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The Administrative Record Staff

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November 11, 1987
Chen & Associates
Hydraulic Conductivity Results

The Administrative Record Staff

00000743

Chen & Associates
Consulting Geotechnical Engineers

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Denver Colorado 80223
303 744-7105

Casper
Colorado Springs
Ft Collins
Glenwood Springs
Phoenix
Rock Springs
Salt Lake City
San Antonio

November 11, 1987

Subject: Hydraulic Conductivity Results, Rocky Flats Plant, Golden, Colorado

Job No. 6 011B 87

Rockwell International
North American Space Operations
Rocky Flats Plant
P.O. Box 464
Golden, Colorado 80402-0474

Attention: Mr. Thomas Greengard

Gentlemen:

Chen & Associates is pleased to present the results of hydraulic conductivity tests performed on 33 wells at the Rocky Flats plant. The purpose of these tests was to estimate the hydraulic conductivity of the alluvium and the underlying Arapahoe Formation. The test method utilized for this project was the slug test as described by Bouwer and Rice, in "A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells," 1976.

Procedure: To conduct a slug test on a given well, one must have a water level measuring device, a method for keeping elapsed time and a known volume of a particular shape which will fit into the well bore. For the testing of the wells at Rocky Flats, a pressure transducer was used to measure the water levels. The levels were recorded by an Enviro-Labs Model DL-120-MCP data logger, which also recorded the time of each measurement.

The first step in conducting a slug test is to determine the static water level in the well. Then, a cylinder of known volume is "instantaneously" either removed or introduced to the well. The moment that the volume is removed or added to the well is the initial time. Measurements are then made of the depth to water and the time of each reading as the water level returns to the static level.

To analyze the data obtained, the computer program SLUGT was used. The data input to this program includes the measured change in water level and corresponding time, the static water level prior to the test, the saturated thickness of the aquifer, the slug volume and the well construction details. In all but two cases, wells 25-87BR and 5-87BR, rising head data, or data taken after the slug was removed, was used. Falling head data was used for the aforementioned wells due to the movement of the pressure transducer upon slug removal. For wells penetrating the Arapahoe Formation, a saturated

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thickness of 100 feet was assumed. For wells in the alluvium, it was assumed that the well fully penetrated the aquifer.

The computer program calculates hydraulic conductivity using two methods: the Cooper, Bredehoeft and Popadopulus technique, and the method of Bouwer and Rice. The method selected depends on whether the tested aquifer is confined or unconfined. Both aquifers tested at Rocky Flats, the alluvium and the Arapahoe Formation, are unconfined aquifers. Therefore, the results from the method of Bouwer and Rice should be used for the hydraulic conductivity of the aquifers.

Data Obtained: Thirty-three wells were selected for testing at the Rocky Flats facility. These wells are shown in Table I. Of these wells, it was not possible at the time of testing to perform a slug test in 17 wells, due to an insufficient amount of water in the well. Slug tests were performed in the remaining 16 wells. Twelve of the slug tests were conducted in wells penetrating the Arapahoe Formation. The other four tests were performed in wells in the alluvial aquifer.

Results: The results of the data analysis are summarized in Table I for each well. Based on the slug tests performed, a range of hydraulic conductivity for each aquifer was obtained:

- Alluvial aquifer - unconfined, hydraulic conductivity ranges from 1.6×10^{-6} to 1.9×10^{-7} ft/sec.
- Arapahoe Formation - unconfined, hydraulic conductivity ranges from 1.4×10^{-6} to 7.5×10^{-9} ft/sec.

The output from the computer program is given in Appendix A for each well.

Sincerely,

CHEN & ASSOCIATES, INC.

By Lauren E. Evans
Lauren E. Evans

LEE/eac
Rev. By: DRG
Encs.

TABLE I

SLUG TEST RESULTS

Well #	Hydraulic Conductivity (ft/sec)	Screened Formation
34-86	3.31×10^{-8}	Arapahoe
35-86	2.88×10^{-7}	Arapahoe
42-86	4.22×10^{-6}	Alluvium
62-86	6.94×10^{-8}	Arapahoe
69-86	1.44×10^{-7}	Alluvium
5-87BR	4.24×10^{-8}	Arapahoe
9-87a	1.47×10^{-6}	Arapahoe
9-87b	1.48×10^{-6}	Arapahoe
9-87c	1.29×10^{-6}	Arapahoe
8-87 (avg)	1.41×10^{-6}	Arapahoe
14-87	5.09×10^{-8}	Arapahoe
16-87BR	1.18×10^{-9}	Arapahoe
17-87	1.93×10^{-7}	Alluvium
23-87BR	3.19×10^{-7}	Arapahoe
25-87BR	2.40×10^{-7}	Arapahoe
31-87BR	1.59×10^{-9}	Arapahoe
32-87	1.61×10^{-6}	Alluvium
34-87BR	7.45×10^{-9}	Arapahoe
36-87BR	4.82×10^{-7}	Arapahoe
WELLS CONTAINING INSUFFICIENT WATER FOR SLUG TESTING		
36-86	N/A	--
43-86	N/A	--
58-86	N/A	--
59-86	N/A	--
63-86	N/A	--
65/86	N/A	--
68-86	N/A	--
1-87	N/A	--
10-87	N/A	--
11-87	N/A	--
12-87BR	N/A	--
18-87BR	N/A	--
19-87	N/A	--
24-87BR	N/A	--
27-87BR	N/A	--
28-87BR	N/A	--
33-87	N/A	--

TABLE OF CONTENTS
SLUG TEST RESULTS

WELL	PAGE
23-87BR	1
16-87BR	5
17-87	8
14-87	13
9-87	17
36-87BR	29
42-86	33
35-86	36
34-86	40
34-87BR	44
32-87	47
69-86	52
31-87BR	54
25-87BR	56
62-86	63
5-87BR	67

PROGRAM SLUGT, VERSION 4,OCT 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPPROACHES.
(1) METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS, 1967 (ARTICLE IN VOL.3,NO.1 OF WRR ENTITLED "RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER")
(2) METHOD OF BOUWER AND RICE, 1976 (ARTICLE IN VOL 12, NO 3 OF WRR ENTITLED "A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS WITH COMPLETELY OR PARTIALLY PENETRATING WELLS")

PROJECT NO.: 6-011B-87 CLIENT. Rockwell International

ITE LOCATION: Rocky Flats Plant DATE OF SLUG TEST 10-14-87

FIELD INVESTIGATOR: Kevin McNeill

WELL NO 23-87 BR

INPUT DATA ARE.

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
NUMBER OF HEAD-TIME DATA POINTS = [illegible]

LENGTH OF SCREEN OR INTAKE PORTION = 21.37 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 21.37 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 40.00 FEET
FALLING-HEAD (NOE) = [illegible] (F FALLING,[illegible] F RISING)

TIME (sec)	HEAD (FEET)
[illegible]	7.600
[illegible]	7.630
[illegible]	7.640
[illegible]	7.650
[illegible]	[illegible]
[illegible]	7.670
[illegible]	7.680
8.00	7.690
9.00	7.700
10.00	7.700
11.00	7.710
12.00	7.720
13.00	7.720
14.00	7.730
17.00	7.750
20.00	7.770
23.00	7.790
26.00	7.800
29.00	7.820
32.00	7.840
35.00	7.850
38.00	7.870
41.00	7.880
44.00	7.880
47.00	7.900
50.00	7.930
53.00	7.950
56.00	7.960
59.00	7.980
62.00	7.990
[illegible]	[illegible]

68.00	8.020
77.00	8.050
86.00	8.080
95.00	8.120
104.00	8.150
113.00	8.170
122.00	8.200
152.00	8.270
182.00	8.330
224.00	8.400
284.00	8.480
244.00	8.540
404.00	8.600
464.00	8.640
524.00	8.680
584.00	8.710
644.00	8.730
704.00	8.750
764.00	8.770
854.00	8.800
974.00	8.820
1094.00	8.830
1274.00	8.850
1577.00	8.860

H0 WAS COMPUTED FROM INTERCEPT OF PLOT OF LOG(H) VS. TIME

SUCCESSIVE COMPUTED
VALUES FOR H0
(FEET)

7.8705
7.8510

ETHOD OF COOPER, CREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS

COMPUTED VALUE OF H0 = 8.91 FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS.	MAXIMUM TRANS	RATIO OF T* RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-01	1.000E-01	1.498E-05	1.498E-07	*********	2.419E-04	16.149970	422.00	.00
1.000E-02	1.000E-02	5.020E-05	5.020E-07	*********	7.937E-04	15.812840	422.19	-.19
1.000E-03	1.000E-03	9.628E-05	9.628E-07	*********	1.504E-03	15.624350	421.75	.44
1.000E-04	.000E-04	1.430E-04	1.430E-06	*********	2.223E-03	15.544660	421.48	.27
1.000E-05	.000E-05	1.887E-04	.887E-06	*********	2.926E-03	15.502820	421.43	.05
1.000E-06	1.000E-06	2.335E-04	2.335E-06	2.528E-08	3.615E-03	15.479170	421.34	.09
1.000E-07	.000E-07	2.778E-04	2.778E-06	2.459E-08	4.295E-03	15.463[illegible]	421.34	.00
1.000E-08	1.000E-08	3.215E-04	3.215E-06	5.109E-08	4.968E-03	15.452450	421.29	.05

1.000E-09	1.000E-09	3.649E-04	3.649E-06	4.903E-08	5.636E-03	15.444360	421.30	-.01
1.000E-10	1.000E-10	4.081E-04	4.081E-06	7.126E-08	6.301E-03	15.437960	421.27	.03

****

METHOD OF BOUWER AND RICE

COMPUTED RESULTS USING DIAMETER OF DRILLED HOLE.

PERMEABILITY = 3.19E-07 FT/sec = 9.72E-06 CM/sec

TRANSMISSIVITY = 3.19E-05 FT**2/sec

COMPUTED RESULTS USING DIAMETER OF CASING AND SCREEN

PERMEABILITY = 1.05E-07 FT/sec = 3.20E-06 CM/sec

TRANSMISSIVITY = 1.05E-05 FT**2/sec

WELL NO. [illegible]

INPUT DATA ARE.

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = [illegible]
NUMBER OF HEAD-TIME DATA POINTS = [illegible]

LENGTH OF SCREEN OR INTAKE PORTION = [illegible] FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = [illegible] FEET
THICKNESS OF SATURATED AQUIFER ZONE = [illegible] FEET
FALLING-HEAD [illegible] = [illegible]

TIME (sec)	HEAD FEET
1.00	7.600
2.00	7.630
3.00	7.640
4.00	7.650
5.00	7.660
6.00	7.670
7.00	7.680
8.00	7.690
9.00	7.700
10.00	7.700
11.00	7.710
12.00	7.720
13.00	7.720
14.00	7.730
17.00	7.750
20.00	7.770
23.00	7.790
26.00	7.800
29.00	7.820

35.00	7.850
38.00	7 870
41.00	7.880
44.00	7 880
47.00	7.900
50.00	7.930
53 00	7.950
56 00	7.960
59 00	7 980
62 00	7.990
65 00	8.000
68 00	8 020
77.00	8.050
86.00	8.080
95.00	8 120
104.00	8.150
113.00	8.170
122.00	8.200
152.00	8.270
182.00	8.330
224.00	8.400
284.00	8.480
244 00	8 540
404 00	8 600
464.00	8 640
524 00	8 680
584 00	8 710
644 00	8 730
704 00	8 750
764 0	8.770
854.00	8 800
974 00	8 820
1094 00	8.830
1274 00	8 850
1577 00	8.860

HO WAS COMPUTED FROM KNOWN VOLUME OF BLOC

VOLUME OF BLOC ENTERED = 327[illegible] FEET

METHOD OF COOPER, BREDEHOEFT AND PARADOPULOS

COMPUTED RESULTS.

COMPUTED VALUE OF HO = 8 91 FEET

NOTE. TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS	MAXIMUM TRANS	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
000E-00	0 000E-01	0 498E-05	498E-07	*********	2 419E-04	6 149970	422 00	00
000E-02	0 000E-02	5 020E-05	5.020E-07	*********	7 937E-04	5 812840	422 19	- 19
000E-03	00E-03	9 628E-05	9 628E-07	*********	0 504E-07	5 624350	421.75	44
00E-04	00E-04	470E-04	470E-06	*********	2 222E-07	5.544660	421 48	27

1.000E-06	1.000E-06	2.335E-04	2.335E-06	2.528E-08	3.615E-03	15.479170	421.34	.09
1.000E-07	1.000E-07	2.778E-04	2.778E-06	2.459E-08	4.295E-03	15.463710	421.34	.00
1.000E-08	1.000E-08	3.215E-04	3.215E-06	5.109E-08	4.968E-03	15.452450	421.29	.05
1.000E-09	1.000E-09	3.649E-04	3.649E-06	4.903E-08	5.636E-03	15.444360	421.30	-.01
1.000E-10	1.000E-10	4.081E-04	4.081E-06	7.126E-08	6.301E-03	15.437960	421.27	.03

PROGRAM SLUGT, VERSION 4,OCT. 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPROACHES:
(1) METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS, 1967 (ARTICLE IN VOL.3,NO.1 OF WRR ENTITLED "RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER")
(2) METHOD OF BOUWER AND RICE, 1976 (ARTICLE IN VOL. 12, NO.3 OF WRR ENTITLED "A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS WITH COMPLETELY OR PARTIALLY PENETRATING WELLS")

PROJECT NO. 6- 11B-87 CLIENT Rockwell International

SITE LOCATION Rocky Flats Plant DATE OF SLUG TEST: 10-14-87

FIELD IN ESTIGATOR, Ks in McNeill

WELL NO. 6-87 E[illegible]

INPUT DATA ARE:

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = [illegible] INCHES
DIAMETER OF DRILLED HOLE = 4.00 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = 25
LENGTH OF SCREEN OR INTAKE PORTION = 26.00 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 34.94 FEET
THICKNESS OF SATURATED AQUIFER ZONE = [illegible] FEET
FALLING-HEAD INDEX = [illegible] (1 IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = [illegible]

TIME (sec)	HEAD (FEET)
1.00	9.010
2.00	9.010
3.00	9.010
4.00	9.010
5.00	9.010
6.00	9.020
7.00	9.020
8.00	9.020
9.00	9.020
10.00	9.020
11.00	9.020
41.00	9.020
71.00	9.020
101.00	9.020
161.00	9.020
221.00	9.030
251.00	9.030
281.00	9.030
341.00	9.030
521.00	9.030
701.00	9.030

1091.00 9 030

H0 WAS COMPUTED FROM INTERCEPT OF PLOT OF LOG(H) VS TIME

SUCCESSIVE COMPUTED
VALUES FOR H0
(FEET)

9 0177
9 0173

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS:

COMPUTED VALUE OF H0 = 9 11 FEET

NOTE TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

WELL	STORATIVITY	MEAN TRANSMISSIVITY	MEAN PERMEABILITY	MINIMUM TRANS.	MAXIMUM TRANS	RATIO OF T RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.20
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1.000E-08	7.789E-05	7.789E-07	2.092E-07	2.899E-04	7.[illegible]	362.54	.01
[illegible]	1.000E-09	4.408E-05	4.408E-07	2.441E-07	3.371E-04	7.842619	362.53	.01
[illegible]	1.000E-10	5.008E-05	5.008E-07	2.776E-07	3.830E-04	7.642117	362.53	.00

****

METHOD OF BOUWER AND RICE

COMPUTED RESULTS USING DIAMETER OF DRILLED HOLE.

PERMEABILITY = 1.18E-09 FT/sec = 3.60E-08 CM/sec

TRANSMISSIVITY = 1.18E-07 FT**2/sec

COMPUTED RESULTS USING DIAMETER OF CASING AND SCREEN:

PERMEABILITY = 39E-09 FT/sec = 4.24E-08 CM/sec

TRANSMISSIVITY = 1.39E-07 FT**2/sec

WELL NO. 16-87 BR

INPUT DATA ARE.

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 4.00 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR INTAKE PORTION = 26.00 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 34.94 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 100.00 FEET
FALLING-HEAD INDEX = 1 ("1" IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 23

TIME (sec)	HEAD (FEET)
[illegible]	9.010
[illegible]	9.010
[illegible]	9.020
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	9.020
[illegible]	9.020
[illegible]	9.020
[illegible]	9.020
[illegible]	[illegible]
1.00	9.020
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	9.020
[illegible]	[illegible]
[illegible]	[illegible]
151.00	9.030
231.00	9.030
341.00	9.030
521.00	9.030
701.00	9.030
881.00	9.030
1091.00	9.030

H0 WAS COMPUTED FROM KNOWN VOLUME OF SLUG

VOLUME OF SLUG ENTERED = .03270 CUBIC FEET

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS

COMPUTED VALUE OF H0 = 9.10 FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

[illegible]	STORATIVITY	MEAN	MEAN [illegible]	MINIMUM	MAXIMUM	RATIO OF [illegible]

		SIVITY	BILITY			TBAR	TIME DEVIATIONS	
1.000E-01	1.000E-01	3.881E-07	3.881E-09	2.120E-09	2.973E-06	7.654756	362.58	.00
1.000E-02	1.000E-02	1.293E-06	1.293E-08	5.876E-09	1.013E-05	7.827174	363.11	.53
1.000E-03	1.000E-03	5.132E-06	5.132E-08	2.533E-08	7.981E-05	7.752743	362.88	.23
1.000E-04	1.000E-04	1.079E-05	1.079E-07	5.576E-08	8.326E-05	7.709124	362.75	.13
1.000E-05	1.000E-05	1.668E-05	1.668E-07	8.784E-08	1.284E-04	7.691552	362.69	.06
1.000E-06	1.000E-06	2.248E-05	2.248E-07	1.197E-07	1.728E-04	7.680310	362.66	.03
1.000E-07	1.000E-07	2.815E-05	2.815E-07	1.507E-07	2.162E-04	7.675259	362.64	.02
1.000E-08	1.000E-08	3.372E-05	3.372E-07	1.811E-07	2.589E-04	7.671679	362.63	.01
1.000E-09	1.000E-09	3.931E-05	3.931E-07	2.119E-07	3.016E-04	7.667790	362.62	.01
1.000E-10	1.000E-10	4.467E-05	4.467E-07	2.412E-07	3.427E-04	7.666673	362.61	.00

PROGRAM SLUCT, VERSION 4.0CT 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPROACHES
1) METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS, 1967 ARTICLE IN VOL 3 NO.1 OF WRR ENTITLED
'RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER'
2) METHOD OF BOUWER AND RICE, 1976 ARTICLE IN VOL 12, NO 3 OF WRR ENTITLED
'A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS
WITH COMPLETELY OR PARTIALLY PENETRATING WELLS'

PROJECT NO 6-0018-87 CLIENT Tecumseh Interpretations

SITE LOCATION Rocky Flats DATE OF SLUG TEST 10-1-87

FIELD TEST DATA Kevin Mahar

WELL NO 7-87

INPUT DATA ARE

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR INTAKE PORTION = 7.15 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 7.15 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 13.70 FEET
FALLING-HEAD INDEX = 0 (1 IF FALLING, 0 IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 41

TIME (sec)	HEAD (FEET)
1.00	5.850
2.00	5.860
3.00	5.860
4.00	5.860
5.00	5.870
6.00	5.870
7.00	5.880
8.00	5.880
9.00	5.880

10.00	5 880
11.00	5.880
12.00	5 890
13.00	5 890
14.00	5.890
15.00	5.900
30.00	5.920
45.00	5.940
60.00	5 950
75.00	5.960
90 00	5 970
105.00	5 980
120.00	5.990
135.00	6.000
150.00	6.010
165.00	6.010
180.00	6.020
210.00	6 030
240.00	6 040
270 00	6 050
300.00	6.060
360.00	6.070
420.00	6 080
525 00	6 90
645.00	6 100
765.00	6 110
885.00	6 120
005 00	6 120
1245 00	6.130
1485.00	6 130
1725.00	6 140
2205 00	6.140

H0 WAS COMPUTED FROM INTERCEPT OF PLOT OF LOG(H) S TIME

SUCCESSIVE COMPUTED
VALUES FOR H0
FEET

[illegible]
[illegible]

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS.

COMPUTED VALUE OF HV = 6.19 FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILIT	MINIMUM TRANS	MAXIMUM TRANS	RATIO OF THE RANGE TO THE MEAN	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
[illegible]00E-01	[illegible]0E-01	[illegible]857E-06	[illegible]086E-07	[illegible]229E-10	[illegible]742E-[illegible]	[illegible]5.9[illegible]140	6.1[illegible]89	00
[illegible]00E-2	[illegible]00E-02	[illegible]374E-05	[illegible]003E-06	[illegible]335E-10	7.68E-14	[illegible]2.866530	6.11[illegible]84	14
[illegible]E-3	[illegible]E-03	[illegible]266E-5	[illegible]238E-06	1.119E-8	[illegible].147E-14	[illegible]2.6[illegible]9850	6.1[illegible]4[illegible]	40
[illegible]E-4	[illegible]E-04	[illegible]331E-5	[illegible]691E-06	[illegible]47[illegible]E-[illegible]	[illegible]E-4	[illegible]2.623780	6.1[illegible]27	17

				4.253E-08	9 263E-04	12 587160	611.14	.13
1.000E-06	1.000E-06	9 340E-05	6.318E-06	6 501E-08	1.174E-03	12.568990	611.02	.12
1.000E-07	1.000E-07	1.130E-04	8 251E-06	7 543E-08	1 419E-03	12.554360	611.04	- 01
1 000E-08	1.000E-08	1.323E-04	9 659E-06	8 273E-08	1 660E-03	12 546310	611 00	.04
1 000E-09	1 000E-09	1 515E-04	1 106E-05	1 100E-07	1 900E-03	12 540820	610.97	.03
1.000E-10	1.000E-10	1.705E-04	1 244E-05	1.270E-07	2.137E-03	12.536500	610 95	.02

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METHOD OF BOUWER AND RICE

COMPUTED RESULTS USING DIAMETER OF DRILLED HOLE

PERMEABILITY = 1 92E-07 FT/sec = 5 89E-06 CM/sec

TRANSMISSIBILITY = 2 65E-05 FT**2/sec

COMPUTED RESULTS USING DIAMETER OF CASING AND SCREEN.

PERMEABILITY = 7 [illegible]E-08 FT sec = 2 19E-06 CM sec

TRANSMISSIBILITY = 9 80E-07 FT**2/sec

[illegible]

INPUT DATA HERE

OUTER CASING DIAMETER = 2 00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2 00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = 25
LENGTH OF SCREEN OR INTAKE PORTION = 4 00 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 7 15 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 10 70 FEET
FALLING-HEAD INDEX = 1 ("1" IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 41

TIME (sec)	HEAD (FEET)
1 00	5 850
2 00	5 860
3 00	5 860
4 00	5 860
5 00	5 870
6 00	5 870
7 00	5 880
8 00	5.880
9 00	5 880
10.00	5.880

13 00	5 890
14 00	5 890
15.00	5.900
30.00	5.920
45.00	5.940
60 00	5 950
75.00	5 960
90.00	5.970
105.00	5 980
120 00	5 990
135.00	6 000
150.00	6.010
165.00	6.010
180.00	6.020
210.00	6.030
240.00	6.040
270.00	6.050
300.00	6 060
360 00	6.070
420 00	6.080
525 00	6.090
645.00	6 100
765.00	6.110
885 00	6 120
1005.00	6.120
1245.00	6 130
1485 00	6 130
725 00	6 140
2205.00	6.140

HU WAS COMPUTED FROM KNOWN VOLUME OF SLUG

OLUME OF SLUG ENTERED = 01640 CUBIC FEET

METHOD OF COOPER BREDEHOEFT AND F RADOPULUS

COMPUTED RESULTS

COMPUTED VALUE OF HU = 6 17 FEET

NOTE TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS.	MAXIMUM TRANS.	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1 000E-01	1 000E-01	2.540E-06	1 854E-07	1 661E-10	7 349E-05	13.182730	612.02	00
00E- 2	000E-02	248E-05	9.108E-07	*********	1 615E-04	12.943110	612 13	- 11
000E-03	1 000E-03	7 012E-05	2 198E-06	1 934E-09	3 844E-04	12.753580	611.74	39
000E- 4	1 000E- 4	4 950E-05	3 613E-06	7.890E-09	6.276E-04	2 681990	611.59	-15
1 000E- 5	1 000E-05	6 856E-05	5 004E-06	1 909E-08	8 667E-04	12.642190	611.45	.14
000E- 6	000E-06	8 715E-05	6 361E-06	7 638E-08	100E-03	12 62 560	611 31	14
00E-07	000E-07	1 056E-04	7 707E-06	4 192E- 8	331E-03	12 608330	611.32	- 01

45.00	5.940
60.00	5.950
75.00	5.960
90.00	5.970
105.00	5.980
120.00	5.990
135.00	6.000
150.00	6.010
165.00	6.010
180.00	6.020
210.00	6.030
240.00	6.040
270.00	6.050
300.00	6.060
360.00	6.070
420.00	6.080
525.00	6.090
645.00	6.100
765.00	6.110
885.00	6.120
1005.00	6.120
1245.00	6.130
1485.00	6.130
1725.00	6.140
2205.00	6.140

H0 WAS COMPUTED FROM KNOWN VOLUME OF SLUG

VOLUME OF SLUG ENTERED = 0.0640 CUBIC FEET

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS

COMPUTED VALUE OF H0 = 6.17 FEET

NOTE: TRANSMISSIVITY UNITS ARE N FT**2/SEC AND PERMEABILITY UNITS ARE N FT/SEC

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS	MAXIMUM TRANS	RATIO OF T: RANGE TO T:AVR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-01	1.000E-01	2.540E-06	1.854E-07	1.661E-06	7.349E-05	13.182770	6.02	00
1.000E-02	.000E-02	1.248E-05	9.108E-07	*********	.615E-04	12.943110	12.13	-.11
1.000E-03	1.000E-03	3.012E-05	2.198E-06	1.934E-09	3.844E-04	12.763580	11.74	.39
1.000E-04	1.000E-04	4.950E-05	3.613E-06	7.890E-09	6.276E-04	2.681990	11.59	.15
1.000E-05	1.000E-05	6.856E-05	5.004E-06	1.909E-08	8.667E-04	12.642190	11.45	.14
.000E-06	1.000E-06	8.715E-05	6.361E-06	7.638E-08	1.100E-03	12.621560	11.32	.01
.000E-07	1.000E-07	1.056E-04	7.707E-06	4.192E-08	1.331E-03	12.608320	11.22	.01
.000E-08	.000E-08	1.237E-04	9.031E-06	5.011E-08	1.559E-03	12.598400	11.21	.02
1.000E-09	1.000E-09	1.417E-04	1.034E-05	6.141E-08	1.784E-03	12.592410	11.28	.03
1.000E-10	1.000E-10	1.595E-04	1.164E-05	7.254E-08	.008E-03	12.587720	11.26	.02

PROGRAM SLUGT, VERSION 4,OCT. 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPROACHES:
(1) METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS, 1967 (ARTICLE IN VOL 3,NO 1 OF WRR ENTITLED "RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER")
(2) METHOD OF BOUWER AND RICE, 1976 (ARTICLE IN VOL 12, NO 3 OF WRR ENTITLED "A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS WITH COMPLETELY OR PARTIALLY PENETRATING WELLS")

PROJECT NO.: 6-011B-87 CLIENT. Rockwell International

ITE LOCATION: Rocky Flats Plant DATE OF SLUG TEST. 10-15-87

FIELD INVESTIGATOR. Kevin McNeill

WELL NO 14-87 BR

INPUT DATA ARE:

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR ENTIRE PORTION = 5.00 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 2.01 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 10.00 FEET
FALLING-HEAD INDEX = 1 (FOR FALLING, 0 FOR RISING)
NUMBER OF HEAD-TIME DATA POINTS = 42

TIME (sec)	HEAD (FEET)
1.00	7.590
2.00	7.590
3.00	7.590
4.00	7.590
5.00	7.590
6.00	7.590
8.00	7.590
10.00	7.590
36.00	7.640
66.00	7.670
96.00	7.700
126.00	7.720
156.00	7.740
186.00	7.770
216.00	7.790
246.00	7.810
276.00	7.830
306.00	7.860
336.00	7.880
366.00	7.900
396.00	7.910
426.00	7.940
456.00	7.950
501.00	7.980
561.00	8.010
621.00	8.040
681.00	8.080
741.00	8.110
801.00	8.130
861.00	8.150
921.00	8.180
981.00	8.210

1101.00	8.250
1221.00	8.290
1341.00	8.320
1611.00	8.390
1851.00	8.440
2091.00	8.480
2331.00	8.520
2631.00	8.550
2931.00	8.580
2331.00	8.590
3531.00	8.610

HO WAS COMPUTED FROM INTERCEPT OF PLOT OF LOG(H) VS TIME

SUCCESSIVE COMPUTED
VALUES FOR HO
(FEET)

7.7361
7.7187

METHOD OF COOPER, BREDEHOEFT AND PARADOPOLOS

COMPUTED RESULTS

COMPUTED VALUE OF H = [illegible] FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMISSIVITY	MEAN PERMEABILITY	MINIMUM TRANS.	MAXIMUM TRANS	RATIO OF TRANSMISSIVITY TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
[illegible]	[illegible]	[illegible]	[illegible]	*********	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	*********	[illegible]	[illegible]	[illegible]	23
[illegible]	[illegible]	[illegible]	[illegible]	*********	[illegible]	[illegible]	[illegible]	53
[illegible]	1.000E-04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1191.62	25
1.000E-05	1.000E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1191.45	17
1.000E-06	1.000E-06	1.838E-04	1.838E-06	1.755E-08	[illegible]	16.152490	1191.41	05
[illegible]	1.000E-07	2.190E-04	2.190E-06	2.832E-08	[illegible]	16.150150	1191.34	07
1.000E-08	1.000E-08	2.538E-04	2.538E-06	3.810E-08	[illegible]	16.148510	1191.30	.04
[illegible]	1.000E-09	2.884E-04	2.884E-06	[illegible]	[illegible]	[illegible]	1191.29	01
[illegible]	[illegible]	3.228E-04	3.228E-06	5.000E-08	[illegible]	[illegible]	1191.27	02

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METHOD OF BOUWER AND RICE

COMPUTED RESULTS USING DIAMETER OF DRILLED HOLE.

TRANSMISSIVITY = 5.09E-06 FT**2/sec

COMPUTED RESULTS USING DIAMETER OF CASING AND SCREEN:

PERMEABILITY = 7.79E-08 FT/sec = 2.37E-06 CM/sec

TRANSMISSIVITY = 7.79E-06 FT**2/sec

WELL NO. 14-87 BR

INPUT DATA ARE:

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR INTAKE PORTION = 5.00 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 2.01 FEET
THICKNESS OF SATURATED AQUIFER ZONE = [illegible] FEET
FALLING-HEAD INDEX = [illegible] (FALLING "0" FOR RISING)
NUMBER OF HEAD-TIME DATA POINTS = [illegible]

TIME sec	HEAD FEET
[illegible]	7.590
2.00	7.590
3.00	7.590
4.00	7.590
5.00	7.600
[illegible]	[illegible]
[illegible]	[illegible]
76.00	[illegible]
86.00	7.670
96.00	7.700
126.00	7.720
156.00	7.740
186.00	7.770
216.00	7.790
246.00	7.810
276.00	7.830
306.00	7.860
336.00	7.880
366.00	7.900
396.00	7.910
426.00	7.940
456.00	7.950
501.00	7.980
561.00	8.010
621.00	8.040
681.00	8.080
741.00	8.110
801.00	8.130
861.00	8.150
821.00	8.180
981.00	8.210
1101.00	8.250
1221.00	8.290

1341.00	8 320
1611.00	8 390
1851 00	8 440
2091.00	8.480
2331.00	8 520
2631.00	8 550
2931 00	8 580
2331 00	8.590
3531.00	8.610

H0 WAS COMPUTED FROM KNOWN VOLUME OF SLUG

VOLUME OF SLUG ENTERED = .03270 CUBIC FEET

METHOD OF COOPER, BREDEHOEFT AND PARADOPULOS

COMPUTED RESULTS.

COMPUTED VALUE OF H0 = 8 67 FEET

NOTE TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMISSIVITY	MEAN PERMEABILITY	MINIMUM TRANS	MAXIMUM TRANS	RATIO OF TRANSMISSIVITY TO STORAGE	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
[illegible]E-01	[illegible]E-01	[illegible]	82E-[illegible]	*********	758E-04	6 245740	192 68	.00
[illegible]E-2	[illegible]E-2	7 794E-07	7 794E-07	*********	6 47E-04	6 201830	192 4	28
[illegible]E-7	[illegible]E-7	7 442E-05	7 442E-7	*********	204E-07	6 [illegible]	191 87	53
[illegible]E-4	[illegible]E-4	[illegible]16E-4	[illegible]16E-6	64E-9	304E-7	6 [illegible]	[illegible]	25
[illegible]E-5	[illegible]E-5	481E-4	481E-6	[illegible]	[illegible]792E-7	[illegible]	[illegible]	[illegible]
[illegible]E-6	[illegible]E-06	878E-04	878E-6	755E-6	[illegible]969E-7	6 52490	[illegible]	5
[illegible]000E-07	.000E-07	2.19 E-04	2 190E-6	2 832E-08	7 536E-03	16 150150	191 34	.07
[illegible]E-08	[illegible]E-08	2 538E-04	2 538E-6	7 810E-08	4 099E-03	16 148510	1191 [illegible]	4
.000E-09	000E-09	2 884E-04	2 884E-6	4.145E-08	4 657E-03	16 147310	191 29	01
1 000E-10	000E-10	3 228E-04	3.228E-06	5 000E-08	5 212E-03	16.145410	1.91 27	.02

PROGRAM SLUGT, VERSION 4,OCT 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPROACHES
1) METHOD OF COOPER BREDEHOEFT AND PARADOPULOS, 1967 (ARTICLE IN VOL 3 NO 1 OF WRR ENTITLED RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER")
2) METHOD OF BOUWER AND RICE, 1976 (ARTICLE IN VOL 12, NO 3 OF WRR ENTITLED "A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS WITH COMPLETELY OR PARTIALLY PENETRATING WELLS")

PROJECT [illegible]-1/8-87 CLIENT [illegible] well [illegible]ternational

ITE LOCATION Rocky Flats Plant DATE OF SLUG TEST 10-9-8

FIELD INVESTIGATOR: Kevin McNeill

WELL NO.: 9-87 Run #2

INPUT DATA ARE:

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = 25
LENGTH OF SCREEN OR INTAKE PORTION = 5.55 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 15.55 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 100.00 FEET
FALLING-HEAD INDEX = 0 ("1" IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 43

TIME (sec)	HEAD (FEET)
1.00	8.000
2.00	8.060
3.00	8.120
4.00	8.170
5.00	8.220
6.00	8.270
7.00	8.310
8.00	8.340
9.00	8.380
10.00	8.41
11.00	8.440
12.00	8.470
13.00	8.500
14.00	8.520
15.00	8.550
16.00	8.57
17.00	8.590
18.00	8.610
19	8.620
20.00	8.640
21.00	8.660
22.00	8.67
23.00	8.680
24.00	8.700
25.00	8.710
26.00	8.720
27.00	8.730
28.00	8.740
29.00	8.750
30.00	8.770
32.00	8.770
40.00	8.780
45.00	8.840
50.00	8.860
55.00	8.880
60.00	8.900
70.00	8.910
80.00	8.930
90.00	8.950
120.00	8.960
156.00	8.970
226.00	8.980
271.00	8.990

WAS COMPUTED FROM INTERCEPT OF PLOT OF LOG(H) VS TIME

SUCCESSIVE COMPUTED
VALUES FOR HO
(FEET)

8.4899
8.4625

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS

COMPUTED VALUE OF HO = 9 02 FEET

NOTE TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS	MAXIMUM TRANS.	RATIO OF "T" RANGE TO TEAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
[illegible]	[illegible]	[illegible]	[illegible]	*********	[illegible]	[illegible]	[illegible]	.00
[illegible]	[illegible]	[illegible]	[illegible]	*********	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	*********	[illegible]	[illegible]	[illegible]	.28
[illegible]	[illegible]	[illegible]	[illegible]	*********	[illegible]	[illegible]	[illegible]	19
[illegible]	[illegible]	[illegible]	[illegible]	*********	[illegible]	[illegible]	[illegible]	15
[illegible]	[illegible]	[illegible]	[illegible]	*********	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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METHOD OF BOUWER AND RICE

COMPUTED RESULTS USING DIAMETER OF DRILLED HOLE.

PERMEABILITY = [illegible] 47E-06 FT/sec = [illegible] 49E-05 CM/sec

TRANSMISSIVITY = [illegible] 47E-4 FT**2/sec

COMPUTED RESULTS USING DIAMETER OF CASING AND SCREEN

PERMEABILITY = 5 01E-07 FT/sec = [illegible] 53E-05 CM/sec

TRANSMISSIVITY = 5 01E-05 FT**2/sec

WELL NO : 9-87 Run #2

INPUT DATA ARE...

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR INTAKE PORTION = 11.55 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 15.55 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 100.00 FEET
FALLING-HEAD INDEX = 0 ("1" IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 43

TIME (sec)	HEAD (FEET)
1.00	8.000
2.00	8.060
3.00	8.120
4.00	8.170
5.00	8.220
6.00	8.270
7.00	8.310
8.00	8.340
9.00	8.380
10.00	8.410
11.00	8.440
12.00	8.470
13.00	8.500
14.00	8.520
15.00	8.550
16.00	8.570
17.00	8.590
18.00	8.610
19.00	8.620
20.00	8.640
21.00	8.660
22	[illegible]
23.00	8.680
24.00	8.700
25.00	8.71[illegible]
26.00	8.720
27.00	8.730
28.00	8.740
29.00	8.750
30.00	8.770
32.00	8.770
40.00	8.780
45.00	8.840
50.00	8.860
55.00	8.880
60.00	8.900
70.00	8.910
80.00	8.930
90.00	8.950
120.00	8.960
156.00	8.970
226.00	8.980
271.00	8.990

H0 WAS COMPUTED FROM KNOWN VOLUME OF SLUG

VOLUME OF SLUG ENTERED = .03270 CUBIC FEET

1

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS.

COMPUTED VALUE OF H0 = 9.04 FEET

NOTE. TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS.	MAXIMUM TRANS	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-01	1.000E-01	8.972E-06	8.972E-08	*********	1.520E-04	16.949450	69.07	.00
1.000E-02	1.000E-02	7.451E-05	7.451E-07	*********	5.472E-04	5.861670	68.94	.13
1.000E-03	1.000E-03	7.179E-05	7.179E-07	*********	1.088E-03	15.134490	68.65	.29
1.000E-04	1.000E-04	1.108E-04	1.108E-06	*********	1.642E-03	14.823490	68.46	.19
1.000E-05	1.000E-05	1.490E-04	1.490E-06	1.203E-07	2.184E-07	4.656220	68.32	.14
1.000E-06	1.000E-06	1.864E-04	1.864E-06	2.476E-07	[illegible]	4.366220	68.25	.07
1.000E-07	1.000E-07	2.232E-04	2.232E-06	2.782E-07	7.239E-07	4.512080	68.24	.01
1.000E-08	1.000E-08	2.597E-04	2.597E-06	7.9[illegible]E-07	7.758E-07	4.[illegible]490	68.21	.04
1.000E-09	1.000E-09	2.957E-04	2.957E-06	4.[illegible]79E-07	4.277E-03	4.44596	68.21	.00
1.000E-10	1.000E-10	7.316E-04	7.316E-06	3.148E-07	4.784E-07	4.422[illegible]	68.[illegible]	.02

PROGRAM SLUGT, VERSION 4 OCT 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPROACHES.
(1) METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS, 1967 (ARTICLE IN VOL 3 NO.1 OF WRR ENTITLED RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER")
(2) METHOD OF BOUWER AND RICE, 1976 (ARTICLE IN VOL. 12, NO 3 OF WRR ENTITLED "A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS WITH COMPLETELY OR PARTIALLY PENETRATING WELLS")

PROJECT NO.: 6-011B-87 CLIENT Rockwell International

SITE LOCATION. Rocky Flats Plany DATE OF SLUG TEST. 10-9-87

FIELD INVESTIGATOR Kevin McNeill

WELL NO 9-87 Run #1

INPUT DATA ARE:

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR INTAKE PORT ON = 15.55 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 5.55 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 100.00 FEET
FALLING-HEAD INDEX = 1 " IF FALLING, 0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 53

TIME (sec)	HEAD (FEET)
1 00	7.940
2.00	8.020
3.00	8.090
4.00	8 150
5 00	8 200
6.00	8.240
7.00	8 290
8.00	8.330
9.00	8 360
10.00	8.400
11.00	8.430
12.00	8 460
13.00	8 490
14.00	8.520
15.00	8 540
16 00	8 560
17.00	8.580
18.00	8.600
19 00	8 620
20 00	8 640
21.00	8 660
22.00	8 670
23.00	8.690
24 00	8 700
25.00	8 710
26 00	8 720
27.00	8 740
28 00	8 750
29 00	8.760
30.00	8 770
31 00	8.780
32 00	8 790
33 00	8 790
34 00	8 800
35 00	8 800
[illegible]	8 840
45 00	8 870
50 00	8 890
55 00	8.910
60 00	8.920
65.00	8 930
70.00	8 940
75 00	8 950
80 00	8 960
85.00	8 960
94 00	8 970
104.00	8 970
114 00	8 980
126 00	8 980
146 00	8.990
176 00	8.990
236 00	9 000
256 00	9 000

H0 WAS COMPUTED FROM INTERCEPT OF PLOT OF LOG(H) VS TIME

SUCCESSIVE COMPUTED
VALUES FOR H0
FEET)

8.5072
8.4840

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS:

COMPUTED VALUE OF H0 = 9.05 FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS.	MAXIMUM TRANS	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-01	1.000E-01	8.011E-06	8.011E-08	*********	717E-04	21.437740	72.45	.00
.000E-02	1.000E-02	3.012E-05	3.012E-07	*********	6.032E-04	20.038680	72.53	-.08
1.000E-03	1.000E-03	6.235E-05	6.235E-07	*********	184E-03	18.991230	71.97	.56
E-04	1.000E-04	9.588E-05	9.588E-07	*********	777E-07	8.533591	71.72	.24
E-05	1.000E-05	1.288E-04	288E-06	1.277E-07	2.357E-07	8.300031	71.53	.19
E-06	1.000E-06	609E-04	609E-06	616E-07	2.926E-07	18.189300	71.5	.02
1.000E-07	00E-07	1.926E-04	1.926E-06	2.950E-07	3.486E-07	18.099470	71.44	.08
1.000E-08	1.000E-08	2.240E-04	2.240E-06	4.145E-07	4.041E-07	18.039500	71.79	.05
1.000E-09	.000E-09	2.550E-04	2.550E-06	4.432E-07	4.592E-03	18.007270	71.40	-.01
00E-	00E-	2.859E-04	2.859E-06	5.457E-07	5.140E-03	17.974600	71.77	.3

METHOD OF BOUWER AND RICE

COMPUTED RESULTS USING DIAMETER OF DRILLED HOLE.

PERMEABILITY = 1.48E-06 FT/sec = 4.50E-05 CM/sec

TRANSMISSIVITY = 1.48E-04 FT**2/sec

COMPUTED RESULTS USING DIAMETER OF CASING AND SCREEN

PERMEABILITY = 5.03E-07 FT/sec = 1.53E-05 CM/sec

TRANSMISSIVITY = 5.07E-05 FT**2/sec

INPUT DATA HPE.

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR INTAKE PORTION = 11.58 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 15.55 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 100.00 FEET
FALLING-HEAD INDEX = 0 ("1" IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 53

TIME (sec)	HEAD (FEET)
1.00	7.940
2.00	8.020
3.00	8.090
4.00	8.150
5.00	8.200
6.00	8.240
7.00	8.290
8.00	8.330
9.00	8.360
10.00	8.400
11.00	8.430
12.00	8.460
13.00	8.490
14.00	8.520
15.00	8.540
16.00	8.560
17.00	8.580
18.00	8.600
19.00	8.620
20.00	8.640
21.00	8.660
22.00	8.670
23.00	8.690
24.00	8.700
25.00	8.710
26.00	8.720
27.00	8.740
28.00	8.750
29.00	8.760
30.00	8.770
31.00	8.780
32.00	8.790
33.00	8.790
34.00	8.800
35.00	8.810
40.00	8.840
45.00	8.870
50.00	8.890
55.00	8.910
60.00	8.920
65.00	8.930
70.00	8.940
75.00	8.950
80.00	8.960
85.00	8.960
94.00	8.970
104.00	8.970
114.00	8.980
126.00	8.980
146.00	8.990
176.00	8.990
236.00	9.000

HO WAS COMPUTED FROM KNOWN VOLUME OF SLUG

VOLUME OF SLUG ENTERED = .03270 CUBIC FEET

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS:

COMPUTED VALUE OF HO = 9.07 FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS.	MAXIMUM TRANS.	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
[illegible]00E-01	1.000E-01	8.[illegible]E-05	8.[illegible]E-08	*********	[illegible]69E-04	2.[illegible]10	72.35	.00
1.000E-02	1.000E-02	7.116E-05	7.115E-07	*********	5.179E-04	9.8[illegible]260	72.36	-.01
[illegible]000E-03	1.000E-03	6.424E-05	6.424E-07	*********	[illegible]E-03	8.[illegible]	71.81	.55
1.000E-04	1.000E-04	[illegible].859E-05	[illegible].859E-07	7.81[illegible]E-[illegible]	[illegible]812E-[illegible]	8.[illegible]	[illegible].57	.24
[illegible]000E-05	[illegible]000E-05	[illegible]E-04	[illegible].327E-06	2.719E-[illegible]	2.402E-[illegible]	8.[illegible]980	71.78	.18
1.000E-06	[illegible]E-06	[illegible]652E-04	[illegible]652E-06	7.480E-07	2.980E-03	8.04[illegible]780	71.36	.02
[illegible]000E-07	1.000E-07	[illegible]977E-04	[illegible]977E-[illegible]	5.165E-07	7.550E-[illegible]	7.954[illegible]40	71.28	.07
1.000E-08	1.000E-08	2.299E-04	2.299E-06	6.714E-07	4.[illegible]15E-[illegible]	7.[illegible]040	71.24	.05
[illegible]E-[illegible]	[illegible]E-[illegible]	[illegible]	[illegible]	7.[illegible]E-[illegible]	[illegible]	7.[illegible]	[illegible]	-.[illegible]
[illegible]E-1[illegible]	[illegible]E-10	2.[illegible]E-04	2.[illegible]E-06	8.789E-07	[illegible]	7.[illegible]540	[illegible]	[illegible]

PROGRAM SLUGT, VERSION 4, OCT 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPROACHES.
(1) METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS, 1967 (ARTICLE IN VOL.3,NO.1 OF WRR ENTITLED "RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER")
(2) METHOD OF BOUWER AND RICE, 1976 (ARTICLE IN VOL. 12, NO 3 OF WRR ENTITLED "A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS WITH COMPLETELY OR PARTIALLY PENETRATING WELLS")

PROJECT NO. [illegible]-011B-87 CLIENT: Rockwell International

SITE LOCATION: Rocky Flats Plant DATE OF SLUG TEST 10-9-87

FIELD INVESTIGATOR Kevin McNeill

WELL NO. [illegible]-87 Run #3

INPUT DATA ARE:

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25

LENGTH OF SCREEN OR INTAKE PORTION = 15.55 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 15.55 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 100.00 FEET
FALLING-HEAD INDEX = 0 ("1" IF FALLING,"0" IF RISING)

NUMBER OF HEAD-TIME DATA POINTS = 50

TIME (sec)	HEAD (FEET)
1.00	7.980
2.00	8.050
3.00	8.110
4.00	8.170
5.00	8.220
6.00	8.260
7.00	8.300
8.00	8.340
9.00	8.380
10.00	8.410
11.00	8.450
12.00	8.470
13.00	8.500
14.00	8.530
15.00	8.550
16.00	8.570
17.00	8.590
18.00	8.610
19.00	8.630
20.00	8.650
21.00	8.660
22.00	8.680
23.00	8.690
24.00	8.710
25.00	8.720
26.00	7.720
27.00	8.7[illegible]
28.00	8.750
29.00	8.750
30.00	8.770
31.00	8.780
32.00	8.790
33.00	8.800
34.00	8.810
35.00	8.810
40.00	8.850
45.00	8.870
50.00	8.890
55.00	8.910
60.00	8.920
70.00	8.940
80.00	8.960
91.00	8.960
111.00	8.980
135.00	8.980
155.00	8.990
175.00	8.990
205.00	8.990
235.00	9.000
250.00	9.000

-0 WAS COMPUTED FROM INTERCEPT OF PLOT OF LOG(H) VS TIME

VALUES FOR HO
(FEET)

8.4885
8.4757

1

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS.

COMPUTED VALUE OF HO = 9.05 FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS.	MAXIMUM TRANS.	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-00	1.000E-01	8.213E-06	8.217E-08	*********	1.602E-04	19.506250	76.37	.00
1.000E-02	1.000E-02	3.091E-05	3.091E-07	*********	3.705E-04	18.476270	76.97	-.60
1.000E-03	1.000E-03	6.447E-05	6.447E-07	*********	1.128E-03	17.501080	76.18	.79
1.000E-04	1.000E-04	9.958E-05	9.958E-07	*********	1.698E-03	17.055670	75.73	.46
1.000E-05	1.000E-05	1.337E-04	1.337E-06	*********	2.256E-03	16.881810	75.67	.06
1.000E-06	1.000E-06	1.672E-04	1.672E-06	1.655E-07	2.804E-03	16.763370	75.53	.13
1.000E-07	1.000E-07	2.001E-04	2.001E-06	1.626E-07	3.343E-03	16.704590	75.55	-.01
1.000E-08	1.000E-08	2.329E-04	2.329E-06	3.307E-07	3.876E-03	16.645760	75.47	.08
1.000E-09	1.000E-09	2.651E-04	2.651E-06	3.190E-07	4.406E-03	16.621890	75.49	-.02
1.000E-10	1.000E-10	2.973E-04	2.973E-06	4.614E-07	4.933E-03	16.583990	75.45	.04

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METHOD OF BOUWER AND RICE

COMPUTED RESULTS USING DIAMETER OF DRILLED HOLE.

PERMEABILITY = 1.29E-06 FT/sec = 3.93E-05 CM/sec

TRANSMISSIVITY = 1.29E-04 FT**2/sec

COMPUTED RESULTS USING DIAMETER OF CASING AND SCREEN

PERMEABILITY = 4.39E-07 FT/sec = 1.34E-05 CM/sec

TRANSMISSIVITY = 4.39E-05 FT**2/sec

WELL NO.: 9-87 Run #3

INPUT DATA ARE:

INNER CASING DIAMETER = 2 00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR INTAKE PORTION = 11.56 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 15.55 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 100.00 FEET
FALLING-HEAD INDEX = 0 ("1" IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 50

TIME (sec)	HEAD (FEET)
1.00	7.980
2.00	8.050
3.00	8.110
4.00	8.170
5.00	8 220
6.00	8.260
7.00	8.300
8.00	8.340
9.00	8 380
10.00	8.410
11.00	8.450
12.00	8 470
13.00	8 500
14 00	8 530
15 00	8.550
16.00	8.570
17 00	8 590
18 00	8.610
19.00	8.630
20 00	8.650
21 00	8 660
22 00	8.680
23 00	8 690
24.00	8 710
25.00	8 720
26.00	7.730
27.00	8 740
28.00	8.750
29.00	8.760
30.00	8.770
31.00	8.780
32 00	8.790
33.00	8.800
34.00	8 810
35.00	8.810
40.00	8.850
45 00	8.870
50 00	8.890
55.00	8.910
60 00	8 920
70 00	8 940
80 00	8 960
91.00	8.960
111.00	8.980
135 00	8 980
155.00	8 990
175.00	8.990
205.00	8.990

250.00 9.000

28.

HO WAS COMPUTED FROM KNOWN VOLUME OF SLUG

VOLUME OF SLUG ENTERED = .03270 CUBIC FEET

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS.

COMPUTED VALUE OF HO = 9.03 FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS	MAXIMUM TRANS.	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
.000E-01	1.000E-01	7.882E-06	7.882E-08	*********	1.551E-04	9.688580	76.45	.00
1.000E-02	1.000E-02	2.982E-05	2.982E-07	*********	5.561E-04	8.675530	77.18	-.72
1.000E-03	1.000E-03	6.249E-05	6.249E-07	*********	1.103E-03	7.662820	75.36	.82
1.000E-04	1.000E-04	9.673E-05	9.673E-07	*********	1.664E-03	17.199490	75.88	.48
.000E-05	.000E-05	1.299E-04	.299E-06	*********	2.212E-03	7.020590	75.82	.05
1.000E-06	1.000E-06	1.627E-04	1.627E-06	*********	2.749E-03	16.896550	75.68	.14
.000E-07	1.000E-07	.947E-04	.947E-06	*********	7.279E-07	6.839080	75.70	-.02
.000E-08	1.000E-08	2.267E-04	2.267E-06	6.227E-08	7.807E-07	6.777790	75.62	.08
.000E-09	.000E-09	2.583E-04	2.583E-06	.489E-07	4.724E-07	6.779890	75.58	.04
1.000E-10	.000E-10	2.895E-04	2.895E-06	1.125E-07	4.841E-03	6.720450	75.60	-.02

PROGRAM SLUGT, VERSION 4,OCT. 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPROACHES:
(1) METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS, 1967 (ARTICLE IN VOL.3,NO.1 OF WRR ENTITLED "RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER")
(2) METHOD OF BOUWER AND RICE, 1976 (ARTICLE IN VOL. 12, NO 3 OF WRR ENTITLED "A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS WITH COMPLETELY OR PARTIALLY PENETRATING WELLS")

PROJECT NO.: 6-011B-87 CLIENT: Rockwell International

ITE LOCATION: Rocky Flats Plant DATE OF SLUG TEST. 10-23-87

FIELD INVESTIGATOR: Kevin McNeill

WELL NO.: 36-87 BR

INPUT DATA ARE:

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7 50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR INTAKE PORTION = 31.80 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 31 80 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 100.0 FEET
FALLING-HEAD INDEX = 0 ("1" IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 42

TIME (sec)	HEAD (FEET)
1.00	7.810
2.00	7.850
3.00	7.890
4.00	7.920
5 00	7.960
6.00	7.990
7.00	8.020
8.00	8 050
9.00	8.080
10.00	8.110
11.00	8.140
12.00	8.160
13.00	8.190
14.00	8.210
15.00	8.230
16.00	8.230
17.00	8.270
18.00	8.290
19.00	8.310
20.00	8.330
22.00	8.360
25.00	8.410
27.00	8.440
30 00	8 480
32.00	8.510
35.00	8.540
40.00	8.600
45 00	8.640
50 00	8.680
55.00	8.710

70.00	8.790
80.00	8.820
89.00	8.850
109.00	8.890
129.00	8.920
149.00	8.930
179.00	8.950
209.00	8.960
294.00	8.970
534.00	8.980
774.00	8.980

H0 WAS COMPUTED FROM INTERCEPT OF PLOT OF LOG(H) VS TIME

SUCCESSIVE COMPUTED
VALUES FOR H0
(FEET)

8.2079
8.2632

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS.

COMPUTED VALUE OF H0 = [illegible] FEET

NOTE TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS	MAXIMUM TRANS.	RATIO OF MAX RANGE TO TBAR	SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-01	1.000E-0[illegible]	[illegible]	[illegible]	*********	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-02	1.000E-02	[illegible]	[illegible]	*********	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-03	1.000E-03	9.872E-05	9.872E-07	*********	1.320E-02	13.372870	164.3[illegible]	.2[illegible]
1.000E-04	1.000E-04	1.491E-04	1.491E-06	*********	1.967E-03	13.194380	164.19	.11
1.000E-05	1.000E-05	1.983E-04	1.983E-06	*********	2.600E-03	13.108650	164.10	.09
1.000E-06	1.000E-06	2.406E-04	2.406E-06	*********	3.220E-03	13.058380	164.09	.01
1.000E-07	1.000E-07	2.942E-04	2.942E-06	2.388E-08	3.832E-03	13.025210	164.05	.04
1.000E-08	1.000E-08	3.413E-04	3.413E-06	1.955E-08	4.438E-03	13.004460	164.06	.00
1.000E-09	1.000E-09	3.881E-04	3.881E-06	4.743E-08	5.039E-03	12.985840	164.03	.02
1.000E-10	1.000E-10	4.344E-04	4.344E-06	3.590E-08	5.637E-03	12.975810	164.04	-.01

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METHOD OF BOUWER AND RICE

COMPUTED RESULTS USING DIAMETER OF DRILLED HOLE:

PERMEABILITY = 4.82E-07 FT/sec = 1.47E-05 CM/sec

TRANSMISSIVITY = 4.82E-05 FT**2/sec

COMPUTED RESULTS USING DIAMETER OF CASING AND SCREEN

PERMEABILITY = 1.56E-07 FT/sec = 4.74E-06 CM/sec

TRANSMISSIVITY = 1.56E-05 FT**2/sec

WELL NO 36-87 BR

INPUT DATA ARE

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR INTAKE PORTION = 27.59 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 7.81 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 0.00 FEET
FALLING-HEAD INDEX = 0 IF FALLING, 100 IF RISING
NUMBER OF HEAD-TIME DATA POINTS = 42

TIME sec	HEAD FEET
1.00	7.810
2.00	7.850
3.00	7.890
4.00	7.920
5.00	7.960
6.00	7.990
7.00	8.020
8.00	8.050
9.00	8.080
10.00	8.110
11.00	8.140
12.00	8.160
13.00	8.190
14.00	8.210
15.00	8.230
16.00	8.250
17.00	8.270
18.00	8.290
19.00	8.310
20.00	8.330
22.00	8.360
25.00	8.410
27.00	8.440
30.00	8.480
32.00	8.510
35.00	8.540
40.00	8.600
45.00	8.640
50.00	8.680

55 00	8 710
60 00	8.740
70.00	8.790
80.00	8.820
89.00	8.850
109.00	8.890
129.00	8.920
149.00	8.930
179.00	8.950
209 00	8.960
294.00	8.970
534.00	8.980
774.00	8.980

HO WAS COMPUTED FROM KNOWN VOLUME OF SLUG

VOLUME OF SLUG ENTERED = .03270 CUBIC FEET

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS:

COMPUTED VALUE OF HO = 9 01 FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS.	MAXIMUM TRANS.	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1 000E-01	1.000E-01	1 393E-05	1 393E-07	*********	2 007E-04	14 412230	164.45	.00
1 000E-02	1.000E-02	4 966E-05	4 966E-07	*********	6 835E-04	13.768740	164.54	-.08
1 000E-03	1.000E-03	9 873E-05	9 873E-07	*********	1 720E-03	13 373870	164 30	.24
1.000E-04	1.000E-04	1.491E-04	1 491E-06	*********	1 967E-03	13.194380	164.19	.11
1.000E-05	1.000E-05	1.983E-04	1 983E-06	*********	2.600E-03	13.108650	164.10	09
1.000E-06	1.000E-06	2 466E-04	2 466E-06	*********	3.220E-03	13 058380	164.09	.01
1.000E-07	1.000E-07	2.942E-04	2.942E-06	2.388E-08	3.832E-03	13.025210	164.05	.04
1.000E-08	1.000E-08	3.413E-04	3 413E-06	1.955E-08	4.438E-03	13.004460	164.06	.00
1.000E-09	1.000E-09	3.881E-04	3.881E-06	4.743E-08	5 039E-03	12.985840	164.03	.02
1.000E-10	1.000E-10	4.344E-04	4.344E-06	3.590E-08	5 637E-03	12.975810	164.04	-.01

PROGRAM SLUGT, VERSION 4,OCT. 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPROACHES.
(1) METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS, 1967 (ARTICLE IN VOL.3,NO.1 OF WRR ENTITLED
RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER)

PROJECT NO. 6-01'8-87 CLIENT Rockwell International

TE LOCATION Rocky Flats Plant DATE OF SLUG TEST 10-23-87

FIELD INVESTIGATOR: Kevin McNeil

WELL NO 4I-86

INPUT DATA HRE.

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = 25
LENGTH OF SCREEN OR INTAKE PORTION = 9 74 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 9 74 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 9 74 FEET
FALLING-HEAD INDEX = 0 ("1" IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 18

TIME (sec)	HEAD (FEET)
1 00	7 580
2 00	7 790
3 00	7 940
4.00	8 040
5 00	8 09
6 00	8 14
7 00	8 17
8 00	8 180
9.00	8.190
10.00	8.200
15.00	8 200
20 00	8 210
25 00	8 2
30 00	8 21
35 00	8 210
40 00	8 210
45 00	8 210
50 00	8 210

H WAS COMPUTED FROM INTERCEPT OF PLOT OF LOG(H) VS TIME

SUCCESSIVE COMPUTED
VALUES FOR H0
(FEET

8 1011
8 0712

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS:

COMPUTED VALUE OF H0 = 9 29 FEET

NOTE TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS	MAXIMUM TRANS.	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-01	1.000E-01	4.560E-05	4.681E-06	*********	3.728E-04	8.200094	24.90	.00

1.000E-02	1 000E-02	1 456E-04	1 495E-05	*********	1 123E-03	7 745861	24.65	2c
1.000E-03	1 000E-03	2 735E-04	2.808E-05	*********	2.040E-03	7 465660	24.50	.14
1.000E-04	1.000E-04	4.027E-04	4.135E-05	4.873E-07	2.960E-03	7.347927	24.44	.06
1.000E-05	1 000E-05	5 291E-04	5.432E-05	7.629E-06	3.858E-03	7 277441	24.41	.03
1.000E-06	1.000E-06	6.528E-04	6.702E-05	9 177E-06	4.740E-03	7.246642	24.39	.02
1.000E-07	1.000E-07	7.747E-04	7 954E-05	9.92cE-06	5.610E-03	7.228720	24.38	01
1.000E-08	1.000E-08	8 959E-04	9 198E-05	1 662E-05	6 472E-03	7.205465	24.37	.01
1.000E-09	1.000E-09	1.015E-03	1 042E-04	1 215E-05	7.328E-03	7.205143	24.37	00
1.000E-10	1.000E-10	1.135E-03	1.166E-04	2 027E-05	8.179E-03	7.186804	24 36	.01

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METHOD OF BOUWER AND RICE

COMPUTED RESULTS USING DIAMETER OF DRILLED HOLE

PERMEABILITY = 4 22E-06 FT/sec = 1 29E-04 CM/sec

TRANSMISSIVITY = 4 11E-05 FT**2/sec

COMPUTED RESULTS USING DIAMETER OF CASING AND SCREEN

PERMEABILITY = 1 44E-06 FT/sec = 4 38E-05 CM/sec

TRANSMISSIVITY = 1 40E-05 FT**2/sec

WELL NO.: 42-86

INPUT DATA ARE

INNER CASING DIAMETER = 2 00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.50 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = 25
LENGTH OF SCREEN OR INTAKE PORTION = 5 95 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 9 74 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 9 74 FEET
FALLING-HEAD INDEX = 0 ("1" IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 18

TIME (sec)	HEAD (FEET)
1.00	7 580
2.00	7 790
3 00	7.940
4.00	8.040
5.00	8.090
6.00	8.140
7.00	8.170

8.00	8.18
9.00	8.190
10.00	9.200
15.00	8.200
20.00	8.210
25.00	8.210
30.00	8.210
35.00	8.210
40.00	8.210
45.00	8.210
76.00	8.210

H0 WAS COMPUTED FROM KNOWN VOLUME OF SLUG

VOLUME OF SLUG ENTERED = .03270 CUBIC FEET

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS

COMPUTED VALUE OF H0 = 9.29 FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMISSIVITY	MEAN PERMEABILITY	MINIMUM TRANS	MAXIMUM TRANS	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
.000E-01	.000E-01	4.561E-05	4.681E-06	*********	3.728E-04	8.200094	24.90	.00
1.000E-02	1.000E-02	.456E-04	1.495E-03	*********	1.[illegible]E-03	7.745651	24.63	.26
.000E-03	.000E-03	2.733E-04	2.818E-05	*********	2.040E-03	7.465560	24.51	.4
.000E-04	1.000E-04	4.027E-04	4.135E-05	4.877E-07	2.960E-03	7.347927	24.44	.5
.000E-05	.000E-05	5.291E-04	5.432E-05	7.629E-06	3.858E-03	7.277441	24.41	.03
1.000E-06	1.000E-06	6.528E-04	6.702E-05	9.177E-06	4.740E-03	7.246642	24.39	.02
1.000E-07	1.000E-07	7.747E-04	7.954E-05	9.936E-06	5.610E-03	7.228720	24.38	.01
1.000E-08	1.000E-08	8.959E-04	9.198E-05	1.662E-05	6.472E-03	7.205465	24.37	.01
1.000E-09	1.000E-09	1.015E-03	1.042E-04	1.215E-05	7.328E-03	7.205143	24.37	.00
1.000E-10	1.000E-10	1.135E-03	1.166E-04	2.027E-05	8.179E-03	7.186804	24.36	.01

PROGRAM SLUGT, VERSION 4, OCT 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPROACHES.

(1) METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS, 1967 (ARTICLE IN VOL 3, NO. 1 OF WRR ENTITLED "RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER")

(2) METHOD OF BOUWER AND RICE, 1976 (ARTICLE IN VOL. 12, NO 3 OF WRR ENTITLED "A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS WITH COMPLETELY OR PARTIALLY PENETRATING WELLS")

PROGRAM SLUGT, VERSION 4,OCT. 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPROACHES
(1) METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS, 1967 (ARTICLE IN VOL 3,NO 1 OF WRR ENTITLED "RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER")
(2) METHOD OF BOUWER AND RICE, 1976 (ARTICLE IN VOL. 12, NO 3 OF WRR ENTITLED "A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS WITH COMPLETELY OR PARTIALLY PENETRATING WELLS")

PROJECT NO.: 6-0118-87 CLIENT. Rockwell International

ITE LOCATION Rocky Flats Plant DATE OF SLUG TEST 10-22-87

FIELD INVESTIGATOR Kevin McNeill

WELL NO . 35-86

INPUT DATA ARE.

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.25 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR INTAKE PORTION = 4.59 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 4.59 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 10.00 FEET
FALLING-HEAD INDEX = "1" OF FALLING OR RISING
NUMBER OF HEAD-TIME DATA POINTS = 39

TIME (sec)	HEAD (FEET)
1.00	4.140
2.00	4.160
3.0	4.170
4.00	4.180
5.0	4.180
6.00	4.190
7.00	4.200
8.00	4.21
9.00	4.2[illegible]
10.00	4.220
15.00	4.250
20.00	4.270
25.00	4.290
35.00	4.330
45.00	4.360
55.00	4.390
65.00	4.410
85.00	4.450
105.00	4.470
125.00	4.490
145.00	4.500
175.00	4.520
[illegible]	4.5[illegible]

235.00	4.540
265.00	4.540
295.00	4.550
355.00	4.560
415.00	4.570
535.00	4.580
655.00	4.600
775.00	4.610
895.00	4.620
1015.00	4.620
1135.00	4.630
1465.00	4.650
1945.00	4.660
2425.00	4.670
2905.00	4.680
3505.00	4.690

H0 WAS COMPUTED FROM INTERCEPT OF PLOT OF LOG(H) VS TIME

SUCCESSIVE COMPUTED
VALUES FOR H0
(FEET)

4.3544
4.3457

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULO

COMPUTED RESULTS

COMPUTED VALUE OF H0 = 4.72 FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMISSIVITY	MEAN PERMEABILITY	MINIMUM TRANS	MAXIMUM TRANS	RATIO OF TRANSMISSIVITY TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-01	.000E-01	234E-05	234E-07	*********	.708E-04	13.836640	982.09	0
1.000E-02	1.000E-02	4.443E-05	4.443E-07	*********	6.007E-04	13.518120	982.10	-.0
1.000E-03	1.000E-03	8.847E-05	8.847E-07	*********	1.180E-03	13.333360	981.77	.33
1.000E-04	1.000E-04	1.336E-04	1.336E-06	*********	1.711E-03	13.249300	981.61	.16
1.000E-05	1.000E-05	1.778E-04	1.778E-06	1.018E-08	2.349E-03	13.210300	981.49	.12
1.000E-06	.000E-06	2.212E-04	2.212E-06	1.291E-08	2.916E-03	13.186040	981.47	.02
1.000E-07	.000E-07	2.638E-04	2.638E-06	2.285E-08	3.475E-03	13.170960	981.43	.05
1.000E-08	1.000E-08	3.061E-04	3.061E-06	3.180E-08	4.028E-03	13.160440	981.40	.03
1.000E-09	1.000E-09	3.480E-04	3.480E-06	3.413E-08	4.578E-03	13.152330	981.40	.00
1.000E-10	1.000E-10	3.897E-04	3.897E-06	4.183E-08	5.123E-03	13.146530	981.38	.02

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METHOD OF BOUWER AND RICE

COMPUTED RESULTS USING DIAMETER OF DRILLED HOLE

PERMEABILITY = 2.88E-07 FT/sec = 8.77E-06 CM/sec

TRANSMISSIVITY = 2.88E-05 FT**2/sec

COMPUTED RESULTS USING DIAMETER OF CASING AND SCREEN

PERMEABILITY = 1.30E-07 FT/sec = 3.95E-06 CM/sec

TRANSMISSIVITY = 1.30E-05 FT**2/sec

WELL NO [illegible]

NPLT DATA FILE.

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.25 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
NUMBER OF HEAD-TIME DATA POINTS = [illegible]

LENGTH OF SCREEN OR INTAKE PORTION = 2.52 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = [illegible] FEET
THICKNESS OF SATURATED AQUIFER ZONE = [illegible] FEET
FALLING-HEAD MODE = [illegible] IF FALLING, [illegible] IF RISING

TIME (sec)	HEAD (FEET)
[illegible]	[illegible]
2.00	[illegible]
3.00	[illegible]
4.00	4.180
5.00	4.180
6.00	4.190
7.00	4.200
8.00	4.210
9.00	4.210
10.00	4.220
15.00	4.250
20.00	4.270
25.00	4.290
35.00	4.330
45.00	4.360
55.00	4.390
65.00	4.410
85.00	4.450
105.00	4.470
125.00	4.490
145.00	4.500
175.00	4.520
205.00	4.530
235.00	4.540
265.00	4.540
295.00	4.550
355.00	4.560
[illegible]	4.570

355.00	4.560
415.00	4.570
535.00	4.580
655.00	4.600
775.00	4.610
895.00	4.620
1015.00	4.620
1135.00	4.630
1465.00	4.650
1945.00	4.660
2425.00	4.670
2905.00	4.680
3505.00	4.690

HO WAS COMPUTED FROM KNOWN VOLUME OF SLUG

VOLUME OF SLUG ENTERED = [illegible]640 CUBIC FEET

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS

COMPUTED VALUE OF HO = [illegible] FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMISSIVITY	MEAN PERMEABILITY	MINIMUM TRANS	MAXIMUM TRANS	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
[illegible]E-01	1.000E-[illegible]	[illegible]57E-[illegible]	[illegible]57E-07	*********	[illegible]E-04	13.902940	982.19	.00
1.000E-02	1.000E-02	4.219E-[illegible]	4.2[illegible]E-[illegible]	*********	5.7[illegible]E-04	13.575[illegible]	982.2[illegible]	-.1[illegible]
1.000E-03	1.000E-03	8.457E-[illegible]	8.457E-07	*********	1.[illegible]2E-03	13.382270	981.96	[illegible]
[illegible]E-04	1.000E-04	[illegible]28E-04	[illegible]28E-06	*********	1.7[illegible]4E-[illegible]	13.29477	98[illegible].8	.15
1.000E-05	1.000E-05	1.707E-04	1.707E-06	*********	2.26[illegible]E-[illegible]	13.253950	98[illegible].68	.13
1.000E-06	1.000E-06	2.126E-04	2.126E-06	*********	2.812E-03	13.229080	981.67	.01
1.000E-07	1.000E-07	2.537E-04	2.537E-06	*********	3.352E-03	13.213340	981.62	.05
1.000E-08	1.000E-08	2.944E-04	2.944E-06	*********	3.887E-03	13.202410	981.59	.03
1.000E-09	1.000E-09	3.349E-04	3.349E-06	*********	4.419E-03	13.194150	981.60	-.01
1.000E-10	1.000E-10	3.751E-04	3.751E-06	*********	4.947E-03	13.188140	981.58	.02

PROGRAM SLUGT, VERSION 4, OCT 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPROACHES.

(1) METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS, 1967 (ARTICLE IN VOL 3, NO.1 OF WRR ENTITLED "RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER")

(2) METHOD OF BOUWER AND RICE, 1976 (ARTICLE IN VOL. 12, NO.3 OF WRR ENTITLED "A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS

PROJECT NO. 6- 8-87 CLIENT: Rockwell International

SITE LOCATION: Rocky Flats Plant DATE OF SLUG TEST: 11-22-87

FIELD INVESTIGATOR: Kevin McNeill

WELL NO.: 34-86

INPUT DATA HRE.

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 4.75 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = 25
LENGTH OF SCREEN OR INTAKE PORTION = 13.50 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 35.46 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 100.00 FEET
FALLING-HEAD INDEX = 0 ("1" IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 36

TIME (sec)	HEAD (FEET)
1.00	7.860
2.00	7.870
3.00	7.870
4.00	7.870
5.00	7.870
6.00	7.87
7.00	7.880
8.00	7.880
9.00	7.880
10.00	7.890
15.00	7.890
20.00	7.900
50.00	7.920
80.00	7.940
110.00	7.960
140.00	7.98
170.00	8.000
200.00	8.010
230.00	8.020
260.00	8.040
290.00	8.050
320.00	8.060
380.00	8.090
440.00	8.110
500.00	8.130
560.00	8.150
620.00	8.170
740.00	8.210
860.00	8.250
980.00	8.280
1100.00	8.310
1220.00	8.340
1470.00	8.390
1820.00	8.460
2180.00	8.510
2540.00	8.560

H0 WAS COMPUTED FROM INTERCEPT OF PLOT OF LOG(H) VS. TIME

SUCCESSIVE COMPUTED
VALUES FOR H0
(FEET)

41

METHOD OF COOPER, BREDEHOEFT AND PARADOPULOS

COMPUTED RESULTS

COMPUTED VALUE OF H0 = 8.65 FEET

NOTE TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS	MAXIMUM TRANS	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-01	1.000E-01	8.208E-06	8.208E-08	*********	9.719E-05	11.840610	803.46	.00
1.000E-02	1.000E-02	3.246E-05	3.246E-07	*********	3.822E-04	11.773370	803.13	.34
1.000E-03	1.000E-03	6.806E-05	6.806E-07	2.630E-09	7.985E-04	73279[illegible]	802.85	.28
1.000E-04	1.000E-04	1.051E-04	1.051E-06	2.624E-08	231E-07	11.715090	802.60	[illegible]
1.000E-05	1.000E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	802.5[illegible]	[illegible]
1.000E-06	1.000E-06	1.769E-04	1.769E-06	6.22[illegible]E-08	2.070E-07	1.70103	802.45	[illegible]
1.000E-07	1.000E-07	2.[illegible]9E-04	2.[illegible]9E-06	8.[illegible]E-08	2.479E-07	[illegible].698010	802.41	.04
1.000E-08	1.000E-08	2.466E-04	2.466E-06	9.357E-08	2.884E-03	11.695490	802.4[illegible]	[illegible]
1.000E-09	1.000E-09	2.8[illegible]E-04	2.8[illegible]E-06	[illegible]2E-07	7.28[illegible]E-03	[illegible].693850	802.78	[illegible]
1.000E-10	1.000E-[illegible]	3.[illegible]E-04	3.151E-06	[illegible].296E-07	3.63[illegible]E-07	[illegible].692740	802.3[illegible]	[illegible]

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METHOD OF BOUWER AND RICE

COMPUTED RESULTS USING DIAMETER OF DRILLED HOLE

PERMEABILITY = 3.31E-08 FT/sec = 1.0 E-06 CM/sec

TRANSMISSIVITY = 3.31E-06 FT**2/sec

COMPUTED RESULTS USING DIAMETER OF CASING AND SCREEN:

PERMEABILITY = 4.10E-08 FT/sec = 1.25E-06 CM/sec

TRANSMISSIVITY = 4.10E-06 FT**2/sec

INPUT DATA FILE

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 4.75 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
NUMBER OF HEAD-TIME DATA POINTS = 36

LENGTH OF SCREEN OR INTAKE PORTION = 7.50 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 35.48 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 10.00 FEET
FALLING-HEAD INDEX = 0 (1 IF FALLING, 0 IF RISING)

TIME sec	HEAD (FEET)
1.00	7.860
2.00	7.870
3.00	7.870
4.00	7.870
5.00	7.870
6.00	7.870
7.00	7.880
8.00	7.830
9.00	7.880
10.00	7.880
15.00	7.890
20.00	7.900
30.00	7.920
40.00	7.94
50.00	7.950
60.00	7.960
70.00	8.000
80.00	8.010
90.00	8.020
100.00	8.040
120.00	8.050
140.00	8.060
160.00	8.070
180.00	8.080
200.00	8.090
220.00	8.100
240.00	8.110
260.00	8.120
280.00	8.130
300.00	8.140
320.00	8.150
340.00	8.160
360.00	8.170
380.00	8.180
400.00	8.190
420.00	8.200
440.00	8.210
460.00	8.220
480.00	8.230
500.00	8.240
520.00	8.250
540.00	8.260
560.00	8.270
580.00	8.280
600.00	8.290
620.00	8.300
640.00	8.310
660.00	8.320
680.00	8.330
700.00	8.340
720.00	8.350
740.00	8.360
760.00	8.370
780.00	8.380
800.00	8.390
820.00	8.400
840.00	8.410
860.00	8.420
880.00	8.430
900.00	8.440
920.00	8.450
940.00	8.460
960.00	8.470
980.00	8.480
1000.00	8.510
1220.00	8.540
1470.00	8.590
1820.00	8.660
2180.00	8.710
2540.00	8.760

H0 WAS COMPUTED FROM KNOWN VOLUME OF SLUG

VOLUME OF SLUG ENTERED = 03270 CUBIC FEET

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS

COMPUTED VALUE OF H0 = 8.65 FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVE T	MEAN TRANSMISSIVITY	MEAN PERMEABILITY	MINIMUM TRANS	MAXIMUM TRANS	RATIO OF ST. RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-0	1.000E-01	8.208E-06	8.208E-08	*********	9.719E-05	11.840610	803.46	.00
1.000E-02	1.000E-02	3.246E-05	3.246E-07	*********	3.822E-04	11.773370	803.13	.34
1.000E-03	1.000E-03	6.806E-05	6.806E-07	2.630E-09	7.985E-04	11.732790	802.85	.28
1.000E-04	.000E-04	051E-04	1.051E-06	2.624E-08	1.271E-03	11.715090	802.60	.25
1.000E-05	1.000E-05	1.414E-04	1.414E-06	4.195E-08	1.655E-03	1.705770	802.51	.09
1.000E-06	1.000E-06	1.769E-04	1.769E-06	6.228E-08	2.070E-03	11.701030	802.45	.06
1.000E-07	1.000E-07	2.119E-04	2.119E-06	8.139E-08	2.479E-03	11.698010	802.41	.04
1.000E-08	1.000E-08	2.466E-04	2.466E-06	9.357E-08	2.884E-03	11.695490	802.40	.01
1.000E-09	1.000E-09	2.810E-04	2.810E-06	1.112E-07	3.286E-03	11.693850	802.38	.02
.000E-10	1.000E-10	7.151E-04	7.151E-06	1.298E-07	3.685E-03	11.692740	802.36	.02

[illegible]

THIS PROGRAM CALCULATES MEAN [illegible]
(1) METHOD OF COOPER [illegible]
"RESPONSE OF A FINITE [illegible]
(2) METHOD OF BOUWER AND RICE 1976 [illegible]
"A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS
WITH COMPLETELY OR PARTIALLY PENETRATING WELLS [illegible]

PROJECT NO.: 6-011B-87 [illegible]

ITE LOCATION: Rocky Flats Plant [illegible]

FIELD INVESTIGATOR: Kevin McNeill

WELL NO [illegible] BR

INPUT DATA ARE

INNER CASING DIAMETER = 2 00 INCHES [illegible] OPTION = [illegible] FEET
INNER SCREEN OR OPEN-HOLE DIAMETER = [illegible] INCHES [illegible] STATIC [illegible] TO BOTTOM OF SCREEN = [illegible] FEET
DIAMETER OF DRILLED HOLE = 4 00 INCHES [illegible] SATURATED AQUIFER ONE = [illegible] FEET
ESTIMATED POROSITY OF GRAVEL PACK = 25 [illegible] HEAD INDE[illegible] FALLING [illegible] RISING)
NUMBER OF HEAD-TIME DATA POINTS [illegible]

TIME (sec)	HEAD (FT)
1 0	9 [illegible]
2 00	9 [illegible]
3 00	9 [illegible]
4 00	9 [illegible]

9 [illegible]	[illegible]
10 00	9 [illegible]
15 00	9 [illegible]
[illegible]	9 [illegible]
[illegible]	[illegible]
26 00	[illegible]
[illegible]	[illegible]
126 00	9 [illegible]
186 00	[illegible]
246 00	[illegible]
306 00	[illegible]
[illegible]	[illegible]

HO WAS COMPUTED FROM [illegible]

SUCCESSIVE COMPUTED
VALUE FOR [illegible]
[illegible]

1
[illegible]

1

METHOD OF [illegible]

COMPUTED [illegible]

COMPUTED VALUE OF HO [illegible]

NOTE: TRANSMISSIVITY UNITS ARE IN FT** [illegible]

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM [illegible]	MAXIMUM TRANS	RATIO OF [illegible]	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-01	1 000E-01	5 026E-07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	00
1.000E-02	1 000E-02	1 810E-06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-03	1.000E-03	6 943E-06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-04	1 000E-04	1 432E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-05	1.000E-05	2.197E-05	2 197E-07	[illegible]	[illegible]	[illegible]	[illegible]	04
1 000E-06	1.000E-06	2.946E-05	[illegible] 946E-07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-07	1 000E-07	3 680E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	01
1 000E-08	1.000E-08	4.401E-05	4 401E-07	[illegible]	[illegible]	[illegible]	[illegible]	01
1 000E-09	1.000E-09	5 121E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	01
1 000E-10	1.000E-10	5.818E-05	5 818E-07	[illegible]	[illegible]	[illegible]	127 26	00

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METHOD OF [illegible]

COMPUTED RESULTS USING [illegible]

PERMEABILITY = 7 45E-09 FT [illegible]

TRANSMISSIVITY = 7 45E-07 FT**

[illegible]

[illegible]

COMPUTED [illegible]

[illegible]

TRANSMI[illegible]

1

[illegible]

INNER CASING DIAMETER - [illegible]
INNER SCREEN OR OPEN-HOLE DIAMETER [illegible]
DIAMETER OF DRILLED HOLE = [illegible]
ESTIMATED POROSITY OF GRAVEL PACK [illegible]
NUMBER OF [illegible]

TIME (sec)	[illegible] (feet)
1.00	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
4.00	[illegible]
5.00	[illegible]
6.00	[illegible]
7	[illegible]
8.00	[illegible]
9	[illegible]
10.00	[illegible]
15.00	[illegible]
20.00	[illegible]
25.00	[illegible]
36.00	[illegible]
66.00	[illegible]
126.00	[illegible]
186.00	[illegible]
246.00	[illegible]
306.00	[illegible]
356.00	[illegible]

HO WAS COMPUTED FROM FORMULA [illegible]

VOLUME OF SLUG INTERED - [illegible]

1

METHOD OF [illegible]

[illegible]

COMPUTED VALUE OF HO [illegible]

NOTE TRANSMISSIVITY UNITS ARE IN FT**2 [illegible]

ALPHA	STORATIVITY	MEAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]					

[illegible]

NOTE [illegible]

ALPHA	STORATIVITY	[illegible] HEADSHIFT SIVITY	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-01	1.000E-01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-02	1.000E-02	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-03	1.000E-03	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-04	1.000E-04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-05	1.000E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-06	1.000E-06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-07	1.000E-07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-08	1.000E-08	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-09	1.000E-09	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-10	1.000E-10	5.105E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1

[illegible]

THIS PROGRAM CALCULATES MEAN TRANS[illegible]
(1) METHOD OF COOPER [illegible]
"RESPONSE OF A FINITE DIAMETER WELL TO [illegible]
(2) METHOD OF BOUWER AND RICE [illegible]
'A SLUG TEST FOR DETERMINING [illegible]
WITH COMPLETELY OR PARTIALLY [illegible]

PROJECT NO.: 6-011B-87

ITE LOCATION Rocky Flats Plant

FIELD INVESTIGATOR: Kevin McNeill

WELL NO. [illegible]

INPUT DATA

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = [illegible] INCHES
DIAMETER OF DRILLED HOLE = 7.25 INCHES
ESTIMATED POROSITY OF GRAVEL PACK [illegible].5
NUMBER OF HEAD-TIME DATA POINTS [illegible]

[illegible] FEET
[illegible] STATIC [illegible] BOTTOM OF SCREEN = [illegible] FEET
[illegible] ZONE = [illegible] FEET
[illegible] HEAD INDEX [illegible] (1 IF FALLING, 0 IF RISING)

TIME (sec)	[illegible]
1.00	[illegible]
2.00	[illegible]
3.00	[illegible]
4.00	[illegible]
5.00	[illegible]
6.00	[illegible]
7.00	[illegible]
8	[illegible]

HO WAS COMPUTED FROM [illegible]

SUCCESSIVE COMPUTED
VALUES FOR HO
(FEET)

[illegible]

METHOD OF COMPUTING [illegible]

COMPUTED BY [illegible]

COMPUTED [illegible] HO

NOTE: TRANSMISSIVITY UNITS ARE IN FEET [illegible]

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	[illegible]	[illegible]	[illegible]	[illegible]	DIFFERENCE IN RMS

NOTE: [illegible]

ALPHA	STORATIVITY	MEAN TRANSMISSIVITY	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	DIFFERENCE IN RMS
1 000E-01	1 000E-01	1 4[illegible]E 05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-02	1 000E-02	4 9[illegible]E 05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-03	1 000E-03	9 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-04	1 000E-04	1 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-05	1 000E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-06	1 000E-06	2 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-07	1 000E-07	2 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-08	1 000E-08	3 [illegible]09E 04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-09	1 000E-09	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-10	1 000E-10	4 078E-01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

********** [illegible] **********

[illegible]

COMPUTED [illegible]

FERMEABILITY [illegible]

TRANSMISSIVITY [illegible]

COMPUTED [illegible]

FERMEABILITY = 6 [illegible]

TRANSMISSIVITY = 7 95E-06 FT**

1

WELL NO [illegible]

INPUT DATA ARE

INNER CASING DIAMETER = 2 00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2 00 INCHES
DIAMETER OF DRILLED HOLE = 7 25 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = 25

[illegible] INTAKE [illegible] = 4 [illegible] FEET
[illegible] SCREEN = [illegible]
[illegible] AQUIFER ZONE [illegible]
[illegible] HEAD [illegible]

NUMBER OF HEAD TIME DATA POINTS [illegible]

TIME (sec)	HEAD (FEET)
1 00	[illegible]
2 00	[illegible]
3 00	[illegible]

HO WAS COMPUTED FROM FIGURE [illegible]

VOLUME OF SLUG ENTERED = [illegible] CUBIC FEET

METHOD OF [illegible]

NOTE TRANSMISSIVITY UNITS ARE IN FT**2/DAY [illegible] UNITS ARE IN FT [illegible]

ALPHA	STORATIVITY	MEAN TRANSMISSIVITY	MEAN FLEMING RELIEF	[illegible] HEAD	[illegible] DEPTH	[illegible] RATIO OF FAVICE TO [illegible]	ROOT MEAN SQUARE OF THE DEVIATIONS	DIFFERENCE IN TMS
1.000E-01	1.000E-01	1.533E-03	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
1.000E-02	1.000E-02	3.167E-0[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-03	1.000E-03	9.95[illegible]E-0[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-04	1.000E-04	1.48[illegible]E-0[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
1.000E-05	1.000E-05	1.75[illegible]E-0[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
1.000E-06	1.000E-06	[illegible]25[illegible]E-0[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
1.000E-07	1.000E-07	2.885E-01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-08	1.000E-08	3.340E-01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-09	1.000E-09	3.79[illegible]E-01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-10	1.000E-10	4.242E-01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1

PROGRAM SLUG1 VERSION [illegible]

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITY [illegible] FOR [illegible] [illegible] OF [illegible] OF DRAWDOWN
(1) METHOD OF COOPER [illegible] RESPONSE OF A FINITE DIAMETER WELL [illegible] [illegible] FITTED
(2) METHOD OF BOUWER AND RICE [illegible] [illegible] FITTED
"A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS WITH COMPLETELY OR PARTIALLY PENETRATING WELLS"

PROJECT NO.: 6-011B-87

ITE LOCATION: Rocky Flats Plant

FIELD INVESTIGATOR: Kevin McNeill

WELL NO. 69-0[illegible]

INPUT DATA URL

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = [illegible] INCHES
DIAMETER OF DRILLED HOLE = 7.5 INCHES
ESTIMATED POROSITY OF GRAVEL PACK =
NUMBER OF HEAD TIME DATA POINTS

TIME (sec)	HEAD (FEET)
1.00	8.[illegible]
2.00	8.[illegible]
3.00	8.[illegible]
4.00	8.[illegible]
5.00	8.[illegible]
6.00	8.[illegible]
7.00	8.[illegible]
8.00	8.[illegible]
9.00	8.[illegible]
[illegible]	[illegible]

[illegible]

THIS PROGRAM CALCULATES [illegible]
(1) METHOD OF COOPER [illegible]
"RESPONSE OF A FINITE DIAMETER [illegible]
(2) METHOD OF LOUDER AND [illegible]
A SLUG TEST FOR [illegible]
WITH COMPLETELY [illegible]

PROJECT NO 6-0118 87 [illegible]

ITE LOCATION Rocky Flats Plant [illegible]

FIELD INVESTIGATOR Kevin McNeill

[illegible]

INNER CASING DIAMETER [illegible]
INNER SCREEN OR OPEN HOLE DIAMETER [illegible]
DIAMETER OF DRILLED HOLE [illegible]
ESTIMATED POROSITY OF GRAVEL [illegible]
NUMBER OF HEAD [illegible]

TIME (sec)	[illegible]
1 [illegible]	[illegible]
[illegible]	8 [illegible]
3 00	8 [illegible]
4 00	[illegible]
5 00	[illegible]
6 00	[illegible]
7 00	8 [illegible]
8 00	[illegible]
9 00	[illegible]
10 00	[illegible]
12 00	8 [illegible]
15 00	8 [illegible]
17 00	[illegible]
20 00	8 [illegible]
22 00	8 [illegible]
25 00	8 [illegible]
30 00	8 [illegible]
35 00	8 [illegible]
40 00	8 [illegible]
45 00	8 [illegible]
50 00	8 [illegible]
62 00	8 [illegible]
72 00	8 [illegible]
82 00	8 [illegible]
92 00	8 [illegible]
122 00	8 [illegible]
152 00	8 [illegible]
182 00	8 [illegible]
262 00	[illegible]
322 00	[illegible]
442 00	8 [illegible]
562 00	8 [illegible]
802 00	8 [illegible]
1042 00	8 [illegible]
1282 00	8 [illegible]
1702 00	8 [illegible]

HO WAS COMPUTED FROM INTERCEPT [illegible]

[illegible]

52

[illegible]

[illegible]

[illegible]

1

[illegible]

[illegible]

[illegible]

NOTE TRANSMISSIVITY [illegible]

ALPHA	STORATIVITY	[illegible] TRANSMISSIVITY	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-01	1 000E-01	1 130E 06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-02	1.000E-02	6 470E 06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-03	1.000E-03	1 776E 05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-04	1 000E-04	7 097E 05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-05	1.000E-05	4 410E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-06	1.000E-06	5 690E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-07	1 000E-07	6 951E- 5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-08	1 000E-08	8 19[illegible]E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-09	1.000E-09	9 426E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-10	1.000E-10	1.065E-04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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METHOD OF [illegible]

COMPUTED RESULTS [illegible]

PERMEABILITY - [illegible]

TRANSMISSIVITY [illegible]

53

[illegible] 00	
77 00	8 [illegible]
97 00	8 78[illegible]
157 00	8 790
217 00	8 790
727 00	8 790
567 00	8 790
807 00	8 80[illegible]
1107 00	8 80[illegible]
1407 00	8 81[illegible]
1707 00	8 81[illegible]
2007 00	8 81[illegible]
2307 00	8 3[illegible]

31-87

HO WAS COMPUTED FROM [illegible]

SUCCESS [illegible] COMPUTED
VALUES [illegible] HO
(FEET)

8 77[illegible]
8 7 [illegible]0

METHOD OF COOPER, FREDEMONT AND [illegible]

COMPUTED RESULTS

COMPUTED VALUE OF HO [illegible] FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT** [illegible] AND PERMEABILITY UNITS ARE IN FT [illegible]

ALPHA	STORATIVITY	MEAN TRANSMISSIVITY	MEAN PERMEABILITY	MINIMUM TRANS	MAXIMUM TRANS	RATIO OF T RANGE TO MEAN	ROOT MEAN SQUARE OF LINE DEVIATIONS	DIFFERENCE MEANS
1.000E-01	1.000E-01	4.152E-07	4 15[illegible]E-09	7 015E-10	[illegible]11E-06	[illegible]7450	81[illegible] 06	00
1.000E-02	1.000E-02	1 534E-06	1 5[illegible]4E-08	1 [illegible]	1 [illegible]5E-0[illegible]	[illegible]	[illegible]	[illegible]
1.000E-03	1.000E-03	5 820E-06	5 8[illegible]0E-08	6 948E [illegible]	[illegible]	[illegible]	81[illegible]	[illegible]
1.000E-04	1.000E-04	1 193E-05	1 19[illegible]E [illegible]7	1 [illegible]	7 [illegible]1E [illegible]	7 [illegible]10	81[illegible]	[illegible]
1.000E-05	1.000E-05	1.825E-05	1 825E-07	2 737E-[illegible]	1 456E-04	7 [illegible]75467	81[illegible] 5	10
1.000E-06	1.000E-06	2.443E-05	2 443E-07	[illegible] 796E-08	1 949E 04	7 [illegible]	81[illegible]	0
1.000E-07	1.000E-07	3 050E-05	3 050E 07	4 828E [illegible]	[illegible] E 04	[illegible]	81[illegible]	[illegible]
1.000E-08	1.000E-08	3.646E-05	3 646E [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0
1.000E-09	1.000E-09	4.239E-05	4 239E-07	6 641E [illegible]	[illegible]1E-04	[illegible]	81[illegible] 14	0
1.000E-10	1.000E-10	4.816E-05	4 816E 07	7 8[illegible]8E [illegible]	[illegible] 841E 04	7 [illegible]	81[illegible]	01

****

54

[illegible]

[illegible]

COMPUTED RESULTS [illegible]

[illegible]

TRANSMISSIVITY [illegible]

[illegible]

[illegible]

[illegible]

INNER CASING DIAMETER = [illegible] INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER [illegible] INCHE
DIAMETER OF DRILLED HOLE - [illegible] INCHES
ESTIMATED POROSITY OF GRAVEL PACK = 25
NUMBER OF HEAD TIME [illegible]

[illegible]

TIME (sec)	HEAD (feet)
1.00	[illegible]
2.00	[illegible]
3.00	[illegible]
4.00	[illegible]
5.00	[illegible]
6.00	[illegible]
7.00	[illegible]
8.00	[illegible]
9.00	[illegible]
10.00	[illegible]
15.00	[illegible]
20.00	[illegible]
25.00	[illegible]
37.00	[illegible]
97.00	[illegible]
157.00	[illegible]
217.00	[illegible]
327.00	[illegible]
567.00	[illegible]
807.00	[illegible]
1107.00	[illegible]
1407.00	[illegible]
1707.00	[illegible]
2007.00	[illegible]
2307.00	[illegible]

HO WAS COMPUTED FROM KNOWN POWER [illegible]

VOLUME OF SLUG ENTERED = [illegible] CUBIC [illegible]

METHOD OF COOPER BREDEHOEFT AND [illegible]

COMPUTED RESULTS

METHOD OF COOPER BREDEHOEFT AND [illegible]

COMPUTED RESULT

COMPUTED VALUE OF HO = [illegible]

NOTE TRANSMISSIVITY UNITS ARE IN FEET [illegible]

ALPHA	STORATIVITY	MEAN TRANSMISSIVITY	MEAN [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	DIFFERENCE IN [illegible]
1 000E-01	1 000E-01	7 727E-07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-02	1 000E-02	1 767E-06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
1 000E-03	1 000E-03	4 985E-06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-04	1 000E-04	1 047E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-05	1 000E-05	1 609E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-06	1 000E-06	2 166E-0[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-07	1.000E-07	2 710E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-08	1,000E-08	3 245E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-09	1 000E-09	3 781E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-10	1.000E-10	4 296E-05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

PROGRAM [illegible]

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG [illegible] DATA BASED ON TWO [illegible] APPROACHES
(1) METHOD OF COOPER BREDEHOEFT AND PARADOPULOS [illegible] (ARTICLE IN [illegible] NO 1 OF WRR ENTITLED "RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER")
(2) METHOD OF BOUWER AND RICE, 1976 (ARTICLE IN [illegible] NO 3 OF WRR ENTITLED "A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS WITH COMPLETELY OR PARTIALLY PENETRATING WELL")

PROJECT NO.: 6-011B-87 [illegible]

ITE LOCATION: Rocky Flats Plant [illegible]

FIELD INVESTIGATOR: Kevin McNeill

WELL NO [illegible]

INPUT DATA ARE

INNER CASING DIAMETER = 2 00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER 2 00 INCHE
DIAMETER OF DRILLED HOLE = 7 50 INCHES

[illegible] SCREEN OR INTAKE POSITION [illegible] FEET
[illegible] STATIC LEVEL TO BOTTOM OF SCREEN [illegible] FEET
[illegible] OF SATURATED AQUIFER ZONE [illegible] FEET

56

57.

4 [illegible]	[illegible]
[illegible]	[illegible]
11 [illegible]	[illegible]
17 [illegible]	[illegible]
2[illegible]	[illegible]
7 [illegible]	[illegible]
10 00	[illegible]
4[illegible]	[illegible]
50 00	[illegible]
55 [illegible]	[illegible]
60 00	[illegible]
70 00	8 7[illegible]
80 00	[illegible]
88 00	[illegible] 770
98 00	8 770
118 00	[illegible]
128 00	[illegible]
150 00	[illegible]
189 [illegible]	8 870
218 00	8 880
267 00	8 850
282 00	8 890

HO WAS COMPUTED FROM KNOWN VOLUME OF [illegible]

VOLUME OF SLUG ENTERED - 0 [illegible] CUBIC FEET

METHOD OF COOPER BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS

COMPUTED VALUE OF HO [illegible] FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2 [illegible] AND PERMEABILITY UNITS ARE IN FT [illegible]

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRAN	MAXIMUM TRAN	RATIO OF [illegible]	ROOT MEAN SQUARE OF THE DEVIATIONS	DIFFERENCE IN EMS
1 000E-01	1 000E-01	1 388E-05	1 388E-07	*********	[illegible] 04	14 [illegible]	[illegible]	[illegible]
1.000E-02	1 000E-02	4 958E-05	4 958E-0[illegible]	***** [illegible]	[illegible]	1 [illegible]	[illegible]	[illegible]
1.000E-03	1.000E-03	9 865E-05	9 865E-07	******* [illegible]	1 [illegible]9E [illegible]	[illegible] 157300	[illegible]	[illegible]
1.000E-04	1.000E-04	1 [illegible]	1 [illegible]		[illegible]	[illegible]	[illegible]	[illegible]

1 000E-01	1 000E-01	1 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-02	1 000E-02	4 958E-05	1 9 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-03	1 000E-03	9 065E [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-04	1 000E-04	1 490E-04	1 4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-05	1 000E-05	1 983E-04	1 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-06	1 000E-06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-07	1 000E-07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-08	1 000E-08	412E [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-09	1 000E-09	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-10	1 000E-10	4 [illegible]44E-04	4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1

[illegible]

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES [illegible] APPROACHES
(1) METHOD OF COOPER, [illegible] ENTITLED
"RESPONSE OF A FINITE DIAMETER [illegible]
(2) METHOD OF BOUWER AND RICE [illegible] ENTITLED
"A SLUG TEST FOR DETERMINING HYDRAULIC [illegible]
WITH COMPLETELY OR PARTIALLY PENETRATING WELL

PROJECT NO.: 6-011B-87 [illegible]

ITE LOCATION: Rocky Flats Plant [illegible]

FIELD INVESTIGATOR: Kevin McNeill

WELL NO [illegible]

INPUT DATA [illegible]

INNER CASING DIAMETER = 2 00 INCHES [illegible] 1 [illegible] FEET
INNER SCREEN OR OPEN-HOLE DIAMETER = [illegible] INCHES [illegible] STATIC [illegible] TO BOTTOM OF SCREEN = 21 [illegible] FEET
DIAMETER OF DRILLED HOLE = 7 50 INCHES [illegible] SATURATED QUIFER ZONE 100 00 FEET
ESTIMATED POROSITY OF GRAVEL PACK = [illegible] [illegible] HEAD INDEX [illegible] IF FALLING [illegible] IF RISING)
NUMBER OF HEAD-TIME DATA POINTS [illegible]

TIME (sec)	[illegible]
1 00	[illegible]
2 00	[illegible]
3 00	7 8[illegible]
4 00	7 900
5 00	7 9[illegible]
[illegible] 00	[illegible]
[illegible] 00	[illegible]
8 00	[illegible]

58.

HO WAS COMPUTED FROM INTERCEPT OF PLOT OF [illegible] VS TIME

SUCCESSIVE COMPUTED
VALUES FOR HO
(FEET)

[illegible]

METHOD OF COOPER BREDEHOEFT AND [illegible]

COMPUTED RESULTS

COMPUTED VALUE OF HO [illegible]

NOTE: TRANSMISSIVITY UNITS ARE IN FT** [illegible] AND PERMEABILITY UNITS ARE IN FT sec

ALPHA	STORATIVITY	MEAN TRANSMIS SIVITY	MEAN PERMEA BILITY	MINIMUM TRANS	MAXIMUM TRANS	RATIO OF T RANGE TO [illegible]	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-01	1.000E-01	1 362E-05	1 362E-07	********	[illegible]	[illegible]	98 10	00
1 000E-02	1.000E-02	4 868E-05	4 868E-0	*********	6 [illegible]79E 04	[illegible]	98 10	00
1 000E-03	1.000E-03	9 698E-05	9 698E-0	*********	1 [illegible]	1 [illegible]998	[illegible] 78	[illegible]
1 000E-04	1 000E-04	1 466E-04	1 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1
1.000E-05	1.000E-05	1.951E-04	1 [illegible]51E [illegible]	[illegible]	2 [illegible]	[illegible]	9 [illegible]	[illegible]
1 000E-06	1 000E-06	2 426E-04	2 426E-06	[illegible]	[illegible]	[illegible]	97 19	[illegible]
1.000E-07	1.000E-07	2 895E-04	2 895E-06	[illegible]	[illegible]	[illegible]	97 45	05
1 000E-08	1.000E-08	3 359E 04	3 359E 06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1 000E-06	1 000E 06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-07	1 000E-07	[illegible] 095E 04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-08	1 000E-08	[illegible] 752E 04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-09	1 000E-09	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-10	1 000E-10	4 [illegible] 04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

****

[illegible]

CONFUTE [illegible]

FERMEABILITY [illegible]

TRANSMISSIVITY [illegible]

CONFUTED [illegible]

FERMEABILITY [illegible]

TRANSMISSIVITY [illegible]

1

WELL NO [illegible]

INPUT DATA ARE

INNER CASING DIAMETER = 2 00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = [illegible] INCHE
DIAMETER OF DRILLED HOLE = 7 50 INCHE
ESTIMATED POROSITY OF GRAVEL PACK [illegible]
NUMBER OF HEAD TIME DATA POINTS [illegible]

[illegible] OF SCREEN OR INITIAL POSITION = [illegible] FEET
[illegible] FROM STATIC [illegible] POTION OF SCREEN [illegible] FEET
[illegible] OF [illegible] AQUIFER ZONE = 100 00 FEET
[illegible] HEAD INDEX [illegible] (1 IF FALLING [illegible] IF RISING)

TIME (sec)	HEAD (FEET)
1 00	[illegible]
[illegible] 00	[illegible]
[illegible] 00	[illegible]
[illegible] 00	
5 00	[illegible]
6 00	[illegible]
7 00	[illegible]
8 00	[illegible]
9 00	[illegible]
10 00	[illegible]
11 00	[illegible]
12 00	[illegible]
13 00	[illegible]
14 00	[illegible]
15 00	[illegible]
16 00	[illegible]
17 00	[illegible]
18 00	[illegible]
19 00	[illegible]
20 00	[illegible]
[illegible]	

[illegible]

HO WAS COMPUTED FROM [illegible]

VOLUME OF SLUG ENTERED [illegible]

METHOD OF COOPER BREDEHOEFT AND [illegible]

COMPUTED RESULTS

COMPUTED [illegible]

NOTE: TRANSMISSIVITY UNITS ARE IN FT**[illegible] [illegible] IN FT [illegible]

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA BILITY	MINIMUM TRANS	MAXIMUM TRANS	RATIO OF T RANGE TO TRAP	FOOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-01	1.000E-01	1 [illegible]62E-05	[illegible]	*********	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-02	1.000E-02	4 868E-05	4 [illegible]68E [illegible]	*********	[illegible] 9E 04	[illegible]	[illegible]	[illegible]
1 000E-03	1.000E-03	9 698E-05	9 693E-[illegible]	*********	[illegible]	[illegible] 80	[illegible]	[illegible]
1.000E-04	1.000E-04	1 466E-04	1 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-05	1.000E-05	1 951E-04	1 951E [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12
1.000E-06	1.000E-06	2 426E-04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-07	1.000E-07	2 895E-04	2.89[illegible]E-06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-08	1.000E-08	3 359E-04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.000E-09	1.000E-09	3 820E-04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 000E-10	1.000E-10	4 276E-04	4 [illegible]76E-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

61

PROGRAM SLUGT, VERSION 4,OCT. 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPROACHES
(1) METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS, 1967 (ARTICLE IN VOL.3,NO.1 OF WRR ENTITLED "RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER")
(2) METHOD OF BOUWER AND RICE, 1976 (ARTICLE IN VOL. 12, NO.3 OF WRR ENTITLED "A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS WITH COMPLETELY OR PARTIALLY PENETRATING WELLS")

PROJECT NO. 6-011B-87 CLIENT: Rockwell International

SITE LOCATION Rocky Flats Plant DATE OF SLUG TEST: 10-15-87

FIELD INVESTIGATOR: Kevin McNeill

WELL NO.. 62-86

INPUT DATA ARE:

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.25 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR INTAKE PORTION = 15.50 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 10.92 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 100.00 FEET
FALLING-HEAD INDEX = 0 ("1" IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 42

TIME (sec)	HEAD (FEET)
1.00	8.350
2.00	8.350
3.00	8.350
4.00	8.360
5.00	8.360
6.00	8.360
7.00	8.360
8.00	8.360
9.00	8.370
10.00	8.370
11.00	8.370
12.00	8.370
13.00	8.370
14.00	8.370
15.00	8.380
16.00	8.380
17.00	8.380
18.00	8.380
19.00	8.380
20.00	8.380
52.00	8.390
82.00	8.400
112.00	8.410
172.00	8.420
232.00	8.440
292.00	8.450
352.00	8.460
412.00	8.470

772 00	8.520
892.00	8.530
1042.00	8.550
1222.00	8 570
1402.00	8.590
1582.00	8.600
1762.00	8.620
1942.00	8.630
2122.00	8.640
2302 00	8 650
2542 00	8 670

HO WAS COMPUTED FROM INTERCEPT OF PLOT OF LOG(H) VS. TIME

SUCCESSIVE COMPUTED
VALUES FOR HO
(FEET)

8.3817
8.3803

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS

COMPUTED VALUE OF HO = 8 76 FEET

NOTE TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

PLPHP	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS.	MAXIMUM TRANS	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1 00E-01	1 000E-01	2.246E-06	2 246E-08	4.838E- 1	2 690E-07	11 [illegible]	884 99	00
[illegible]E-02	1 000E-02	.37E-05	.37E- 7	7 270E-09	351E- 4	886[illegible]	884.70	29
1 00E-03	000E-03	2 801E-05	2 801E-07	1 384E-08	7 309E-04	11.814120	884 31	38
1.000E-04	000E-04	4 647E-05	4.647E-07	3.159E-08	5.475E-04	11.782530	884 07	24
1.000E-05	1 000E-05	6.463E-05	6.463E-07	4 712E-08	7.605E-04	11.767050	883.98	.09
1 000E-06	1.000E-06	8 232E-05	8 232E-07	6.893E-08	9 681E-04	11.758940	883.87	.11
1 000E-07	1 000E-07	9 990E-05	9.990E-07	8.311E-08	1.174E-03	11.754120	883.86	.01
1 000E-08	1 000E-08	1.172E-04	1 172E-06	1 014E-07	1 377E-03	11 751430	883.82	.03
1.000E-09	1.000E-09	1.343E-04	1.343E-06	1.165E-07	1 578E-03	11.748070	883 81	01
1 000E-10	1 000E-10	1 512E-04	1 512E-06	1 338E-07	1 777E-03	11.746280	883 79	02

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METHOD OF BOUWER AND RICE

COMPUTED RESULTS USING DIAMETER OF DRILLED HOLE

TRANSMISSIVITY = 6.94E-06 FT**2/sec

COMPUTED RESULTS USING DIAMETER OF CASING AND SCREEN:

PERMEABILITY = 2.60E-08 FT/sec = 7.91E-07 CM/sec

TRANSMISSIVITY = 2.60E-06 FT**2/sec

WELL NO.: 62-86

INPUT DATA ARE.

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 7.25 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR INTAKE PORTION = 6.74 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 10.92 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 100.00 FEET
FALLING-HEAD INDEX = 0 (1.0 IF FALLING, -1.0 IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 42

TIME (sec)	HEAD (FEET)
1.00	8.350
2.00	8.350
3.00	8.350
4.00	8.360
5.00	8.360
6.00	8.360
7.00	8.360
8.00	8.360
9.00	8.370
10.00	8.370
11.00	8.370
12.00	8.370
13.00	8.370
14.00	8.370
15.00	8.380
16.00	8.380
17.00	8.380
18.00	8.380
19.00	8.380
20.00	8.380
52.00	8.390
82.00	8.400
112.00	8.410
172.00	8.420
232.00	8.440
292.00	8.450
352.00	8.460
412.00	8.470
472.00	8.480
532.00	8.490
652.00	8.500
772.00	8.520

1042.00	8.550
1222.00	8.570
1402.00	8.590
1582.00	8.600
1762.00	8 620
1942 00	8.630
2122.00	8.640
2302.00	8 650
2542.00	8.670

HO WAS COMPUTED FROM KNOWN VOLUME OF SLUG

VOLUME OF SLUG ENTERED = .03720 CUBIC FEET

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS

COMPUTED VALUE OF H0 = 8 71 FEET

NOTE TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

HLPHA	STORATIVIT	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS.	MAXIMUM TRANS.	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.00E-01	1.000E-01	1.747E-06	1.747E-08	2 592E-11	2.106E- 5	12.054410	885 27	00
1 000E- 2	1 000E-02	9 239E-06	9 239E-08	*********	1 104E- 4	11 952850	885 22	.15
1 00E- 3	1.00E-03	2 358E-05	2.358E-07	*********	2 799E-04	11 869520	884.90	.33
1.00E-04	1.00E-04	7 971E-05	7 971E-07	7 324E- 9	4.699E-04	11 832790	884 62	27
1.00E-05	1 000E-05	5 565E-05	5.565E-07	1 320E-08	6 575E-04	11.814440	884.52	10
1 00E-06	.000E-06	7.117E-05	7.117E-07	2.489E-08	8.400E-04	11.803630	884.40	.12
1.000E-07	1.000E-07	8 655E-05	8 655E-07	2 798E-08	1.021E-03	11.799040	884.41	-.01
1 000E-08	1.000E-08	1.016E-04	1 016E-06	3 774E-08	1.199E-03	11.795690	884.36	.05
1 000E-09	1.000E-09	1.167E-04	1.167E-06	4.504E-08	1.376E-03	11.793020	884.34	.02
1 000E-10	1 000E-10	1.315E-04	1 315E-06	5 018E-08	1.551E-03	11.789890	884 33	.01

PROGRAM SLUGT, VERSION 4, OCT. 1985

THIS PROGRAM CALCULATES MEAN TRANSMISSIVITIES FROM SLUG-TEST DATA BASED ON TWO ANALYTICAL APPROACHES

(1) METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS, 1967 (ARTICLE IN VOL.3,NO 1 OF WRR ENTITLED "RESPONSE OF A FINITE DIAMETER WELL TO AN INSTANTANEOUS CHARGE OF WATER")

(2) METHOD OF BOUWER AND RICE, 1976 (ARTICLE IN VOL 12, NO 3 OF WRR ENTITLED "A SLUG TEST FOR DETERMINING HYDRAULIC CONDUCTIVITY OF UNCONFINED AQUIFERS WITH COMPLETELY OR PARTIALLY PENETRATING WELLS")

ITE LOCATION: Rocky Flats Plant DATE OF SLUG TEST: 10-23-87

FIELD INVESTIGATOR: kevin McNeill

WELL NO.: 5-87 BR

INPUT DATA ARE.

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2 00 INCHES
DIAMETER OF DRILLED HOLE = 4 00 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = .25
LENGTH OF SCREEN OR INTAKE PORTION = 6.50 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 6.50 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 100.00 FEET
FALLING-HEAD INDEX = 1 ("1" IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 46

TIME (sec)	HEAD (FEET)
1.00	7.440
2 00	7.430
3 00	7 420
4.00	7 410
5.00	7 410
6 00	7 400
7.00	7 400
8 00	7.390
9.00	7 380
10.00	7 380
11.00	7 370
12.00	7 360
13 00	7 360
14.00	7 360
15 00	7.350
20 00	7 340
25 00	7 320
30 00	7.300
35.00	7 290
40 00	7 280
45.00	7 270
50.00	7 260
60 00	7 240
70.00	7 220
80.00	7.200
90.00	7 180
110.00	7.150
130 00	7 130
150.00	7 110
180 00	7 090
230.00	7.050
290 00	7.020
350.00	7.000
410 00	6 990
470.00	6 970
530.00	6.960
650.00	6.950
770 00	6 930
890 00	6 920
1070.00	6.910
1340 00	6 900
1650 00	6 890
1940 00	6.870
2240 00	6 870
2540.00	6.860

HO WAS COMPUTED FROM INTERCEPT OF PLOT OF LOG(H) VS. TIME

SUCCESSIVE COMPUTED
VALUES FOR HO
(FEET)

7.2683
7 2744

1

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS.

COMPUTED VALUE OF HO = 7 51 FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS	MAXIMUM TRANS	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1 00E-01	1.000E-01	- 189E-07	- 189E-09	3 156E-08	2.973E-06	7 021090	739.90	.00
1.000E-02	1.000E-02	1.955E-06	1 955E-08	1.261E-07	1.013E-05	5.114592	751 42	-11.52
1 000E-03	1 000E-03	6.185E-06	6 185E-08	2.660E-07	3.981E-05	6.793727	777.06	-25.64
1 000E-04	.000E-04	1.168E-05	1.168E-07	4.118E-07	8 326E-05	7.093135	786.50	-9 44
1 000E-05	1 000E-05	1 726E-05	1 726E-07	5 546E-07	1 284E-04	7 406743	790.33	-3.82
1 000E-06	1 000E-06	2 272E-05	2 272E-07	6 943E-07	.728E-04	7 573334	792 26	-1 93
000E-07	1 000E-07	2 808E-05	2 808E-07	8 322E-07	2 162E-04	7 669724	793 40	-1 13
1 000E-08	1.000E-08	3 335E-05	3 335E-07	9 686E-07	2 589E-04	7 733216	794.12	-.77
1.000E-09	1.000E-09	3.859E-05	3 859E-07	1 104E-06	3.016E-04	7.787793	794.65	- 53
1 000E-10	1 000E-10	4 376E-05	4 376E-07	1.238E-06	3.427E-04	7.804274	795.04	-.39

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METHOD OF BOUWER AND RICE

COMPUTED RESULTS USING DIAMETER OF DRILLED HOLE

PERMEABILITY = 4 24E-08 FT/sec = 1 29E-06 CM/sec

TRANSMISSIVITY = 4 24E-06 FT**2/sec

COMPUTED RESULTS USING DIAMETER OF CASING AND SCREEN

WELL NO.: 5-87 BR

INPUT DATA ARE:

INNER CASING DIAMETER = 2.00 INCHES
INNER SCREEN OR OPEN-HOLE DIAMETER = 2.00 INCHES
DIAMETER OF DRILLED HOLE = 4.00 INCHES
ESTIMATED POROSITY OF GRAVEL PACK = 25
LENGTH OF SCREEN OR INTAKE PORTION = 6.50 FEET
DEPTH FROM STATIC LEVEL TO BOTTOM OF SCREEN = 6.50 FEET
THICKNESS OF SATURATED AQUIFER ZONE = 100.00 FEET
FALLING-HEAD INDEX = 1 ("1" IF FALLING,"0" IF RISING)
NUMBER OF HEAD-TIME DATA POINTS = 46

TIME (sec)	HEAD (FEET)
1.00	7.440
2.00	7.430
3.00	7.420
4.00	7.410
5.00	7.410
6.00	7.400
7.00	7.400
8.00	7.390
9.00	7.380
10.00	7.380
11.00	7.370
12.00	7.360
13.00	7.360
14.00	7.360
15.00	7.350
20.00	7.340
25.00	7.320
30.00	7.300
35.00	7.290
40.00	7.280
45.00	7.270
50.00	7.260
60.00	7.240
70.00	7.220
80.00	7.200
90.00	7.180
110.00	7.150
130.00	7.130
150.00	7.110
180.00	7.090
230.00	7.050
290.00	7.020
350.00	7.000
410.00	6.990
470.00	6.970
530.00	6.960
650.00	6.950
770.00	6.930
890.00	6.920
1070.00	6.910
1340.00	6.900
1650.00	6.890
1940.00	6.870

2840 00 6.860

HO WAS COMPUTED FROM KNOWN VOLUME OF SLUG

VOLUME OF SLUG ENTERED = .01640 CUBIC FEET

METHOD OF COOPER, BREDEHOEFT AND PAPADOPULOS

COMPUTED RESULTS:

COMPUTED VALUE OF HO = 7.51 FEET

NOTE: TRANSMISSIVITY UNITS ARE IN FT**2/sec AND PERMEABILITY UNITS ARE IN FT/sec

ALPHA	STORATIVITY	MEAN TRANSMIS-SIVITY	MEAN PERMEA-BILITY	MINIMUM TRANS.	MAXIMUM TRANS.	RATIO OF "T" RANGE TO TBAR	ROOT MEAN SQUARE OF TIME DEVIATIONS	DIFFERENCE IN RMS
1.000E-01	1.000E-01	4.189E-07	4.189E-09	2.156E-08	2.973E-06	7.020090	739.90	.00
1.000E-02	1.000E-02	1.955E-06	1.955E-08	1.261E-07	1.013E-05	5.114592	751.42	-11.52
1.000E-03	1.000E-03	6.185E-06	6.185E-08	2.660E-07	7.981E-05	6.397727	777.06	-25.64
1.000E-04	1.000E-04	1.168E-05	1.168E-07	4.118E-07	8.326E-05	7.093135	786.50	-9.44
1.000E-05	1.000E-05	1.726E-05	1.726E-07	5.546E-07	1.284E-04	7.406743	790.33	-3.82
1.000E-06	1.000E-06	2.272E-05	2.272E-07	6.943E-07	1.728E-04	7.572534	792.26	-1.93
1.000E-07	1.000E-07	2.808E-05	2.808E-07	8.322E-07	2.162E-04	7.665724	793.40	-1.13
1.000E-08	1.000E-08	3.335E-05	3.335E-07	9.686E-07	2.589E-04	7.723216	794.12	-.73
1.000E-09	1.000E-09	3.859E-05	3.859E-07	4E-06	3.015E-04	7.767797	794.65	-.53
1.000E-10	1.000E-10	4.376E-05	4.376E-07	238E-06	3.427E-04	7.804274	795.04	-.39