3 * AzD * 12	7/12/94	3.345		.862	17.6
"	7/12/94			.858	17.7
"	7/12/94		3.345	.858	17.8
NRG3 * AzB * 7	7/12/94	3.063		961	17.1
"	7/12/94			.952	17.1
"	7/12/94		3.062	.958	17.2
NRG3 * AzD * 8	7/12/94	4.098		.965	17.5
"	7/12/94		4.098	.965	17.3
NRG3 * AzD * 11	7/12/94	3.525		.949	17.4
"	7/12/94		3.524	.949	17.5
NRG3 * AzC * 5	7/12/94	4.178		.786	17.6
"	7/12/94			.773	17.3
"	7/12/94			.767	17.3
"	7/12/94			.745	17.5
"	7/12/94		4.178	.743	17.5
NRG3 * AzB * 13	7/12/94	3.648		.726	17.3
"	7/12/94		3.646	.723	17.3
NRG3 * AzD * 10	7/12/94	3.269		.848	17.3
"	7/12/94			.836	17.4
"	7/12/94			.843	17.3
"	7/12/94		3.268	.840	17.2
NRG3 * AzB * 4	7/12/94	3.567		.890	17.3
"	7/12/94		3.567	.880	17.2
NRG3 * AzD * 3	7/12/94	3.603		.839	17.2
"	7/12/94		3.602	.838	17.2

Continued on page: _____

km 7/12/94

km 7/14/94

Aqualab model CX-2 (Equipped with a constant temp. cooling water bath) Experiences a considerable shift in readings when sample temp. changes from room temp. to chilled samples. This may be attributed to excessive condensation of moisture onto the mirror surface. This would lead to higher than expected water activities. This is borne out by collected sample data. (See Aqualab test I)*.

[signature] 7/14/94

* Aqualab test I located in Aqualab Calibration log.

From pg 221 km 7/15/94

	NRG2 * BXY * 5	82.77
	NRG2 * BXY * 2	26.651
	NRG2 * BZ * 1	24.889
	NRG1 * BYX * 3	75.200
	NRG1 * BYX * 2	91.46
7/25/94	NRG4 * BYX * 3	37.017 P_g = 100 psi
	NRG4 * BYX * 4	76.332
	NRG4 * CZ * 4	48.098
	NRG4 * AzB * 21	3.002
	NRG4 * BZ * 3	76.596
	NRG3 * BZ * 3	18.650
	NRG3 * BYX * 3	21.576
	NRG3 * BYX * 2	33.362
	NRG5 * BZ * 3	~~26.347~~ 26.34 km 7/25/94 26.347
	NRG5 * BZ * 5	28.582
	NRG5 * BZ * 1	27.298
	NRG2 * BYX * 1	25.400
	NRG2 * BXY * 5	81.62
	NRG2 * BXY * 2	26.287
	NRG2 * BZ * 1	24.463
	NRG1 * BYX * 3	73.928
	NRG1 * BYX * 2	~~8~~ 90.15

7/22/94 G.W. Centrifuge test for Nopal Tuff samples NOPI·VIT·1 and NOPI·VIT·2. Clay was packed into tubes and saturated with deionized water.

Wts. of empty tubes w/ filter paper -

1 - 13.9	3 - 13.9	5 - 14.0	7 - 14.1
2 - 14.0	4 - 14.0	6 - 13.9	8 - 14.0

7/25/94 GW Tubes 1 through 4 contain NOPI·VIT·2. Tubes 5 through 8 contain NOPI·VIT·1.

Tubes centrifuged at various low speeds to remove excess water - 15 MIN, 150 RPM
10 MIN, 200 RPM
30 MIN, 250 RPM
30 MIN, 300 RPM
15 MIN, 150 RPM
No water passed through, left to saturate over weekend.

Initial conditions -

Tube 1	57.2 g	27.5 ml
Tube 2	56.4 g	27.5 ml
Tube 3	47.6 g	22.0 ml
Tube 4	47.5 g	22.5 ml
Tube 5	44.7 g	21.0 ml
Tube 6	45.9 g	21.5 ml
Tube 7	37.1 g	15.5 ml
Tube 8	37.8 g	15.5 ml

To remove excess water -

15 MIN, 200 RPM wts -

1 - 57.2	3 - 47.6	5 - 44.6	7 - 37.0
2 - 56.4	4 - 47.4	6 - 45.8	8 - 37.6

10 MIN, 200 RPM. Wts -

1 - 57.2	3 - 47.6	5 - 44.5	7 - 36.9
2 - 56.3	4 - 47.4	6 - 45.8	8 - 37.5

5 MIN, 200 RPM. wts. -

1 - 57.2	3 - 47.6	5 - 44.4	7 - 36.8
2 - 56.3	4 - 47.3	6 - 45.7	8 - 37.5

5 MIN, 200 RPM. wts. -

1 - 57.2	3 - 47.5	5 - 44.4	7 - 36.8
2 - 56.3	4 - 47.3	6 - 45.7	8 - 37.5

5 MIN, 200 RPM. wts. -

1 - 57.1	3 - 47.5	5 - 44.4	7 - 36.8
2 - 56.3	4 - 47.3	6 - 45.7	8 - 37.5

Excess water out. New Volumes:

1 - 27.5 ml	3 - 21.5 ml	5 - 21.0 ml	7 - 15.0 ml
2 - 27.0 ml	4 - 22.0 ml	6 - 21.0 ml	8 - 15.5 ml

10 MIN, 400 RPM. Low speed - 393.0 RPM, High speed - 412.0 RPM. Wts. -

1 - 56.9	3 - 47.3	5 - 43.9	7 - 36.3
2 - 56.2	4 - 46.9	6 - 45.1	8 - 37.0

5 MIN, 400 RPM. Low speed - 391.0 RPM. High speed - 406.0 RPM. Wts -

1 - 56.8	3 - 47.3	5 - 43.8	7 - 36.3
2 - 56.1	4 - 46.9	6 - 45.0	8 - 36.9

5 MIN, 400 RPM. Low speed - 393.0 RPM. wts. -

1 - 56.8	3 - 47.3	5 - 43.8	7 - 36.3
2 - 56.1	4 - 46.9	6 - 45.0	8 - 36.9

5 MIN, 400 RPM. Wts. -

1 - 56.7	3 - 47.2	5 - 43.6	7 - 36.2
2 - 56.0	4 - 46.8	6 - 44.9	8 - 36.8

5 MIN, 400 RPM. wts -

1 - 56.7	3 - 47.2	5 - 43.6	7 - 36.2
2 - 56.0	4 - 46.8	6 - 44.9	8 - 36.8

New Volumes -

1- 27.0 ml	3- 21.5 ml	5- 19.5 ml	7- 14.5 ml
2- 27.0 ml	4- 21.5 ml	6- 20.0 ml	8- 15.0 ml

5 MIN, 600 RPM. Low speed - 592.0 RPM. Wts -

1- 56.5	3- 47.1	5- 43.3	7- 35.9
2- 55.8	4- 46.6	6- 44.6	8- 36.5

10 MIN, 600 RPM. Wts. -

1- 56.4	3- 47.0	5- 43.1	7- 35.7
2- 55.8	4- 46.5	6- 44.4	8- 36.4

5 MIN, 600 RPM. Wts -

1- 56.4	3- 47.0	5- 43.0	7- 35.7
2- ~~55.8~~ 55.7 7/25/94 g.w.	4- 46.4	6- 44.3	8- 36.3

5 MIN, 600 RPM. Wts. -

1- 56.3	3- 46.9	5- 43.0	7- 35.7
2- 55.7	4- 46.4	6- 44.2	8- 36.3

5 MIN, 600 RPM. Wts -

1- 56.2	3- 46.9	5- 42.9	7- 35.6
2- 55.6	4- 46.3	6- 44.1	8- 36.2

5 MIN, 600 RPM. Wts -

1- 56.2	3- 46.8	5- 42.8	7- 35.5
2- 55.6	4- 46.2	6- 44.1	8- 36.1

5 MIN, 600 RPM Wts. -

1- 56.1	3- 46.8	5- 42.7	7- 35.5
2- 55.5	4- 46.2	6- 44.0	8- 36.1

5 MIN, 600 RPM. Wts. -

1- 56.1	3- 46.8	5- 42.7	7- 35.5
2- 55.5	4- 46.2	6- 44.0	8- 36.1

New Volumes:

1- 26.5 ml	3- 20.5 ml	5- 18.5 ml	7- 14.0 ml
2- 26.5 ml	4- 20.0 ml	6- 18.5 ml	8- 14.0 ml

10 MIN, 800 RPM. Wts. -

1- 55.9	3- 46.6	5- 42.4	7- 35.3
2- 55.3	4- 46.0	6- 43.7	8- 35.8

Sat overnight. Wts. -

1- 55.9	3- 46.5	5- 42.4	7- 35.2
2- 55.3	4- 45.9	6- ~~43.4~~ 43.7 7/25/94 g.w.	8- 35.8

5 MIN, 800 RPM. Low speed - 793.0 RPM, high speed - 806.0 RPM. Wts. -

1- 55.8	3- 46.4	5- 42.3	7- 35.2
2- 55.2	4- 45.8	6- 43.6	8- 35.8

5 MIN, 800 RPM. Wts -

1- 55.6	3- 46.4	5- 42.2	7- 35.2
2- 55.1	4- 45.7	6- 43.5	8- 35.7

5 MIN, 800 RPM. Low speed - 792.0 RPM. Wts -

1- 55.6	3- 46.3	5- 42.2	7- 35.1
2- 55.0	4- 45.7	6- 43.5	8- 35.7

5 MIN, 800 RPM. Wts. -

1- 55.6	3- 46.3	5- 42.1	7- 35.1
2- 55.0	4- 45.7	6- 43.4	8- 35.7

5 MIN, 800 RPM. Wts. -

1- 55.5	3- 46.2	5- 42.1	7- 35.1
2- 54.9	4- 45.6	6- 43.4	8- 35.6

5 MIN, 800 RPM. Wts. -

1- 55.5	3- 46.2	5- 42.0	7- 35.1
2- 54.9	4- 45.6	6- 43.3	8- 35.6

5 MIN, 800 RPM. Low speed - 795.0 RPM. Wts. -

1- 55.4	3- 46.1	5- 42.0	7- 35.0
2- 54.9	4- 45.5	6- 43.2	8- 35.6

5 MIN, 800 RPM. Wts. -

1- 55.4	3- 46.1	5- 42.0	7 - 35.0
2- 54.9	4- 45.5	6- 43.2	8 - 35.6

New Volumes -

1- 26.0 ml	3 - 20.0 ml	5 - 17.5 ml	7 - ~~18.0~~ 13.0 ml 7/25/14 9.12.
2 - 25.5 ml	4 - 19.5 ml	6 - 18.0 ml	8 - ~~18~~ 13.0 ml 7/25/14 9.12

10 MIN, 1000 RPM, Low speed - 995.0 RPM, High speed - 1008. Wts-

1- 55.2	3- 45.9	5- 41.8	7- 34.9
2 - 54.8	4- 45.4	6 - 43.1	8 - 35.4

5 MIN, 1000 RPM. Low speed - 991.0 RPM, High speed - 1006. Wts -

1 - 55.1	3 - 45.8	5 - 41.7	7 - 34.8
2 - 54.7	4 - 45.3	6 - 43.0	8 - 35.4

5 MIN, 1000 RPM. Wts. -

1 - 55.0	3 - 45.8	5 - 41.7	7 - 34.8
2 - 54.7	4 - 45.2	6 - 43.0	8 - 35.4

Tubes out for one hr. Wts -

1 - 55.0	3 - 45.8	5 - 41.7	7 - 34.8
2 - 54.6	4 - 45.2	6 - 43.0	8 - 35.4

5 MIN, 1000 RPM. Low speed - 995.0 RPM. Wts -

1 - 55.0	3 - 45.8	5 - 41.6	7 - 34.7
2 - 54.6	4 - 45.2	6 - 42.9	8 - 35.3

5 MIN, 1000 RPM. Low speed - 994.0 RPM, High speed - 1005 RPM. Wts -

1 - 54.9	3 - 45.7	5 - 41.6	7 - 34.7
2 - 54.5	4 - 45.1	6 - 42.9	8 - 35.3

5 MIN, 1000 RPM. Low speed - 994.0 RPM, High speed - 1004 RPM. Wts. -

1 - 54.9	3 - 45.7	5 - 41.5	7 - 34.7
2 - 54.5	4 - 45.0	6 - 42.8	8 - 35.3

5 MIN, 1000 RPM. Wts. -

1 - 54.8	3 - 45.7	5 - 41.5	7 - 34.7
2 - 54.4	4 - 45.0	6 - 42.8	8 - 35.3

5 MIN, 1000 RPM. Low speed - 995.0 RPM, High speed - 1005 RPM. Wts -

1 - 54.8	3 - 45.6	5 - 41.5	7 - 34.7
2 - 54.4	4 - 45.0	6 - 42.8	8 - 35.3

5 MIN, 1000 RPM. High speed - 1004 RPM. Wts. -

1 - 54.8	3 - 45.6	5 - 41.4	7 - 34.6
2 - 54.4	4 - 45.0	6 - 42.8	8 - 35.2

5 MIN, 1000 RPM. Low speed - 995.0 RPM, High speed - 1005 RPM. Wts -

1 - 54.8	3 - 45.6	5 - 41.4	7 - 34.6
2 - 54.4	4 - 45.0	6 - 42.8	8 - 35.2

New Volumes:

1 - 25.0 ml	3 - 19.0 ml	5 - 17.0 ml	7 - 13.0 ml
2 - 25.0 ml	4 - 19.0 ml	6 - 17.5 ml	8 - 13.0 ml

10 MIN, 1200 RPM. Wts. -

1 - 54.7	3 - 45.5	5 - 41.3	7 - 34.5
2 - 54.3	4 - 44.8	6 - 42.6	8 - 35.1

10 MIN, 1200 RPM. Wts. -

1 - 54.6	3 - 45.4	5 - 41.2	7 - 34.5
2 - 54.2	4 - 44.7	6 - 42.5	8 - 35.1

5 MIN, 1200 RPM. Wts -

1 - 54.5	3 - 45.3	5 - 41.2	7 - 34.5
2 - 54.2	4 - 44.6	6 - 42.5	8 - 35.0

5 MIN, 1200 RPM. Wts. –

1– 54.5	3– 45.3	5– 41.2	7– 34.5
2– 54.1	4– 44.6	6– 42.5	8– 35.0

NEW VOLUME:

1– 25.0 ml	3– 19.0 ml	5– 17.0 ml	7– 12.5 ml
2– 25.0 ml	4– 18.5 ml	6– 17.5 ml	8– 13.0 ml

Sat overnight. Wts. –

1– 54.5	3– 45.3	5– 41.2	7– 34.5
2– 54.1	4– 44.6	6– 42.5	8– 35.0

5 MIN, 1200 RPM. Wts –

1– 54.4	3– 45.2	5– 41.1	7– 34.5
2– 54.0	4– 44.6	6– 42.4	8– 35.0

5 MIN, 1200 RPM. Wts. –

1– 54.3	3– 45.2	5– 41.1	7– 34.4
2– 54.0	4– 44.5	6– 42.4	8– 35.0

5 MIN, 1200 RPM. Low speed – 1196 RPM. Wts. –

1– 54.3	3– 45.1	5– 41.1	7– 34.4
2– 53.9	4– 44.5	6– 42.4	8– 34.9

5 MIN, 1200 RPM. Low speed – 1195 RPM, High speed – 1205 RPM. Wts –

1– 54.2	3– 45.1	5– 41.0	7– 34.4
2– 53.9	4– 44.5	6– 42.4	8– 34.9

5 MIN, 1200 RPM. Wts –

1– 54.2	3– 45.1	5– 41.0	7– 34.4
2– 53.9	4– 44.5	6– 42.4	8– 34.9

New Volumes:

1– 24.5 ml	3– 19.0 ml	5– 16.5 ml	7– 12.5 ml
2– 24.0 ml	4– 18.5 ml	6– 17.0 ml	8– 13.0 ml

10 MIN, 1400 RPM. Low speed – 1392 RPM. Wts. –

1– 54.1	3– 45.0	5– 40.9	7– 34.3
2– 53.7	4– 44.3	6– 42.3	8– 34.8

10 MIN, 1400 RPM. Low speed – 1391 RPM, High speed – 1404 RPM. Wts. –

1– 54.0	3– 45.0	5– 40.8	7– 34.3
2– 53.7	4– 44.3	6– 42.2	8– 34.8

5 MIN, 1400 RPM. Low speed – 1393 RPM, High speed – 1408 RPM. Wts. –

1– 54.0	3– 44.9	5– 40.8	7– 34.2
2– 53.6	4– 44.3	6– 42.2	8– 34.8

5 MIN, 1400 RPM. High speed – 1410 RPM. Wts. –

1– 54.0	3– 44.9	5– 40.8	7– 34.2
2– 53.6	4– 44.2	6– 42.2	8– 34.8

Tubes sat for 1 hour. Wts. –

1– 53.9	3– 44.9	5– 40.8	7– 34.2
2– 53.6	4– 44.2	6– 42.2	8– 34.8

5 MIN, 1400 RPM. Low speed – 1391 RPM, High speed – 1404 RPM. Wts –

1– 53.8	3– 44.9	5– 40.7	7– 34.2
2– 53.6	4– 44.2	6– 42.2	8– 34.7

5 MIN, 1400 RPM. Wts. –

1– 53.8	3– 44.8	5– 40.7	7– 34.2
2– 53.6	4– 44.1	6– 42.1	8– 34.7

5 MIN, 1400 RPM. ~~Wts.~~ 2nd Qu. Low speed – 1389 RPM, High speed – 1410. Wts. –

1– 53.8	3– 44.8	5– 40.7	7– 34.2
2– 53.6	4– 44.1	6– 42.1	8– 34.7

New Volumes:

1– 24.0 ml	3– 18.5 ml	5– 16.0 ml	7– 12.5 ml
2– 24.0 ml	4– 18.0 ml	6– 17.0 ml	8 – 12.5 ml

10 MIN, 1600 RPM. Wts. –

1 – 53.7	3 – 44.7	5 – 40.7	7 – 34.1
2 – 53.5	4 – 44.0	6 – 42.0	8 – 34.6

10 MIN, 1600 RPM. Wts.

1 – 53.6	3 – 44.6	5 – 40.6	7 – 34.1
2 – 53.4	4 – 44.0	6 – 42.0	8 – 34.6

5 MIN, 1600 RPM. Wts. –

1 – 53.6	3 – 44.6	5 – 40.6	7 – 34.1
2 – 53.4	4 – 44.0	6 – 42.0	8 – 34.6

New Volumes:

1 – 24.0 ml	3 – 18.0 ml	5 – 16.0 ml	7 – 12.5 ml
2 – 23.5 ml	4 – 17.5 ml	6 – 16.5 ml	8 – 12.5 ml

10 MIN, 1800 RPM. Wts. –

1 – 53.5	3 – 44.5	5 – 40.5	7 – 34.0
2 – 53.3	4 – 43.9	6 – 41.9	8 – 34.5

5 MIN, 1800 RPM. Wts. –

1 – 53.5	3 – 44.5	5 – 40.5	7 – 34.0
2 – 53.2	4 – 43.8	6 – 41.8	8 – ~~34.5~~ 35 7/25/84 g.w.

5 MIN, 1800 RPM. Wts. –

1 – 53.5	3 – 44.5	5 – 40.4	7 – 34.0
2 – 53.2	4 – 43.8	6 – 41.8	8 – 34.5

5 MIN, 1800 RPM. Wts. –

1 – 53.4	3 – 44.4	5 – 40.4	7 – 34.0
2 – 53.2	4 – 43.7	6 – 41.8	8 – 34.5

5 MIN, 1800 RPM. Wts –

1 – 53.4	3 – 44.4	5 – 40.4	7 – 34.0
2 – 53.2	4 – 43.7	6 – 41.8	8 – 34.5

Volumes:

1 – 23.5 ml	3 – 17.5 ml	5 – 15.5 ml	7 – 12.5 ml
2 – 23.5 ml	4 – 17.5 ml	6 – 16.0 ml	8 – 12.5 ml

~~0~~ 7/24/84 g.w. Sat overnight –

1 – 53.4	3 – 44.4	5 – 40.4	7 – 33.9
2 – 53.1	4 – 43.7	6 – 41.8	8 – 34.4

10 MIN, 2000 RPM. Wts –

1 – 53.3	3 – 44.3	5 – 40.3	7 – 33.9
2 – 53.0	4 – 43.6	6 – 41.7	8 – 34.4

5 MIN, 2000 RPM. Wts. –

1 – 53.2	3 – 44.3	5 – 40.3	7 – 33.9
2 – 53.0	4 – 43.5	6 – 41.7	8 – 34.4

5 MIN, 2000 RPM. Wts. –

1 – 53.2	3 – 44.2	5 – 40.2	7 – 33.8
2 – 53.0	4 – 43.5	6 – 41.7	8 – 34.3

5 MIN, 2000 RPM. Wts. –

1 – 53.1	3 – 44.2	5 – 40.2	7 – 33.8
2 – 52.9	4 – 43.5	6 – 41.6	8 – 34.3

5 MIN, 2000 RPM. Wts. –

1 – 53.1	3 – 44.2	5 – 40.2	7 – 33.8
2 – 52.9	4 – 43.5	6 – 41.6	8 – 34.3

New Volumes:

1 – 23.5 ml	3 – 17.5 ml	5 – 15.5 ml	7 – 12.0 ml
2 – 23.0 ml	4 – 17.5 ml	6 – 16.0 ml	8 – 12.5 ml

10 MIN, 2200 RPM. Wts. –

1 – 53.1	3 – 44.2	5 – 40.2	7 – 33.6
2 – 52.8	4 – 43.4	6 – 41.6	8 – 34.2

5 MIN, 2200 RPM. wts –

1- 53.0	3- 44.1	5- 40.1	7- 33.8
2- 52.8	4- 43.4	6- 41.5	8- 34.2

5 MIN, 2200 RPM. wts –

1- 53.0	3- 44.1	5- 40.1	7- 33.7
2- 52.8	4- 43.4	6- 41.5	8- 34.2

5 MIN, 2200 RPM. wts –

1- 53.0	3- 44.0	5- 40.1	7- 33.7
2- 52.8	4- 43.3	6- 41.5	8- 34.2

5 MIN, 2200 RPM. wts –

1- 52.9	3- 44.0	5- 40.0	7- 33.7
2- 52.7	4- 43.3	6- 41.4	8- 34.2

Tubes sat for one hr. wts –

1- 52.9	3- 44.0	5- 40.0	7- 33.7
2- 52.7	4- 43.2	6- 41.4	8- 34.2

5 MIN, 2200 RPM. wts –

1- 52.9	3- 44.0	5- 40.0	7- 33.7
2- 52.7	4- 43.2	6- 41.4	8- 34.2

New Volumes:

1- 23.0 ml	3- 17.5 ml	5- 15.0 ml	7- 12.0 ml
2- 23.0 ml	4- 17.0 ml	6- 16.0 ml	8- 12.0 ml

10 MIN, 2400 RPM. wts. –

1- 52.7	3- 43.9 ml	5- 39.9	7- 33.6
2- 52.6	4- 43.1 ml	6- 41.4	8- 34.1

5 MIN, 2400 RPM. wts. –

1- 52.7	3- 43.9 ml	5- 39.9	7- 33.6
2- 52.6	4- 43.1 ml	6- 41.4	8- 34.1

5 MIN, 2400 RPM. wts. –

1- 52.7	3- 43.9	5- 39.9	7- 33.6
2- 52.6	4- 43.1	6- 41.4	8- 34.1

New Volume –

1- 22.5 ml	3- 17.5 ml	5- 15.0 ml	7- 12.0 ml
2- 22.5 ml	4- 17.0 ml	6- 16.0 ml	8- 12.0 ml

10 MIN, 2600 RPM. wts –

1- 52.6	3- 43.8	5- 39.9	7- 33.5
2- 52.5	4- 43.1	6- 41.3	8- 34.0

5 MIN, 2600 RPM. wts –

1- 52.4	3- 43.8	5- 39.9	7- 33.5
2- 52.3	4- 43.1	6- 41.2	8- 34.0

5 MIN, 2600 RPM. wts –

1- 52.4	3- 43.8	5- 39.9	7- 33.5
2- 52.3	4- 43.1	6- 41.2	8- 34.0

Volumes:

1- 22.5 ml	3- 17.5 ml	5- 15.0 ml	7- 12.0 ml
2- 22.5 ml	4- 17.0 ml	6- 16.0 ml	8- 12.0 ml

10 MIN, 2800 RPM. wts –

1- 52.2	3- 43.7	5- 39.8	7- 33.5
2- 52.2	4- 43.0	6- 41.2	8- 34.0

5 MIN, 2800 RPM. wts –

1- 52.2	3- 43.6	5- 39.7	7- 33.4
2- 52.1	4- 42.9	6- 41.1	8- 33.9

5 MIN, 2800 RPM. wts –

1- 52.2	3- 43.6	5- 39.7	7- 33.4
2- 52.1	4- 42.9	6- 41.1	8- 33.9

FINAL VOLUMES:

1- 22.5 ml 3- 17.0 ml 5- 15.0 ml 7- 12.0 ml
2- 22.5 ml 4- 17.0 ml 6- 15.5 ml 8- 12.0 ml

Samples were emptied into beakers and weighed, then put in oven to dry. —

Wts. of empty beakers —

1- 103.3 g 3- 68.0 g 5- 67.2 g 7- 67.6 g
2- 175.4 g 4- 67.3 g 6- 162.2 g 8- 67.2 g

Wts. of beakers w/ samples —

1- 141.0 g 3- 97.4 g 5- 92.6 g 7- 86.5 g
2- 213.6 g 4- 95.8 g 6- 189.1 g 8- 87.0 g

7/29/94 J.W. Samples oven-dried and dry weights found —

Wts. of beakers w/ dry samples —

1- 130.0 g 3- 89.0 g 5- 86.1 g 7- 81.7 g
2- 202.3 g 4- 87.9 g 6- 182.1 g 8- 82.0 g.

From Pg 243

Kim 7/25/94

Sample	Dry Wt.
NRG3*AZB*5	3.189
NRG3*AZC*3	3.436
NRG3*AZB*3	3.787
NRG3*AZD*6	2.983
NRG3*AZD*1	3.251
NRG3*AZD*14	3.561
NRG3*AZB*8	3.558
NRG3*AZD*7	2.497
NRG3*AZD*18	3.604
NRG3*AZD*9	2.871
NRG3*AZB*12	3.430
NRG3*AZC*13	5.559
NRG3*AZB*6	3.978
NRG3 AZD*5	3.076
NRG3*AZC*10	4.177

Kim

from Pg 245

8/4/94
Pg = 170psi

Sample	Dry Wt.
NRG1*BYX*3	73.012
NRG1*BYX*2	89.01
NRG2*BZ*1	24.226
NRG2*BYX*2	26.064
NRG2*BXY*5	80.78
NRG2*BYX*1	25.163
NRG5*BZ*3	26.062
NRG5*BZ*5	28.272
NRG5*BZ*1	26.987
NRG3*BYX*2	35.314
NRG3*BYX*3	21.527
NRG3*BZB	18.588
NRG4*BZ*3	76.479
NRG4*CZ*4	47.967
NRG4*BYX*4	76.241
NRG4*BYX*3	36.959
NRG4*AZB*21	2.990

TEST = AquaLab

Notes:

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG5*B2*5	7/7/94	9.499		.983	17.8
"	7/7/94		9.495	.983	17.5
NRG5*A2A*6	7/7/94	3.020		.996	17.3
"	7/7/94		3.019	.997	17.2
NRG5*A2B*2	7/7/94	2.916		.994	17.4
"	7/7/94		2.915	.993	17.4
NRG5*A2B*14	7/7/94	2.424		.993	17.5
"	7/7/94		2.419	.994	17.3
NRG5*AN*3	7/7/94	3.802		.6672	17.8
"	7/7/94			.6664	17.9
"	7/7/94		3.802	.6664	17.9
NRG5*AN*7	7/7/94	3.656		.952	17.9
"	7/7/94		3.656	.952	17.7
NRG5*AN*2	7/7/94	4.116		.645	17.9
"	7/7/94			.640	17.9
"	7/7/94		4.116	.638	17.9
NRG5*AN*5	7/7/94	3.842		.887	17.8
"	7/7/94			.879	17.3
"	7/7/94		3.842	.880	17.5
NRG5*A2B*15	7/7/94	2.538		.985	17.6
"	7/7/94		2.537	.987	17.6
NRG5*A2B*11	7/7/94	2.896		.970	17.6
"	7/7/94		2.896	.970	17.6
NRG5*A2A*9	7/7/94	2.407		.997	17.5
"	7/7/94		2.405	.995	17.4
NRG5*AN*9	7/7/94	3.202		.729	17.5
"	7/7/94		3.202	.727	17.5
NRG5*A2B*16	7/7/94	3.431		.988	17.6
"	7/7/94		3.431	.987	17.6
NRG5*A2A*17	7/7/94	3.521		.992	17.8
"	7/7/94		3.518	.991	17.8
NRG5*AN*4	7/7/94	3.612		.971	17.9
"	7/7/94		3.612	.973	17.8

Continued on page: _____

KM 7/26/94

TEST = AquaLab

Notes:

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG5*AN*6	7/7/94	3.751		.647	17.8
"	7/7/94		3.751	.645	17.8
NRG5*AN*8	7/7/94	2.257		.648	17.9
"	7/7/94		2.257	.651	17.9
NRG5*AN*1	7/7/94	3.771		.962	18.0
"	7/7/94		3.771	.964	17.5
NRG5*A2B*4	7/7/94	2.522		1.000	17.5
"	7/7/94		2.520.	.999	17.5
Samples air-dried for 5 min. [signature] 7/7/94					
NRG5*A2B*2	7/12/94	2.884		.997	17.0
"	7/12/94			.993	17.0
"	7/12/94		2.881	.991	17.0
NRG5*AN*3	7/12/94	3.801		.6485	17.1
"	7/12/94			.6667	17.4
"	7/12/94		3.801	.6666	17.3
NRG5*A2A*17	7/12/94	3.499		.989	17.2
"	7/12/94		3.498	.986	17.3
NRG5*AN*4	7/12/94	3.593		.962	17.4
"	7/12/94		3.593	.959	17.3
NRG5*A2B*15	7/12/94	2.515		.972	17.3
"	7/12/94		2.514	.975	17.3
NRG5*A2B*14	7/12/94	2.395		.987	17.0
"	7/12/94		2.393	.988	17.1
NRG5*A2A*6	7/12/94	2.980		.969	17.3
"	7/12/94		2.980	.971	17.2
NRG5*A2A*9	7/12/94	2.378		.987	17.1
"	7/12/94		2.377	.987	17.1
NRG5*A2B*16	7/12/94	3.400		.970	17.5
"	7/12/94			.966	17.4
"	7/12/94		3.399	.965	17.3
NRG5*AN*8	7/12/94	2.256		.690	17.3
"	7/12/94			.682	17.3
"	7/12/94		2.256	.682	17.2

Continued on page: _____

KM 7/26/94

TEST = AquaLab

Notes: ② Inaccurate reading: Retry after Cal check.

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG5+AzB+11	7/12/94	2.870		.954	17.3
"	7/12/94		2.869	.952	17.1
NRG5+AN+7	7/12/94	3.634		.929	17.3
"	7/12/94		3.634	.926	17.3
② NRG5+AN+6	7/12/94	3.748		.644	17.3
"	7/12/94			.638	17.3
"	7/12/94			.627	17.5
"	7/12/94			.632	17.4
"	7/12/94			.637	17.2
"	7/12/94		3.~~748~~ 7/12/94 3.748	.663	17.4
"	7/12/94	7/12/94	3.~~748~~ 7/12/94		
NRG5+AN+6	7/12/94	3.748		.665	17.4
"	7/12/94		3.748	.666	17.4
NRG5+Bz+5	7/12/94	9.458		.975	17.6
"	7/12/94		9.458	.975	17.5
NRG5+AN+9	7/12/94	3.197		.641	17.7
"	7/12/94			.656	17.4
"	7/12/94		3.197	.656	17.5
NRG5+AN+2	7/12/94	4.115		.627	17.0
"	7/12/94		4.115	.624	17.1
NRG5+AzB+4	7/12/94	2.495		.986	17.1
"	7/12/94			.991	16.6
"	7/12/94		2.494	.988	16.7
NRG5+AN+5	7/12/94	3.833		.828	17.1
"	7/12/94			.822	17.2
"	7/12/94		3.833	.819	17.1
NRG5+AN+1	7/12/94	3.760		.942	17.6
please 12	7/12/94		3.758	.941	17.6

Continued on page: _____

KM 7/26/94

TEST = AquaLab

Notes:

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG5+AzB+15	7/20/94	2.469	2.469	.932	16.1
NRG5+AzB+16	7/20/94	3.357	3.357	.958	16.2
NRG5+AzA+6	7/20/94	2.942	2.940	.931	16.2
NRG5+AzB+2	7/20/94	2.858	2.858	.988	16.1
NRG5+AN+8	7/20/94	2.257	2.257	.633	16.2
NRG5+AzB+14	7/20/94	2.355	2.355	979	16.4
NRG5+AN+5	7/20/94	3.829	3.829	.779	16.3
NRG5+AN+9	7/20/94	3.197	3.197	.609	16.4
NRG5+AN+2	7/20/94	4.114	4.114	.569	15.9
NRG5+AzA+9	7/20/94	2.345	2.344	.978	16.4
NRG5+AN+7	7/20/94	3.625	3.624	.879	16.3
NRG5+AN+3	7/20/94	3.801	3.801	.585	16.4
NRG5+AN+4	7/20/94	3.573	3.573	.912	16.5
NRG5+AzB+11	7/20/94	2.816	2.815	.893	16.2
NRG5+Bz+5	7/20/94	9.434 7/20/94	9.432	.972	16.6
NRG5+AN+6	7/20/94	3.750	3.750	.584	16.8
NRG5+AN+1	7/20/94	3.738	3.738	.860	16.4
NRG5+AzB+4	7/20/94	2.468	2.468	.989	16.4
NRG5+AzA+17	7/20/94	3.455	3.452	.976	16.5

Continued on page: _____

KM 7/26/94

TEST = AquaLab

Notes: ①Samples Air Dried for 5 min. prior to reading

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
① NRG4*AzB*11	7/6/94	3.013		.805	16.6
"	7/6/94		3.013	.804	16.6
NRG4*AzC*7	7/6/94	3.414		.941	17.0
"	7/6/94		3.414	.941	17.1
NRG4*AzF*4	7/6/94	3.323		.886	17.1
"	7/6/94		3.323	.885	17.1
NRG4*AzB*13	7/6/94	3.505		.764	17.2
"	7/6/94		3.504	.761	17.1
NRG4*AzF*12	7/6/94	4.389		.813	17.0
"	7/6/94			.821	17.3
"	7/6/94		4.389	.820	17.2
NRG4*AzB*14	7/6/94	3.509		.894	17.0
"	7/6/94		3.509	.894	17.0
NRG4*AzF*3	7/6/94	3.715		.923	17.0
"	7/6/94		3.715	.922	17.0
NRG4*AzE*4	7/6/94	3.286		.986	17.1
"	7/6/94		3.284	.986	17.0
NRG4*AzB*5	7/6/94	3.831		.966	17.0
"	7/6/94			.9661	17.0
"	7/6/94		3.830	.961	17.0
NRG4*AzF*2	7/6/94	4.045		.922	17.2
"	7/6/94		4.045	.922	17.2
NRG4*AzB*18	7/6/94	4.471		.952	17.0
"	7/6/94		4.471	.954	17.0
NRG4*AzB*4	7/6/94	3.818		.902	17.3
"	7/6/94		3.818	.905	17.3
NRG4*AzF*9	7/6/94	3.864		.868	17.2
"	7/6/94		3.863	.868	17.2
NRG4*AzF*7	7/6/94	3.910		.967	17.3
"	7/6/94		3.910	.967	17.2
NRG4*AzE*1	7/6/94	3.104		.980	16.9
"	7/6/94		3.104	.980	17.0
NRG4*AzB*2	7/6/94	4.477		.993	16.7

Continued on page: _____

KM 7/26/94

TEST = AquaLab

Notes:

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4*AzB*2	7/6/94		4.477	.995	16.7
NRG4*AzC*9	7/6/94	3.500		.969	16.8
"	7/6/94		3.500	.971	16.7
NRG4*AzF*13	7/6/94	4.197		.986	16.6
"	7/6/94		4.197	.987	16.6
NRG4*AzC*3	7/6/94	3.498		.971	16.4
"	7/6/94		3.496	.969	16.5
NRG4*AzF*10	7/6/94	4.227		.941	16.8
"	7/6/94		4.227	.939	16.7
NRG4*AzF*1	7/6/94	4.776		.995	16.8
"	7/6/94		4.773	.995	16.8
NRG4*AzC*1	7/6/94	3.953		.985	16.9
"	7/6/94		3.953	.9816	16.7
NRG4*AzE*3	7/6/94	3.705		.964	17.1
"	7/6/94		~~3.705~~ 7/6/94	.970	17.0
"	7/6/94		3.705	.969	16.9
NRG4*AzC*10	7/6/94	3.534		.927	17.0
"	7/6/94			.916	16.8
"	7/6/94		3.534	.914	16.8
NRG4*AzC*5	7/6/94	3.303		.949	16.9
"	7/6/94			.939	16.8
"	7/6/94			.929	16.6
"	7/6/94		3.303	.931	16.7
NRG4*AzF*6	7/6/94	3.614		.901	17.1
"	7/6/94			.893	16.9
"	7/6/94		3.614	.893	17.0
NRG4*AzB*1	7/6/94	4.173		.994	16.9
"	7/6/94		4.170	.992	16.9
NRG4*AzB*9	7/6/94	4.043		.981	17.0
"	7/6/94			.947	17.0
"	7/6/94		4.043	.945	17.0
NRG4*AzB*6	7/6/94	3.575		.870	16.9
"	7/6/94		3.575	.870	17.0

Continued on page: _____

KM 7/26/94

TEST = AquaLab

Notes: ① Checked with NaCl ② Checked w/ DI H2O

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4*AzB*5	7/6/94	4.381		.827	17.1
"	7/6/94		4.381	.825	17.2
NRG4*AzF*8	7/6/94	4.402		.879	17.1
"	7/6/94		4.402	.881	17.1
NRG4*AzC*8	7/6/94	3.384		.889	17.3
plotted	7/6/94		3.384	.888	17.4
5 min. air dry time on all Samples			[initials] 7/6/94		
NRG4*AzC*9	7/13/94	3.487		.797	22.7
"	7/13/94			.792	22.8
"	7/13/94		3.485	.789	22.8
NRG4*AzB*11	7/13/94	3.003		.674	23.0
"	7/13/94		3.003	.672	23.1
NRG4*AzF*4	7/13/94	3.312		.725	23.0
"	7/13/94		3.312	.724	23.0
NRG4*AzC*7	7/13/94	3.405		.849	22.7
"	7/13/94		3.405	.849	22.9
NRG4*AzB*13	7/13/94	3.493		.632	22.9
"	7/13/94			.617	22.7
"	7/13/94			.613	22.7
"	7/13/94			.609	22.8
"	7/13/94			.605	22.9
"	7/13/94		3.493	.601	22.9
① "	7/13/94	3.493		.598	22.9
"	7/13/94			.602	22.9
"	7/13/94			.606	22.9
"	7/13/94		3.493	.603	22.9
NRG4*AzB*5	7/13/94	4.372		.707	23.1
"	7/13/94			.712	23.0
"	7/13/94		4.371	.713	23.0
NRG4*AzB*1	7/13/94	4.141		.899	23.0
② "	7/13/94			.905	22.8
"	7/13/94			.906	23.0
"	7/13/94		4.141	.900	23.0

Continued on page: ____________

KM 7/26/94

TEST = AquaLab

Notes: ① Turned fan off
② Verified plateau reached by repeated measurements [initials] 7/13/94
New aqualab procedure initiated as per lab manual (Nopal pg.) [initials] 7/13/94

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
① NRG4*AzB*1	7/13/94	4.141		.898	23.0
"	7/13/94		4.138	.897	23.0
NRG4*AzF*9	7/13/94	3.850		.738	22.8
"	7/13/94			.730	22.6
"	7/13/94			.787	16.4
"	7/13/94		3.846	.786	16.4
NRG4*AzF*1	7/13/94	4.735		.998	16.6
"	7/13/94		4.733	.995	16.5
NRG4*AzF*6	7/13/94	3.604		.876	16.6
"	7/13/94			.867	16.6
"	7/13/94			.857	16.6
"	7/13/94			.848	16.7
"	7/13/94			.841	16.5
"	7/13/94			.840	16.5
"	7/13/94		3.604	.840	16.4
② NRG4*AzE*3	7/13/94	3.692		.929	16.6
"	7/13/94			.925	16.6
"	7/13/94			.924	16.5
"	7/13/94			.922	16.5
"	7/13/94		3.692	.917	16.6
NRG4*AzF*8	7/13/94	4.385		.794	16.8
"	7/13/94			.787	16.6
"	7/13/94			.780	16.7
"	7/13/94		4.385	.781	16.6
NRG4*AzF*2	7/13/94	4.023		.819	16.7
"	7/13/94		4.023	.818	16.6
NRG4*AzC*4	7/13/94	3.258		.971	16.8
"	7/13/94		3.258	.970	16.8
NRG4*AzB*14	7/13/94	3.495		.880	16.7
"	7/13/94			.876	16.5
"	7/13/94			.863	16.7
"	7/13/94			.854	16.6
* "	7/13/94			.850	16.6

*Continued on page: ____________

* Continued

KM 7/26/94

TEST = AquaLab

Notes:

Investigators:

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4 * AzB * 14	7/13/94	3.495		.845	16.5
"	7/13/94			.840	16.6
"	7/13/94			.836	16.7
"	7/13/94			.832	16.6
"	7/13/94			.830	16.7
"	7/13/94			.827	16.8
"	7/13/94		3.495	.830	16.6
NRG4 * AzB * 2	7/13/94	4.464		.969	16.6
"	7/13/94			.967	16.7
"	7/13/94		4.464	.964	16.7
NRG4 * AzC * 8	7/13/94	3.362		.827	16.7
"	7/13/94			.804	16.7
"	7/13/94			.794	16.7
"	7/13/94			.790	16.8
"	7/13/94		3.362	.791	16.8
NRG4 * AzF * 3	7/14/94	3.707		.881	16.3
"	7/14/94		3.707	.879	16.3
NRG4 * AzB * 9	7/14/94	4.025		.882	16.5
"	7/14/94		4.025	.881	16.3
NRG4 * AzB * 4	7/14/94	3.809		.897	16.4
"	7/14/94		3.809	.896	16.2
NRG4 * AzF * 12	7/14/94	4.383		.904	16.4
"	7/14/94			.896	16.3
"	7/14/94			.885	16.3
"	7/14/94			.882	16.3
"	7/14/94			.876	16.3
"	7/14/94			.873	16.2
"	7/14/94			.869	16.3
"	7/14/94			.860	15.9
"	7/14/94			.862	15.9
"	7/14/94		4.383	.862	16.0
NRG4 * AzB * 5	7/14/94	3.793		.905	16.3
"	7/14/94			.897	16.3

Continued on page: _____

7/26/94

TEST = AquaLab

Notes:

Investigators:

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4 * AzB * 15	7/14/94	3.793		.891	16.3
"	7/14/94			.885	16.4
"	7/14/94			.873	16.4
"	7/14/94		3.793	.872	16.3
NRG4 * AzC * 10	7/14/94	3.525		.915	16.4
"	7/14/94		3.524	.889 .888 7/14/94	16.4
~~NRG4 * AzC * 5~~ 7/14/94	7/14/94	~~3.281~~ 7/14/94	3.524	.888	16.3
NRG4 * AzC * 5	7/14/94	3.281		.858	16.3
"	7/14/94			.836	16.4
"	7/14/94			.831	16.4
"	7/14/94		3.281	.831	16.3
NRG4 * AzB * 18	7/14/94	4.442		.807	16.2
"	7/14/94		4.440	.808	16.2
NRG4 * AzB * 16	7/14/94	3.563		.785	16.2
"	7/14/94			.781	16.3
"	7/14/94			.777	16.4
"	7/14/94			.778	16.4
"	7/14/94		3.563	.778	16.4
NRG4 * AzC * 3	7/14/94	3.489		.861	16.5
"	7/14/94			.853	16.0
"	7/14/94			.856	16.3
"	7/14/94		3.489	.857	16.3
NRG4 * AzE * 1	7/14/94	3.097		.893	16.3
"	7/14/94			.884	16.2
"	7/14/94			.876	16.2
"	7/14/94		3.097	.874	16.1
NRG4 * AzF * 10	7/15/94	4.214		.796	16.4
"	7/15/94			.790	16.3
"	7/15/94			.785	16.3
"	7/15/94		4.214	.785	16.2
NRG4 * AzF * 13	7/15/94	4.167		.788	16.1
"	7/15/94			.781	15.9
"	7/15/94			.778	15.9

Continued on page: _____

KM 7/26/94

TEST = AquaLab

Notes: ① Raw data now plotted on seperate page 7/15/94

Investigators: Ramos

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4 * AzF * 13	7/15/94	4.167		.769	15.8
"	7/15/94			.768	16.0
"	7/15/94		4.167	.769	16.1
NRG4 * AzC * 1	7/15/94	3.936		.871	16.2
"	7/15/94			.868	16.2
"	7/15/94		3.935	.867	16.1
NRG4 * AzF * 7	7/15/94	3.898		.784	16.3
"	7/15/94			.782	16.1
" plotted	7/15/94		3.898	.774	16.2
① Samples oven-dried for 7 min. 7/15/94					
NRG4 * AzB * 2	7/18/94	4.433	4.433	.785	15.8
NRG4 * AzF * 7	7/18/94	3.895	3.895	.766	16.1
NRG4 * AzB * 18	7/18/94	4.433	4.433	.759	16.2
NRG4 * AzF * 10	7/18/94	4.211	4.211	.750	16.1
NRG4 * AzC * 9	7/18/94	3.479	3.479	.778	16.1
NRG4 * AzF * 12	7/18/94	4.378	4.377	.763	16.1
NRG4 * AzB * 1	7/18/94	4.112	4.112	.785	16.2
NRG4 * AzF * 3	7/18/94	3.696	3.696	.774	16.0
NRG4 * AzC * 8	7/18/94	3.360	3.359	.736	16.2
NRG4 * AzB * 5	7/18/94	3.786	3.786	.720	16.1
NRG4 * AzC * 3	7/18/94	3.476	3.476	.758	16.0
NRG4 * AzC * 10	7/18/94	3.515	3.513	.749	16.2
NRG4 * AzE * 1	7/18/94	3.090	3.090	.767	15.8
NRG4 * AzF * 4	7/18/94	3.300			
~~NRG4 * AzB * 4~~	~~7/18/94~~	7/18/94			
~~NRG4 * AzF * 1~~	~~7/18/94~~	7/18/94			
	7/19/94	Samples Oven-dried			
	7/15/94				

Continued on page: _____

TEST = AquaLab

Notes: ① Would not equilibrate - do not use 7/21/94

Investigators: Ramos

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG3 * AzD * 16	7/21/94	3.475	3.475	.655	15.8
NRG3 * AzD * 12	7/21/94	3.321	3.321	.634	16.0
NRG3 * AzB * 7	7/21/94	3.020	3.020	.546	15.8
NRG3 * Az C * 7	7/21/94	4.337	4.336	.576	16.0
NRG3 * AzB * 15	7/21/94	3.320	3.320	.642	15.7
NRG3 * AzB * 10	7/21/94	3.650	3.650	.430	16.1
NRG3 * AzD * 2	7/21/94	4.450	4.450	.598	16.3
NRG3 * AzB * 2	7/21/94	4.068	4.068	.708	16.0
NRG3 * AzB * 11	7/21/94	3.392	3.392	.556	16.0
NRG3 * AzD * 4	7/21/94	2.673	2.673	.434	16.1
NRG3 * AzB * 14	7/21/94	3.493	3.492	.601	16.0
NRG3 * AzB * 13	7/21/94	3.626	3.625	.510	16.2
NRG3 * AzD * 3	7/21/94	3.574	3.574	.555	16.1
NRG3 * AzD * 10	7/21/94	3.239	3.238	.470	16.1
NRG3 * AzB * 4	7/21/94	3.538	3.537	.557 .538	16.3 ~~16.23~~
① NRG3 * AzB * 9	7/21/94	3.597		7/22/94	
NRG3 * AzC * 4	7/21/94	4.470	4.470	.535	16.2
NRG3 * AzC * 2	7/21/94	3.622	3.622	.596	16.1
NRG3 * AzC * 12	7/21/94	3.634	3.634	.611	16.1
NRG3 * AzC * 5	7/21/94	4.161	4.161	.610	16.4
NRG3 * AzD * 8	7/22/94	4.049	4.049	.658	15.9

Continued on page: _____

TEST = AquaLab

Notes: ① Aqualab registered in error due to changes in Activity between NRG3*AzB*14 and NRG3*AzB*9 7/12/94 Note: use D2 H2O to stabalize? the aqualab at ①. 7/12/94

Investigators:

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG3*AzB*15	7/12/94	3.332		.692	17.6
"	7/12/94			.686	17.5
"	7/12/94		3.332	.683	17.4
NRG3*AzC*12	7/12/94	3.678		.966	17.3
"	7/12/94		3.677	.966	17.4
NRG3*AzC*4	7/12/94	4.538		.946	17.9
"	7/12/94		4.535	.945	17.7
NRG3*AzB*11	7/12/94	3.440		.954	17.6
"	7/12/94			.950	17.6
"	7/12/94			.941	17.7
"	7/12/94		3.439	.938	17.8
NRG3*AzB*2	7/12/94	4.109		.968	17.5
"	7/12/94		4.109	.966	17.5
NRG3*AzB*14	7/12/94	3.545		.976	17.4
"	7/12/94		3.544	.975	17.4
NRG3*AzB*9	7/12/94	3.636		.868	17.5
"	7/12/94			.864	17.4
① "	7/12/94		3.636	.858	17.5
"	7/12/94	3.636		.821	17.6
"	7/12/94		3.635	.820	17.5
NRG3*AzC*2	7/12/94	3.643		.659	18.0
"	7/12/94			.653	17.9
Plotted	7/12/94		7/12/94 3.643	.651	17.3

Continued on page: _____

KM 7/26/94

TEST = AquaLab

Notes: Initial Saturated weights and Activities
①Aw Sample reread until consistant (±.003) Aw recorded

Investigators:

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG2*AzA*10	6/29/94	2.897	2.890	1.000	16.5
NRG2*AzC*3	6/29/94	3.685	3.676	1.000	17.4
NRG2*AzA*2	6/29/94	3.099	3.092	1.000	16.4
NRG2*AzG*1	6/29/94	3.018	3.010	.997	16.5
NRG2*AzC*4	6/29/94	3.717	3.708	1.000	16.5
NRG2*AzA*7	6/29/94	3.441	3.435	1.001	16.6
NRG2*AzA*4	6/29/94	3.376	3.369	.995	16.5
NRG2*AzA*1	6/29/94	3.270	3.265	1.002	16.4
NRG2*AzC*1	6/29/94	3.433	3.426	.997	16.5
NRG2*AzA*11	6/29/94	3.100	3.094	1.001	16.4
NRG2*AzG*3	6/29/94	4.253	4.246	1.012	16.6
D2 H2O (Final)	6/29/94			1.000	16.4
NaCl (Final)	6/29/94			.757	16.3
① NRG2*AzC*4	7/7/94	3.660		.999	17.4
"	7/7/94		3.658	.996	17.3
NRG2*AzA*1	7/7/94	3.247		.998	17.3
"	7/7/94		3.245	.996	17.1
NRG2*AzA*2	7/7/94	3.044		.991	17.5
"	7/7/94		3.044	.991	17.4
NRG2*AzA*11	7/7/94	3.064		.996	17.6
"	7/7/94		3.063	.993	17.5
NRG2*AzA*10	7/7/94	2.852		.996	17.5
"	7/7/94		2.851	.996	17.5
NRG2*AzG*1	7/7/94	2.987		.989	17.6
"	7/7/94		2.985	.991	17.6
NRG2*AzA*7	7/7/94	3.397		.999	17.7
"	7/7/94		3.396	.999	17.6
NRG2*AzC*1	7/7/94	3.388		.989	17.8
"	7/7/94		3.385	.988	17.7
NRG2*AzG*3	7/7/94	4.207		.989	17.6
"	7/7/94		4.204	.987	17.6
NRG2*AzC*3	7/7/94	3.630		.997	17.6
"	7/7/94		3.628	.994	17.6

Continued on page: _____

KM 7/26/94

TEST = AquaLab

Notes: ① Raw data now contained on data sheets: these are the actual activities.

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG2+A2A+4	7/7/94	3.335		1.002	17.7
"	7/7/94			.999	17.6
"	7/7/94		3.335	.999	17.6
NRG2+A2A+4	7/15/94	3.301		.999	15.7
"	7/15/94			.996	15.8
"	7/15/94			.998	15.8
"	7/15/94		3.298	.999	15.8
	~~7/15/94~~ 7/18/94				
① NRG2+A2A+11	7/15/94	3.018	3.016	.998	16.1
NRG2+A2A+1	7/15/94	3.175	3.174	.998	16.2
NRG2+A2A+2	7/15/94	3.003	3.000	.998	16.3
NRG2+A2A+7	7/15/94	3.350	3.346	.995	16.2
NRG2+A2C+3	7/15/94	4.175	4.174	.999	16.1
NRG2+A2C+4	7/15/94	3.613	3.612	.999	16.1
NRG2+A2C+3	7/15/94	3.565	3.560	.994	16.3

Continued on page: _____

KM 7/26/94

Sample ID: NRG5+B4X+1 TEST = Ksat Continued on pg:

Start time: 1115	Date: 7/18/94	Stop time: 1310	Date: 7/18/94
DP: 10 (psig)	DT: 6900 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	10.8	10.8
Inflow	20	Inflow	1.9	4.9
Outflow	10	Outflow	22.3	19.3

Change in Fluid level(ml)

Confining: -.3 Inflow: -3.0 Outflow: +3.0

Start time: 1315	Date: 7/18/94	Stop time: 1415	Date: 7/18/94
DP: 20 (psig)	DT: 3600 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	10.8	11.0
Inflow	30	Inflow	4.9	7.8
Outflow	10	Outflow	19.3	16.4

Change in Fluid level(ml)

Confining: -.2 Inflow: -2.9 Outflow: +2.9

Start time: 1418	Date: 7/18/94	Stop time: ~~1518~~ 1518 7/26/94	Date: 7/18/94
DP: 30 (psig)	DT: 3600 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	11.0	11.3
Inflow	40	Inflow	7.8	12.1
Outflow	10	Outflow	16.4	12.1

Change in Fluid level(ml)

Confining: -.3 Inflow: -4.3 Outflow: +4.3

Start time: 0730	Date: 7/19/94	Stop time: 0835	Date: 7/19/94
DP: 40 (psig)	DT: 3900 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	12.3	12.3
Inflow	50	Inflow	2.3	8.4
Outflow	10	Outflow	22.7	16.6

Change in Fluid level(ml)

Confining: 0.0 Inflow: -6.1 Outflow: +6.1

Start time: ~~0830~~ 0830	Date: 7/19/94	Stop time: 0945	Date: 7/19/94
DP: 50 (psig)	DT: 3600 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	12.1	12.1
Inflow	60	Inflow	2.5	9.4
Outflow	10	Outflow	21.3	14.4

Change in Fluid level(ml)

Confining: 0.0 Inflow: -6.9 Outflow: +6.9

7/26/94 KM

Sample ID: NRG5*BYX*1	TEST = Ksat	Continued on pg:		
Start time: 0954	Date: 7/19/94	Stop time: 1056	Date: 7/19/94	
DP: 60 (psig)	DT: 3720 (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	110	Confining	12.3	12.3
Inflow	70	Inflow	2.1	11.2
Outflow	10	Outflow	22.5	13.4
Change in Fluid level(ml)				
Confining: 0.0	Inflow: -9.1	Outflow: +9.1		

Start time: ~~70~~ 1100 (7/19/94)	Date: 7/19/94	Stop time: 1238	Date: 7/19/94	
DP: 70 (psig)	DT: 5880 (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	110	Confining	12.0	12.0
Inflow	80	Inflow	2.4	20.0
Outflow	10	Outflow	21.8	4.2
Change in Fluid level(ml)				
Confining: 0.0	Inflow: -17.6	Outflow: +17.6		

Start time:	Date:	Stop time:	Date:	
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		

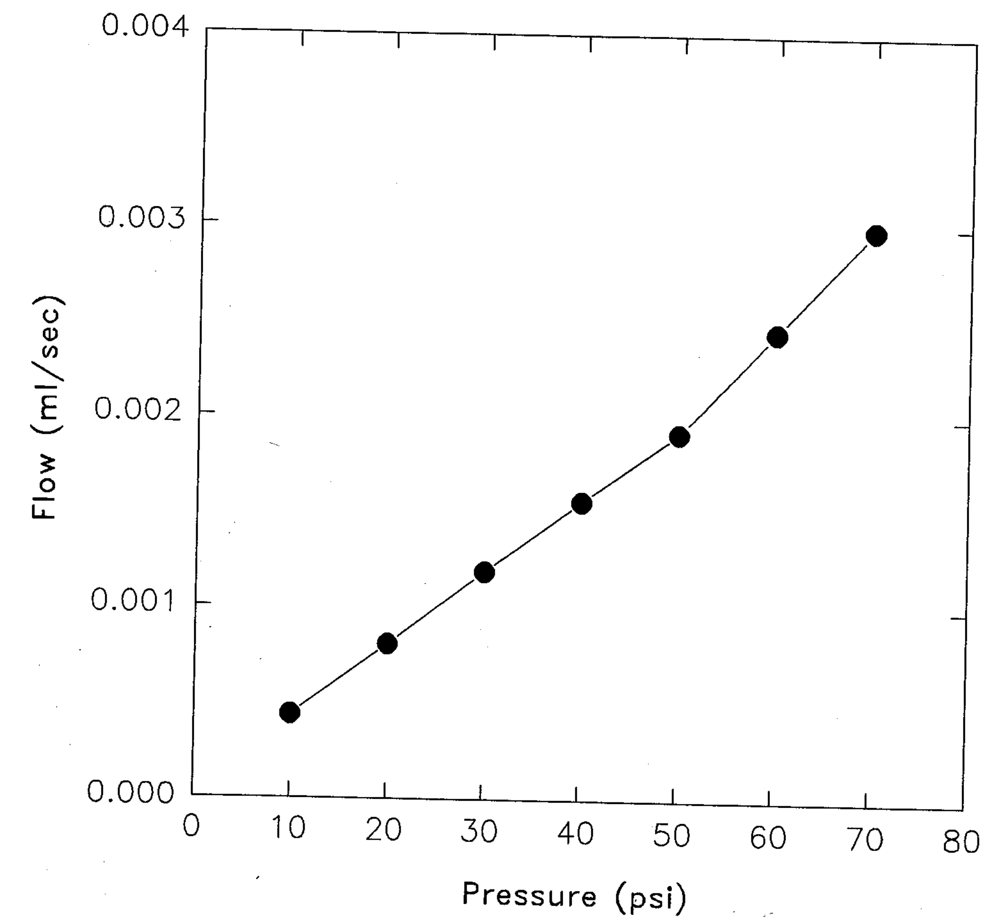
Start time:	Date:	Stop time:	Date:	
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		

Start time:	Date:	Stop time:	Date:	
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		

Km 7/27/94

Km 7/27/94

NRG5*BYX*1



Km 7/27/94

K5BYX1.SP5: Tue, 26-Jul-94

Flow (ml/sec)	Press (psi)
0.000435	10
0.000806	20
0.00119	30
0.00156	40
0.00192	50
0.00245	60
0.00299	70

Km 7/27/94

* Used stopwatch

Sample ID: NRG5+ 8Yx+2	TEST = Ksat	Continued on pg:

Start time: 1032	Date: 7/15/94	Stop time: 1053	Date: 7/15/94
DP: 10 (psig)	DT: 1260 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	~~6.8~~ 9.0	8.9
Inflow	~~20~~ 30	Inflow	6.1	14.9
Outflow	~~30~~ 20 7/18/94	Outflow	18.6	9.8

Change in Fluid level(ml)

Confining: -.1 Inflow: -8.8 Outflow: +8.8

*Start time: ~~7/15/94~~ 0:00	Date: 7/15/94	Stop time: 7:00	Date: 7/18/94
DP: 20 (psig)	DT: 420 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	8.9	8.9
Inflow	30	Inflow	3.4	9.4
Outflow	10	Outflow	18.6	12.6

Change in Fluid level(ml)

Confining: 0.00 Inflow: -6.0 Outflow: +6.0

*Start time: 0:00	Date: 7/15/94	Stop time: 5:00	Date: 7/15/94
DP: 30 (psig)	DT: 300 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	8.9	8.9
Inflow	40	Inflow	3.2	10.1
Outflow	10	Outflow	20.2	13.3

Change in Fluid level(ml)

Confining: 0.0 Inflow: -6.9 Outflow: +6.9

*Start time: 0:00	Date: 7/15/94	Stop time: 2:13	Date: 7/15/94
DP: 40 (psig)	DT: 133 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	8.9	8.9
Inflow	50	Inflow	10.1	14.0
Outflow	10	Outflow	13.3	9.4

Change in Fluid level(ml)

Confining: 0.0 Inflow: -3.9 Outflow: +3.9

*Start time: 0:00	Date: 7/18/94	Stop time: 2:00	Date: 7/18/94
DP: 50 (psig)	DT: 120 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	2.7	~~2.7~~ 3.2 7/18/94
Inflow	60	Inflow	4.9	16.2
Outflow	10	Outflow	17.7	6.4

Change in Fluid level(ml)

Confining: 0.0 Inflow: -11.3 Outflow: +11.3

* Used stopwatch

Sample ID: NRG5+ 8Yx+2	TEST = Ksat	Continued on pg:

*Start time: 0:00	Date: 7/18/94	Stop time: 3:00	Date: 7/18/94
DP: 60 (psig)	DT: 180 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	3.0	3.0
Inflow	70	Inflow	1.6	21.2
Outflow	10	Outflow	23.8	4.2

Change in Fluid level(ml)

Confining: 0.0 Inflow: -19.6 Outflow: +19.6

*Start time: 0:00	Date: 7/18/94	Stop time: 2:00	Date: 7/18/94
DP: 70 (psig)	DT: 120 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	3.2	3.2
Inflow	80	Inflow	4.0	18.5
Outflow	10	Outflow	21.2	6.7

Change in Fluid level(ml)

Confining: 0.0 Inflow: -14.5 Outflow: +14.5

*Start time: 0:00	Date: 7/18/94	Stop time: 2:00	Date: 7/18/94
DP: 80 (psig)	DT: 120 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	3.2	~~3.2~~ 7/18/94 3.2
Inflow	90	Inflow	1.3	18.0
Outflow	10	Outflow	23.7	7.0

Change in Fluid level(ml)

Confining: 0.0 Inflow: -16.7 Outflow: +16.7

*Start time: 0:00	Date: 7/18/94	Stop time: 2:00	Date: 7/18/94
DP: 90 (psig)	DT: 120 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	3.2	3.2
Inflow	100	Inflow	.8	20.3
Outflow	10	Outflow	24.4	4.9

Change in Fluid level(ml)

Confining: 0.0 Inflow: -19.5 Outflow: +19.5

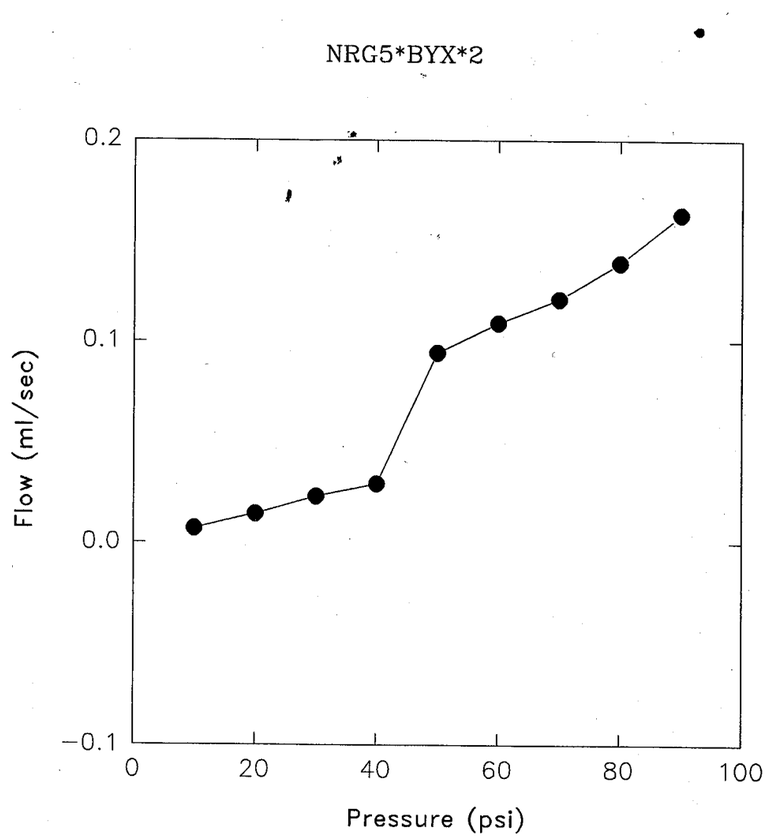
Start time:	Date:	Stop time:	Date:
DP: (psig)	DT: (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

Change in Fluid level(ml)

Confining: Inflow: Outflow:

7/21/94



K5BYX2.SP5: Tue, 26-Jul-94

Flow (ml/sec)	Press (psi)
0.00698	10
0.0143	20
0.023	30
0.0293	40
0.0942	50
0.109	60
0.121	70
0.139	80
0.163	90

Sample ID: NRG5+Bz+2	TEST = Ksat	Continued on pg:

Start time: 1617	Date: 7/19/94	Stop time: 1741	Date: 7/19/94
DP: 10 (psig)	DT: 5040 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	2.4	2.4
Inflow	20	Inflow	2.0	3.0
Outflow	10	Outflow	23.5	22.5

Change in Fluid level(ml)

Confining: 0.0 Inflow: +1.0 Outflow: +1.0

Start time: 0835	Date: 7/20/94	Stop time: 1037	Date: 7/20/94
DP: 20 (psig)	DT: 7320 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	3.1	3.1
Inflow	30	Inflow	3.0	5.8
Outflow	10	Outflow	22.5	19.7

Change in Fluid level(ml)

Confining: 0.0 Inflow: +2.8 Outflow: +2.8

Start time: 1040	Date: 7/20/94	Stop time: 1300	Date: 7/20/94
DP: 30 (psig)	DT: 8400 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	3.8	3.8
Inflow	40	Inflow	2.1	6.8
Outflow	10	Outflow	22.2	17.5

Change in Fluid level(ml)

Confining: 0.0 Inflow: +4.7 Outflow: +4.7

Start time: 1302	Date: 7/20/94	Stop time: 1502	Date: 7/20/94
DP: 40 (psig)	DT: 7200 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	2.8	2.8
Inflow	50	Inflow	6.8	12.1
Outflow	10	Outflow	17.5	12.2

Change in Fluid level(ml)

Confining: 0.0 Inflow: +5.3 Outflow: +5.3

Start time: 1505	Date: 7/20/94	Stop time: 1705	Date: 7/20/94
DP: 50 (psig)	DT: 7200 (sec)	Fluid Levels(ml)	

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	3.3	3.3
Inflow	60	Inflow	1.6	8.4
Outflow	10	Outflow	22.5	15.7

Change in Fluid level(ml)

Confining: 0.0 Inflow: +6.8 Outflow: +6.8

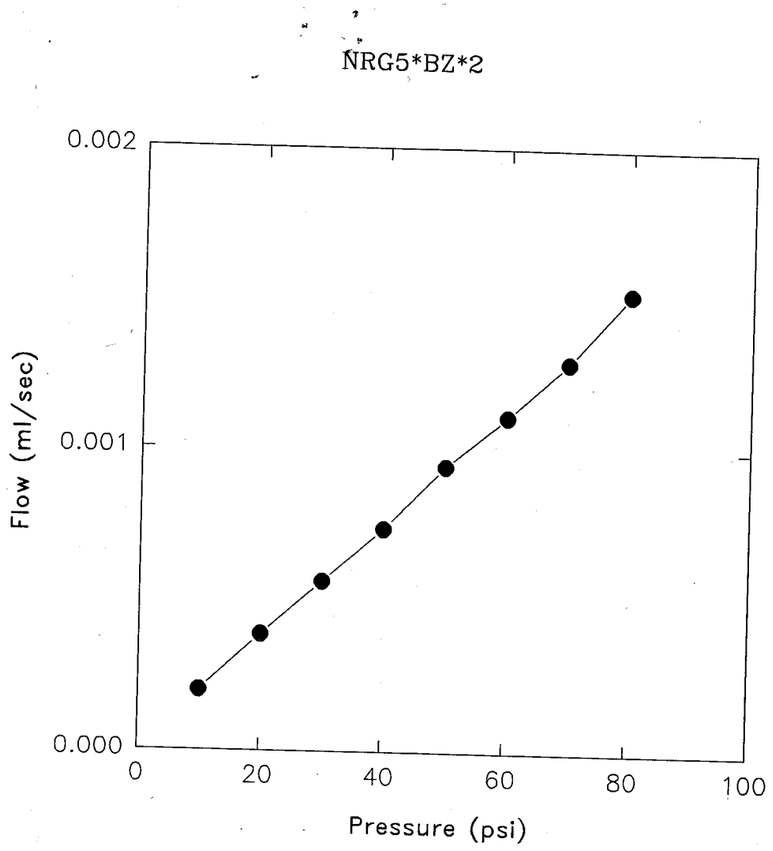
Sample ID:		TEST = Ksat		Continued on pg:
Start time: 0835	Date: 7/21/94	Stop time: 1124	Date: 7/21/94	
DP: 60 (psig)	DT: 10140 (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	110	Confining	3.9	3.9
Inflow	70	Inflow	1.9	13.2
Outflow	10	Outflow	22.3	11.0
Change in Fluid level(ml)				
Confining: 0.0	Inflow: -11.3	Outflow: +11.3		

Start time: 1128	Date: 7/21/94	Stop time: 1338	Date: 7/21/94	
DP: 70 (psig)	DT: 7800 (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	110	Confining	3.0	3.0
Inflow	80	Inflow	1.7	11.8
Outflow	10	Outflow	22.8	12.7
Change in Fluid level(ml)				
Confining: 0.0	Inflow: -10.1	Outflow: +10.1		

Start time: 1345	Date: 7/21/94	Stop time: 1552	Date: 7/21/94	
DP: 80 (psig)	DT: 7620 (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining	110	Confining	2.8	2.8
Inflow	90	Inflow	1.0	12.6
Outflow	10	Outflow	22.7	11.1
Change in Fluid level(ml)				
Confining: 0.0	Inflow: -11.6	Outflow: +11.6		

Start time:	Date:	Stop time:	Date:	
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		

Start time:	Date:	Stop time:	Date:	
DP: (psig)	DT: (sec)	Fluid Levels(ml)		
	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		
Change in Fluid level(ml)				
Confining:	Inflow:	Outflow:		



K5BZ2.SP5: Tue, 26-Jul-94

Flow (ml/sec)	Press (psi)
0.000198	10
0.000383	20
0.00056	30
0.000736	40
0.000944	50
0.00111	60
0.00129	70
0.00152	80

Saturated weight after Ksat test: 33.944 g

Sample ID: NRG3×BYX×1 TEST = Ksat Continued on pg:

Start time: 11:00 Date: 6/23/94 Stop time: 11:44 Date: 6/24/94

DP: 20 (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	103.2	Confining	4.6	
Inflow	24.0	Inflow	KM 3.85 3.35	3.5
Outflow	4.0	Outflow	6/28/94 23.15	23.2

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 11:45 Date: 6/24/94 Stop time: 12:29 Date: 6/28/94

DP: 40 (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	103.4	Confining	8.0	9.0
Inflow	44.0	Inflow	3.6	4.1
Outflow	4.0	Outflow	23.2	23.05

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 12:30 Date: 6/28/94 Stop time: 11:28 Date: 6/29/94

DP: 60 (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	103.4	Confining	9.0	8.9 Kmg/94 4.2
Inflow	64.0	Inflow	4.1	
Outflow	4.0	Outflow	23.05	23.00

Change in Fluid level(ml)

Confining: Inflow: Outflow:

KM 7/27/94

Start time: 11:29 Date: 6/29/94 Stop time: 11:07 Date: 6/30/94

DP: 80 (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	103.4	Confining	9.9	6.7
Inflow	84.0	Inflow	4.3	4.5
Outflow	4.0	Outflow	23.0	22.8

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 11:07 Date: 6/30/94 Stop time: 1022 Date: 7/1/94

DP: 94 (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	107.8	Confining	7.1	
Inflow	98.0	Inflow	4.5	
Outflow	4.0	Outflow	22.8	

Invalid Due to loss of Pressure 7/1/94

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Sample ID: NRG3×BYX×1 TEST = Ksat Continued on pg:

Start time: 08:23 10:55 Date: 7/5/94 Stop time: 2:17 Date: 7/7/94

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	109.9	Confining	7.5	6.95
Inflow	74.2	Inflow	5.9	6.1
Outflow	4.7	Outflow	20.55	20.5

Change in Fluid level(ml)

Confining: Inflow: Outflow:

Start time: 7/7/94 Date: 2:17 Stop time: 1024 Date: 7/18/94

DP: 70 (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	109.9	Confining	6.95	8.90
Inflow	74.2	Inflow	6.1	6.5
Outflow	4.7	Outflow	20.5	20.2

Change in Fluid level(ml)

Confining: Inflow: Outflow:

KM 7/27/94

Start time: 0940 Date: 7/18/94 Stop time: 1347 Date: 7/21/94

DP: 90 (psig) DT: 274,020 (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining	110	Confining	6.9 3.0 10.5	10.5
Inflow	95.0	Inflow	6.8	7.2
Outflow	5.0	Outflow	20.1	19.7

Change in Fluid level(ml)

Confining: Inflow: -.4 Outflow: +.4

Start time: Date: Stop time: Date:

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

Change in Fluid level(ml)

Confining: Inflow: Outflow:

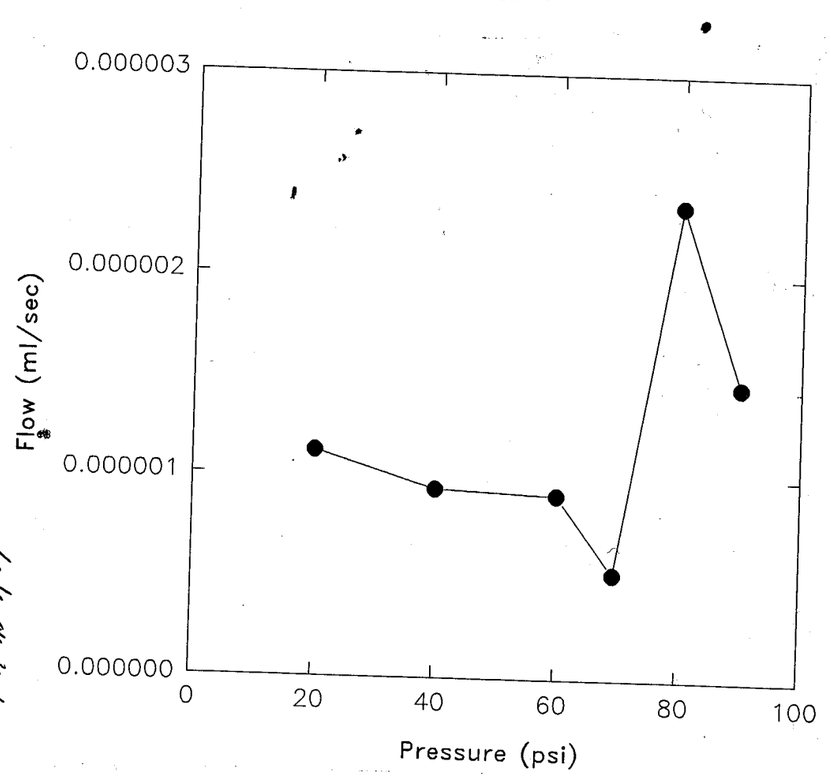
Start time: Date: Stop time: Date:

DP: (psig) DT: (sec) Fluid Levels(ml)

	Set Pressure(psig)		Inital	Final
Confining		Confining		
Inflow		Inflow		
Outflow		Outflow		

Change in Fluid level(ml)

Confining: Inflow: Outflow:



K3BYX1.SP5: Tue, 26-Jul-94

Flow (ml/sec)	Press (psi)
1.12e-006	20
9.33e-007	40
9.07e-007	60
5.22e-007	69.5
2.35e-006	80
1.46e-006	90

Saturated weight after heat test: 34.183 g

TEST = AquaLab

Notes: Initial weights & Air dry times 7/5/94

Investigators:

Sample ID	Date	Initial Weight(g)	Air Dry times (min) Final Weight(g)	Activity	T(C)
NRG1*AzA*9	7/5/94	3.401	1:00		
NRG1*AzF*8	7/5/94	3.999	1:00		
NRG1*AzD*2	7/5/94	3.645	2:00		
NRG1*AzA*7	7/5/94	3.798	2:00		
NRG1*AzD*8	7/5/94	3.535	4:00		
NRG1*AzF*1	7/5/94	4.318	4:00		
NRG1*AzF*5	7/5/94	4.236	6:00		
NRG1*AzF*2	7/5/94	4.344	6:00		
NRG1*AzD*3	7/5/94	2.721	8:00		
NRG1*AzD*7	7/5/94	3.952	8:00		
NRG1*AzF*10	7/5/94	4.065	10:00		
NRG1*AzA*2	7/5/94	3.786	10:00		
NRG1*AzD*4	7/5/94	2.829	12:00		
NRG1*AzA*10	7/5/94	3.375	12:00		
NRG1*AzA*8	7/5/94	3.017	15:00		
NRG1*AzA*6	7/5/94	3.198	15:00		
NRG1*AzF*3	7/5/94	4.369	20:00		
NRG1*AzD*1	7/5/94	3.872	20:00		
NRG1*AzF*7	7/5/94	4.255	25:00		
NRG1*AzA*5	7/5/94	3.721	25:00		

8/8/94

8/8/94

Continued on page: 288

8/4/94

TEST = AquaLab

Notes: * need to get SAT. + dry wts of these samples

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG1 * AzA * 7	7/19/94	3.747	3.742	.999	15.9
NRG1 * AzA * 9	7/19/94	3.356	3.356	1.000	15.9
NRG1 * AzD * 2	7/19/94	3.619	3.618	1.000	15.9
NRG1 * AzF * 8	7/19/94	3.926	3.922	.998	16.0
NRG1 * AzF * 1	7/19/94	4.263	4.259	.998	16.0
NRG1 * AzD * 8	7/19/94	3.485	3.481	.997	16.0
NRG1 * AzF * 8	7/19/94	4.140	4.135	.991	16.3
NRG1 * Az F * 2	7/19/94	4.304	4.302	.996	16.1
NRG1 * AzA * 6	7/19/94	3.115	3.111	.992	16.1
NRG1 * AzA * 8	7/19/94	2.938	2.933	.996	16.1
NRG1 * AzD * 7	7/19/94	3.867	3.865	1.000	15.9
NRG1 * AzD * 3	7/19/94	2.653	2.648	.996	16.2
NRG1 * AzD * 1	7/19/94	3.802	3.801	.996	16.1
NRG1 * AzF * 3	7/19/94	4.297	4.291	.992	16.4
NRG1 * AzA * 5	7/19/94	3.613	3.612	.994	16.3
NRG1 * AzF * 7	7/19/94	4.171	4.169	.996	16.0
NRG1 * AzF * 6	7/19/94	3.981	3.981	.996	16.2
NRG1 * AzA * 2	7/19/94	3.747	3.743	.995	16.2
NRG1 * AzA * 10	7/19/94	3.259	3.257	.996	16.1
NRG1 * AzD * 4	7/19/94	2.793	2.793	.997	16.3
NRG1 * AzF * 8	7/25/94	3.683	3.681	.981	23.4
NRG1 * AzA * 7	7/25/94	3.463	3.461	.974	23.7
NRG1 * AzD * 4	7/25/94	2.663	2.661	.989	23.6
NRG1 * AzF * 2	7/25/94	4.059	4.058	.988	23.5
NRG1 * AzD * 1	7/25/94	3.525	3.523	.979	23.5
NRG1 * AzD * 2	7/25/94	3.410	3.408	.986	23.6
NRG1 * AzA * 8	7/25/94	2.820	2.819	.987	23.5
NRG1 * AzF * 5	7/25/94	3.882	3.880	.985	23.5
NRG1 * AzF * 6	7/25/94	3.817	3.817	.989	23.6
NRG1 * AzA * 9	7/25/94	3.115	3.112	.979	23.7
NRG1 * AzD * 8	7/25/94	3.244	3.241	.969	23.4
NRG1 * AzF * 7	7/26/94	3.960	3.957	.986	23.3

8/4/94

p1

Continued on page: 289

TEST = AquaLab

Notes:

Investigators:

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG1 * AzF * 1	7/26/94	4.012	4.008	.990	23.1
NRG1 * AzA * 6	7/26/94	2.887	2.885	.973	23.3
NRG1 * AzD * 7	7/26/94	3.540	3.540	.984	23.5
NRG1 * AzD * 3	7/26/94	2.493	2.490	.984	23.4
NRG1 * AzA * 10	7/26/94	3.111	3.109	.985	23.4
NRG1 * AzA * 2	7/26/94	3.575	3.572	.992 .975 7/28/94	23.6
NRG1 * AzA * 5	7/26/94	3.382	3.380	.975	23.6
NRG1 * AzF * 3	7/26/94	4.105	4.103	.989	23.4

km
8/8/94

8/4/94

Continued on page:

TEST = AquaLab

Notes: Saturated weights

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG3 * A≥D * 12	7/27/94	3.416			
NRG3 * A≥D * 4	7/27/94	2.802			
NRG3 * A≥D * 16	7/27/94	3.585			
NRG3 * A≥C * 4	7/27/94	4.618			
NRG3 * A≥D * 2	7/27/94	4.603			
NRG3 * A≥B * 11	7/27/94	3.560			
NRG3 * A≥D * 3	7/27/94	3.708			
NRG3 * A≥C * 12	7/27/94	3.737			
NRG3 * A≥C * 2	7/27/94	3.774			
NRG3 * A≥B * 4	7/27/94	3.6606			
NRG3 * A≥D * 10	7/27/94	3.387			
NRG3 * A≥B * 2	7/27/94	4.162			
NRG3 * A≥B * 14	7/27/94	3.605			
NRG3 * A≥B * 10	7/27/94	3.833			
NRG3 * A≥B * 15	7/27/94	3.403			
NRG3 * A≥B * 7	7/27/94	3.164			
NRG3 * A≥C * 2	7/29/94	3.758	3.752	.994	23.3
NRG3 * A≥C * 4	7/29/94	4.609	4.605	.997	23.4
NRG3 * A≥B * 2	7/29/94	4.156	4.151	.995	23.4
NRG3 * A≥D * 16	7/29/94	3.578	3.576	.994	23.4
NRG3 * A≥D * 4	7/29/94	2.786	2.788	.995	23.5
NRG3 * A≥D * 10	7/29/94	3.373	3.371	.994	23.5
NRG3 * A≥B * 11	7/29/94	3.549	3.546	.997	23.5
NRG3 * A≥D * 2	7/29/94	4.592	4.591	.995	23.4
NRG3 * A≥D * 3	7/29/94	3.702	3.700	.996	23.5
NRG3 * A≥C * 12	7/29/94	3.727	3.726	.994	23.5
NRG3 * A≥B * 4	7/29/94	3.655	3.652	.994	23.4
NRG3 * A≥D * 12	7/29/94	3.407	3.402	.995	23.5
NRG3 * A≥B * 15	7/29/94	3.395	3.394	.996	23.0
NRG3 * A≥B * 7	7/29/94	3.154	3.151	.996	23.3
NRG3 * A≥B * 10	7/29/94	3.823	3.820	.994	23.5
NRG3 * A≥B * 14	7/29/94	3.594	3.591	.994	23.6

8/4/94

Continued on page: 291

TEST = AquaLab

Notes: ① Samples not reactivated.

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
① NRG3 * A≥B * 9	7/29/94	3.594	3.594	.349	23.8
① NRG3 * A≥B * 13	7/29/94	3.619	3.618	.344	23.8
① NRG3 * A≥D * 8	7/29/94	4.031	4.031	.268	23.7
① NRG3 * A≥C * 7	7/29/94	4.322	4.322	.223	23.8
① ~~NRG3 * A≥C * 5~~	7/29/94	~~4.150~~ 8/4/94			

KM 8/8/94

8/4/94

Continued on page: 292

TEST = AquaLab

Notes: ① Raise Bath Temp to 22°C
② Repeat Reading at new Bath Temp.

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4+AzE+1	7/22/94	3.065	3.065	.648	16.2
NRG4+AzF+2	7/22/94	3.991	3.991	.653	16.2
① NRG4+AzF+10	7/22/94	4.196	4.194	.585	21.3
NRG4+AzB+11	7/22/94	2.982	2.982	.546	21.6
NRG4+AzB+4	7/22/94	3.777	3.776	.544	21.7
NRG4+AzC+3	7/22/94	3.450	3.450	.523	21.9
NRG4+AzF+12	7/22/94	4.355	4.355	.571	21.3
NRG4+AzE+3	7/22/94	3.642	3.642	.524	21.3
~~NRG4+AzF+2~~	~~7/25/94~~	~~7/25/94~~			
NRG4+AzB+18	7/25/94	4.412	4.412	.529	21.5
NRG4+AzF+8	7/25/94	4.364	4.363	.554	21.3
② NRG4+AzB+2	7/25/94	4.401	4.401	.529	21.2
~~NRG4+AzF+9~~	~~7/25/94~~				
~~NRG4+AzB+14~~	~~7/25/94~~				

7/27/94

7/28/94

Continued on page: 293

TEST = AquaLab

Notes: Saturated weights

Investigators: [signature]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4+AzC+9	7/27/94	3.578			
NRG4+AzB+14	7/27/94	3.571			
NRG4+AzB+9	7/27/94	4.049			
NRG4+AzC+1	7/27/94	4.026			
NRG4+AzB+11	7/27/94	3.084			
NRG4+AzB+1	7/27/94	4.232			
NRG4+AzB+13	7/27/94	3.582			
NRG4+AzF+6	7/27/94	3.679			
NRG4+AzC+5	7/27/94	3.377			
NRG4+AzB+18	7/27/94	4.550			
NRG4+AzF+13	7/27/94	4.274			
NRG4+AzB+5	7/27/94	3.904			
NRG4+AzF+11	7/27/94	4.864			
NRG4+AzF+12	7/27/94	4.466			
NRG4+AzE+4	7/27/94	3.354			
NRG4+AzB+4	7/27/94	3.897			
NRG4+AzF+9	7/27/94	3.928			
NRG4+AzF+4	7/27/94	3.388			
NRG4+AzF+7	7/27/94	3.986			
NRG4+AzB+2	7/27/94	4.550			
NRG4+AzF+2	7/27/94	4.119			
NRG4+AzB+15	7/27/94	4.431			
~~NRG4+~~	~~7/27/94~~	~~7/27/94~~			
NRG4+AzB+15	8/1/94	4.423	4.419	.996	23.4
NRG4+AzF+2	8/1/94	4.101	4.097	.990	23.2
NRG4+AzB+2	8/1/94	4.522	4.517	.990	23.2
NRG4+AzB+5	8/1/94	3.885	3.884	.991	23.3
NRG4+AzF+1	8/1/94	4.846	4.844	.994	23.2
NRG4+AzF+4	8/1/94	3.369	3.367	.989	23.3
NRG4+AzF+12	8/1/94	4.455	4.453	.994	23.2
NRG4+AzE+4	8/1/94	3.334	3.330	.993	23.2
NRG4+AzB+4	8/1/94	3.889	3.884	.996	23.2
NRG4+AzF+9	8/1/94	3.906	3.905	.992	23.2

8/1/94

Continued on page: 294

TEST = AquaLab

Notes: ① Samples not re-saturated

Investigators: [illegible]

Sample ID	Date	Initial Weight(g)	Final Weight(g)	Activity	T(C)
NRG4 * AzF * 13	8/1/94	4.252	4.252	.992	23.2
NRG4 * AzF * 7	8/1/94	3.975	3.972	.994	23.0
NRG4 * AzB * 18	8/1/94	4.527	4.525	.994	23.1
NRG4 * AzC * 5	8/1/94	3.357	3.356	.995	23.1
NRG4 * AzF * 6	8/1/94	3.660	3.658	.996	23.2
NRG4 * AzB * 13	8/1/94	3.562	3.560	.993	23.2
NRG4 * AzB * 1	8/1/94	4.202	4.200	.991	23.1
NRG4 * AzB * 11	8/1/94	3.066	3.066	.997	23.3
NRG4 * AzC * 1	8/1/94	4.014	4.012	.994	23.2
NRG4 * AzB * 9	8/1/94	4.073	4.072	.992	23.4
NRG4 * AzC * 9	8/1/94	3.551	3.546	.991	23.5
NRG4 * AzB * 14	8/1/94	3.553	3.551	.993	23.5
① ~~NRG4 * AzB * 6~~	~~8/1/94~~	~~3.544~~ 8/3/94			
① ~~NRG4 * AzC~~ NRG4 * AzE * 3	8/1/94	3.641	3.641	.361	23.3
① NRG4 * AzE * 1	8/1/94	3.061	3.061	.403	23.3
① NRG4 * AzC * 10	8/3/94	3.491	3.491	.508	23.3
① NRG4 * AzF * 10	8/3/94	4.185	4.185	.520	23.2
① NRG4 * AzF * 8	8/3/94	4.351	4.351	.497	23.3
① NRG4 * AzC * 8	8/3/94	3.342	3.342	.483	23.4
① NRG4 * AzC * 7	8/3/94	3.362	3.362	.507	23.3
① NRG4 * AzC * 3	8/3/94	3.446	3.446	.397	23.5
① NRG4 * AzF * 3	8/3/94	3.647			

8/4/94

Km 8/5/94

Continued on page: _____

8/17/94 Km

	Dry Wt	Sat Wt
NRG1 * BYX * 2	82.110	93.65
NRG1 * BYX * 3	67.417	76.789
NRG2 * BXY * 5	76.071	84.320

Pages 1 through 295 of this Scientific Notebook were reviewed for compliance with QAP-001 in response to Corrective Action Request 94-02. Corrections and clarifications were made as appropriate. In some cases, the date of a change will reflect the date of this review rather than the date of the original Scientific Notebook entry.

Randy Tolck
SWRI - QA
10/28/94

KM 4/21/95

Solution	Est. Date Mixed	Lot # of Source Reagent
NaOH	1/95	Fisher #941745 A
NaCl	1/95	Fisher 935604
KCL	12/94	KM 4/21/95 ~~Fisher 935604~~ -unknown-
KI	12/94	-unknown-
$MgCl$	12/94	Fisher # 936846 KM 4/21/95

The previous solutions were ~~mad~~ are estimated to have been made on the aforementioned dates.

All solutions are used for calibration purposes of the Aqualab CX-2. They were all made in the following manner:

Using an automatic hot plate / stirrer the source reagent was added to DI water until no more would go into solution, thereby creating a SATURATED solution.

EXPIRATION DATES DO NOT APPLY TO THESE SOLUTIONS.

Solutions made previous to these were not documented, but were made in the same manner. No recalls of previous soure reagents were made.

ECP 1/9/97

This project was terminated because Congress decided to try to balance the U.S. Federal Budget.

E.C. Perry

1/9/97