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**GEOPHYSICAL LOGS FROM WATER WELLS IN THE YAKIMA
AREA, WASHINGTON**

**By
John H. Biggane**

Work Performed Under Contract No. AC07-79ET27014

**Washington State University
Pullman, Washington**

**Technical Information Center
Office of Scientific and Technical Information
United States Department of Energy**

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STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
BRIAN J. BOYLE, Commissioner of Public Lands
JAMES A. STEARNS, Department Supervisor

DIVISION OF GEOLOGY AND EARTH RESOURCES
Raymond Lasmanis, State Geologist

GEOPHYSICAL LOGS FROM WATER WELLS IN THE
YAKIMA AREA, WASHINGTON

by

John H. Biggane
Washington State University
College of Engineering
Geological Engineering Section
Pullman, WA 99164

Logs include: Natural gamma, gamma gamma, neutron neutron,
neutron gamma, caliper, fluid temperature, fluid resistivity,
wall resistivity, spontaneous potential, and flow meter.

This report accompanies: Biggane, J. H., 1981, The low-
temperature geothermal resource of the Yakima region - a
preliminary report: Washington Division of Geology and
Earth Resources Open-File Report 81-7.

Washington Department of Natural Resources
Division of Geology and Earth Resources
Olympia, WA 98504

Open-File Report 83-2
1983

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AC07-79ET27014

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WASHINGTON STATE UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: JILL EVANS
DATE LOGGED: 85/25/77
STATE: WASHINGTON
COUNTY: FRANKLIN
LOCATION: 10N/23E-36A1
SURFACE ELEVATION: 1228
TOTAL DEPTH LOGGED: 1315
DEPTH TO WATER LEVEL: 563
CASING & LINERS:
C 390-13, 479-570-10
SP, WRES, CG, NN, and NATG ARE
COMBINED FROM FIRST AND SECOND LOGGINGS

LEGEND
LOG TITLES
GR - GRADIENT
NG - NEUTRON LOG
NN - NEUTRON LOG
NATG - NEUTRON LOG
CALP - CALIPER LOG
FT - FLOW TEMPERATURE
FR - FLOW RESISTIVITY
WRES - WATER RESISTIVITY
SP - SPONTANEOUS POTENTIAL
CG - CEMENT LOG
NN - NEUTRON LOG
NATG - NEUTRON LOG

DENSITY LOGGING INDICES
DENSITY (G/CM³) INDICES
WATER LEVEL
NOTE: SCALE WILL CHANGE RE: WATER LEVEL

10N/23E-36A1

WASHINGTON STATE
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GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL F. JOHNSON
DATE LOGGED 05/24/77
STATE WASHINGTON
COUNTY YAKIMA
LOCATION 11N/20E-B1M1
SURFACE ELEVATION 1188
TOTAL DEPTH LOGGED 1505
DEPTH TO WATER LEVEL 5
CASING & LINERS
2" 41-22 8" 686-16
LOGGING SPEED WAS GREATER THAN
NORMAL ABOVE 800 FT

LEGEND
LOG TITLES
GR - GAMMA RAY
NG - NEUTRON LOG
NN - NEUTRON LOG
NPTG - NEUTRON POROSITY
CALP - CALIPER
FT - FORMATION TEMPERATURE
TR - TRUE RESISTIVITY
PHS - PORE PRESSURE
SF - SONIC
DENSITY (LOG-LOG) INCREASES
POROSITY (LOG-LOG) INCREASES
WATER LEVEL
NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL

11N/20E - 01M1

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WELL LOG PROCESSING SYSTEM

NAME OF WELL B. LYNCH
DATE LOGGED 06/08/77
STATE WASHINGTON
COUNTY YAKIMA
LOCATION 11N/20E-01R1
SURFACE ELEVATION 1150
TOTAL DEPTH LOGGED 1151
DEPTH TO WATER LEVEL 278
CASING & LINERS
0- 300-12 300- 775-10

LEGEND
LOG TITLES
GG - GAMMA RAY
NG - NEUTRON
NN - NEUTRON
NATG - NEUTRON
CALP - CALIPER
FT - FORMATION TIME
FR - FORMATION RESISTIVITY
SP - SPONTANEOUS POTENTIAL
JMS - JUNCTION RESISTIVITY
PMT - PORE PRESSURE
SMT - SONIC
DENSITY (GG-LOG) INCREASES
POROSITY (NN-LOG) INCREASES
WATER LEVEL
NOTE - SCALE MAY CHANGE ABOVE WATER LEVEL

11N/20E-01R1

11N/20E-01R1

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GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: CHARLES PETERS
DATE LOGGED: 10/25/77
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 1.3 20E-06A1
SURFACE ELEVATION: 1960
TOTAL DEPTH LOGGED: 695
DEPTH TO WATER LEVEL: 159
CASING & LINERS: 540-12
HAND DIGITIZED FT LOG

LEGEND
LOG TITLES
GR - GRAMMATIC
NN - NEUTRON
NATG - NATURAL GAMMA
CALP - CALIPER
FT - FORMATION TIME
FR - POROSITY
WRES - RESISTIVITY
SP - SONIC
DENSITY LOG LOG INCREASES
POROSITY LOG LOG INCREASES
WATER LEVEL
WATER LEVEL CHANGES

11N/20E-06A1

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GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: SOOST BROTHERS
DATE LOGGED: 05/15/77
STATE: WASHINGTON
COUNTY: KING
LOCATION: 11N/20E-13R1
SURFACE ELEVATION: 1005
TOTAL DEPTH LOGGED: 1005
DEPTH TO WATER LEVEL: 125
CASING & LINERS: 2" 105-28 4" 545-16 545-1178-12
APPROX. 100 FT. OF FILL IN
BOTTOM OF WELL.

LEGEND
LOG TITLES
GR - GAMMA RAY
AC - ACOUSTIC
NN - NEUTRON
NHIC - NEUTRON HYDROGEN INDEX
FI - FORMATION INDEX
FR - FORMATION RESISTIVITY
SP - SPONTANEOUS POTENTIAL
S - SONIC
DENSITY LOG LOG1 INCHES
DENSITY LOG LOG1 INCHES
WATER LEVEL
WELL DEPTH - 1005 FEET

11N/20E-13R1

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WELL LOG PROCESSING SYSTEM

NAME OF WELL: TEN DPM
DATE LOGGED: 25/31/77
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 11N/21E-06L1
SURFACE ELEVATION: 1210
TOTAL DEPTH LOGGED: 1200
DEPTH TO WATER LEVEL: 291
CASING & LINERS:

LEGEND
LOG TITLES
GR - GAMMA RAY
NR - NEUTRON
D - DENSITY
R - RESISTIVITY
P - POROSITY
S - SLOPE
W - WATER LEVEL
D - DENSITY LOG INCREASES
P - POROSITY LOG INCREASES
W - WATER LEVEL
M - METER SCALE NOT CHANGE ABOVE WATER LEVEL

11N/21E-06L1

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GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL
DATE LOGGED
STATE
COUNTY
LOCATION
SURFACE ELEVATION
TOTAL DEPTH LOGGED
DEPTH TO WATER LEVEL
CASING & LINERS

T. E. DOWL
04/11/79
WASHINGTON
FRANK
11N/21E-BG31
1230
1298
523
8" 780-12 780- 800-10

LEGEND

LOG TITLES
DATE - DATE LOG
LOG - LOG
NG - NEUTRON LOG
PP - PULSED THERMAL LOG
PT - PULSED THERMAL LOG
CALP - CALIPER
FT - FLUID THERMAL LOG
FR - FLUID RESISTIVITY
WRES - WATER RESISTIVITY
SP - SONIC

DENSITY (LOG-LOG) INCREASES
POROSITY (LN-LOG) INCREASES
WATER LEVEL
NOTE: SCALE INCHES ABOVE WATER LEVEL

11N/21E-06Q1

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GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: RAMSIER
DATE LOGGED: 03/23/88
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: N/21E-16P1
SURFACE ELEVATION: 1275
TOTAL DEPTH LOGGED: 1246
DEPTH TO WATER LEVEL: 411
CASING & LINERS: 8" 780-15 865" 945-14 1122-1201-10

LEGEND
LOG TITLES
WTE - WATER CONTENT
GR - GRADIENT
NN - NEUTRON POROSITY
NG - NATURAL GAMMA
NRTG - NEUTRON LOG
CALP - CALIPER
FT - FORMATION TIME
FR - RESISTIVITY
SP - SPONTANEOUS POTENTIAL
WRES - WELL RESISTIVITY
DENS - DENSITY
BHC - BULK
DENSITY (LOG-LOG) INCREASES
POROSITY (NN-LOG) INCREASES
WATER LEVEL
NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL

11 N/21 E - 16 P1

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GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: PETE HONANSON
DATE LOGGED: 04/21/77
STATE: WASHINGTON
COUNTY: THURMAN
LOCATION: 11N/21E-20M1
SURFACE ELEVATION: 1100
TOTAL DEPTH LOGGED: 624
DEPTH TO WATER LEVEL: 214
CASING & LINERS: 8" 575-12 560-600-8

LOG TITLES

LEGEND

DENSITY (LOG-LOG) INCREASES ———→
POROSITY (LOG-LOG) INCREASES ———→
WATER LEVEL ———→
NOTE: SCALE MAY CHANGE BASED UPON LEVEL

11N/21E-20M1

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WELL LOG PROCESSING SYSTEM

NAME OF WELL	JERRY SANDLIN #2
DATE LOGGED	07/17/80
STATE	WASHINGTON
COUNTY	YAKIMA
LOCATION	11N/21E-22G2
SURFACE ELEVATION	1275
TOTAL DEPTH LOGGED	1815
DEPTH TO WATER LEVEL	399
CASING & LINERS	
0-1120=12	

LEGEND

LOG TITLES

WATG -- WATUMINE, GAMMA
GC -- GAMMA GAMMA
NEUT -- NEUTRON NEUTRON
NEU -- NEUTRON GAMMA
FT -- FLUID TEMPERATURE
WSP -- FLUID RESISTIVITY
CNP -- CONCENTRATION
SP -- SPONTANEOUS POTENTIAL
JMS -- JUNCTION RESISTIVITY
POTR -- PORE RESISTOR
SMC -- SONIC

DENSITY (GG-LOG) INCREASES
POROSITY (MN-LOG) INCREASES
WATER LEVEL -----

NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL

11N/21E - 22G2

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GEOSCIENCE ENGINEERING DEPARTMENT
WELL LOG PROCESSING SYSTEM

NAME OF WELL: HASKY CRY
DATE LOGGED: 2/11/78
STATE: WASHINGTON
COUNTY: SPOKANE
LOCATION: 11N/21E-36K1
SURFACE ELEVATION: 950
TOTAL DEPTH LOGGED: 725
DEPTH TO WATER LEVEL: 124
CASING & LINER: 8" 400-14 400-5 8-12 510-700-6

LEGEND
LOG TITLES
DENSITY LOG (LOG) INCREASES
POROSITY LOG (LOG) INCREASES
WATER LEVEL
WATER LEVEL MAY CHANGE ABOVE WATER LEVEL

11N/21E-36K1

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GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: BILL EVANS
DATE LOGGED: 86/27/79
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 11N/22E-26R1
SURFACE ELEVATION: 1290
TOTAL DEPTH LOGGED: 1532
DEPTH TO WATER LEVEL: 689
CASING & LINERS: 8" 82B-15

LEGEND

LOG TITLES
GR: GRAMMA RAY
NC: NEUTRON CAPTURE
NN: NEUTRON NEUTRON
NATG: NEUTRON ATTENUATION TIME GATE
FMTR: FORMATION MICRORESISTIVITY
CALP: CASING LOG
FT: FORMATION TEMPERATURE
FR: FORMATION RESISTIVITY
MRES: MICRORESISTIVITY
SP: SPONTANEOUS POTENTIAL
WATER LEVEL: WATER LEVEL
NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL

11N/22E-26R1

11N/22E-26R1

WASHINGTON STATE
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GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: ROME FARMS
DATE LOGGED: 10/15/79
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 11N/22E-29N1
SURFACE ELEVATION: 1130
TOTAL DEPTH LOGGED: 1442
DEPTH TO WATER LEVEL: 356
CASING & LINERS:
B- 191-10 283-478-14 B4B- 958-10
PREVIOUS LOGGINGS: 4/22/77, 8/23/79.

LEGEND
LOG TITLES
GR - GAMMA RAY
NG - NEUTRON
NN - NEUTRON
NATG - NATURAL GAMMA
FTR - FORMATION TRANSMITTANCE
CALP - CALIPER
FT - FORMATION TRANSMITTANCE
FR - FORMATION RESISTIVITY
WRES - WIRELINE RESISTANCE
SP - SPONTANEOUS POTENTIAL
POT - PORE PRESSURE
DENS - DENSITY
POROS - POROSITY
WATER LEVEL - WATER LEVEL

NOTE: SCALE MAY CHANGE BEHIND WATER LEVEL.

11N/22E-29N1

11N/22E-29N1

12N/16E - 12NI

WASHINGTON STATE
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GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL * WHITE, MIAMI
DATE LOGGED 11/01/77
STATE WASHINGTON
COUNTY YAKIMA
LOCATION 12N/16E-15E1
SURFACE ELEVATION 1806
TOTAL DEPTH LOGGED 587
DEPTH TO WATER LEVEL 138
CASING & LINERS

LEGEND
LOG TITLES
GG - GAMMA RAY
NG - NEUTRON LOG
NN - NEUTRON POROSITY
NATG - NEUTRON LOG
CALP - CALIPER
FR - FORMATION RESISTIVITY
WRES - WIRELINE RESISTIVITY
SP - SPONTANEOUS POTENTIAL

DENSITY (LOG-LOG) INCREASES →
POROSITY (LOG-LOG) INCREASES ←
WATER LEVEL - - - - -
NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL

12N/16E-15E1

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GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL MEYER, CHARLES
DATE LOGGED 06/08/73
STATE WASHINGTON
COUNTY TRULIN
LOCATION 12N/16E-18A1
SURFACE ELEVATION 2148
TOTAL DEPTH LOGGED 356
DEPTH TO WATER LEVEL 2
CASING & LINERS

LEGEND
LOG TITLES

GR - GRAMMEL, GARY
NG - NEUTRON POROSITY
NN - NEUTRON POROSITY
NATC - NEUTRON POROSITY
FMTR - FORMATION RESISTIVITY
CALP - APPARENT RESISTIVITY
FT - TRUE RESISTIVITY
HRES - APPARENT RESISTIVITY
SP - SPONTANEOUS POTENTIAL

DENSITY (LOG-LOG) INCREASES →
POROSITY (LOG-LOG) INCREASES ←
WATER LEVEL - - - - -

NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL

12 N/16 E-18 A1

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GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: GILBERT, CRAIG
DATE LOGGED: 12/84/74
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 12N/17E-07E3
SURFACE ELEVATION: 1784
TOTAL DEPTH LOGGED: 631
DEPTH TO WATER LEVEL: 64
CASING & LINERS: 8" 30B-10
WELL CONTAINED OIL.

LEGEND
LOG TITLES
GG - DENSITY LOG
NG - NEUTRON LOG
NN - POROSITY LOG
NATG - NATURAL GAMMA LOG
CALP - CALIPER LOG
FT - FLUID TEMPERATURE LOG
FR - FLUID RESISTIVITY LOG
WRES - WATER RESISTIVITY LOG
SP - SPONTANEOUS POTENTIAL LOG
WELL - WELL LOG
WELL - WELL LOG
WELL - WELL LOG

DENSITY (GG-LOG) INCREASES →
POROSITY (NN-LOG) INCREASES ←
WATER LEVEL - - - - -

NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL.

12N/17E-07E1

WASHINGTON STATE
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COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: BATES, K.P.
DATE LOGGED: 8/3/38/77
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 12N/17E-07M1
SURFACE ELEVATION: 1620
TOTAL DEPTH LOGGED: 661
DEPTH TO WATER LEVEL: 148
CASING & LINES: 8" 3512 245- 2854 0
NOTE: LOG FROM FIRST LOGGING - 12/5/74

LEGEND
LOG TITLES
NATG - NATURAL GRADIENT
CRLP - CRUSTAL RESISTIVITY PROFILE
FT - FLUID TEMPERATURE
FR - FLUID RESISTIVITY
WRES - WATER RESISTIVITY
SP - SPONTANEOUS POTENTIAL
P - POROSITY
D - DENSITY
M - MAGNETIC SUSCEPTIBILITY
S - SLOPE
DENSITY (GG-LOG) INCREASES
POROSITY (H-LOG) INCREASES
WATER LEVEL
NOTE: SCALE VERY CHARGE ABOVE WATER LEVEL

12N/17E-07M1

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: STAN STEPHENSKI
DATE LOGGED: 83/04/77
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 12N/19E-27H
SURFACE ELEVATION: 1120
TOTAL DEPTH LOGGED: 558
DEPTH TO WATER LEVEL: 295
CASING & LINERS:
8" 278-18 288- 306- 8 873- 973- 8
TOTAL DRILLED DEPTH IS 1133 FT.

LEGEND
LOG TITLES
WRES - RESISTANCE
GG - GRAMM
NG - NEUTRON LOG
NN - NEUTRON LOG
NATG - NEUTRON LOG
FT - FLUID RESISTANCE
FR - FLUID RESISTANCE
WRES - RESISTANCE
SP - SPONTANEOUS POTENTIAL
WRES - RESISTANCE
WRES - RESISTANCE
WRES - RESISTANCE

DENSITY (GG-LOG) INCREASES →
POROSITY (NN-LOG) INCREASES ←
WATER LEVEL: - - - - -
NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL

12N/19E-27H1

12N/19E-28J1

WASHINGTON STATE
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GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: S CHARRON
DATE LOGGED: 10/31/77
STATE: WASHINGTON
COUNTY: THURSTON
LOCATION: 12N/20E-13Q1
SURFACE ELEVATION: 1320
TOTAL DEPTH LOGGED: 1225
DEPTH TO WATER LEVEL: 169
CASING & LINERS:
8" 500-16 500-850-10

LEGEND
LOG TITLES
GR - GRAY SCALE
RES - RESISTIVITY
GAL - GALVANIC CORROSION
POT - POTENTIAL
SP - SPONTANEOUS POTENTIAL
MRE - MUD RESISTIVITY
MRE - MUD RESISTIVITY
MRE - MUD RESISTIVITY

DENSITY LOG INCREASES
POROSITY LOG INCREASES
WATER LEVEL
NOTE: SCALE 10% CHANGE ABOVE WATER LEVEL

12N/20E-13Q1

WASHINGTON STATE
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GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL WILBUR LOGAN
DATE LOGGED 82/18/75
STATE WASHINGTON
COUNTY YAKIMA
LOCATION 12N/20E-27N1
SURFACE ELEVATION 1268
TOTAL DEPTH LOGGED 1297
DEPTH TO WATER LEVEL 215
CASING & LINERS
Ø- 700-10

LEGEND
LOG TITLES

NG - NATURAL GAMMA
NN - NATURAL GAMMA
NRTG - NATURAL GAMMA
FMTR - FLUID TEMPERATURE
CALP - CALIBRATION
FT - FLUID TEMPERATURE

DENSITY (LOG-LOG) INCREASES
POROSITY (NM-LOG) INCREASES
WATER LEVEL
RESISTIVITY

NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL

12N/20E-27N1

12N/20E - 27N1

$$12N/20E - 34NI$$

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: M. ESTES
DATE LOGGED: 8/31/78
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 12N 20E 34N2
SURFACE ELEVATION: 1150
TOTAL DEPTH LOGGED: 1420
DEPTH TO WATER LEVEL: 166
CASING & LINERS:
1" 107-12 167- 524-116 490- 648-112
720- 869- 0

LEGEND

LOG TITLES
GR GRASS
NG NATURAL GAS
NN NATURAL GAS
NATG NATURAL GAS
CALP CALP
FT FT
FR FR
WHES WHES
SP SP

12N/20E-34N2

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: CHEYNE ROAD (2N4E)
DATE LOGGED: 03/25/88
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 12N/20E-36P1
SURFACE ELEVATION: 1248
TOTAL DEPTH LOGGED: 1330
DEPTH TO WATER LEVEL: 355
CASING & LINERS: 4 1/2" 15' 415' 605' 16' 655' 730' 14'

LEGEND
LOG TITLES
GR - GAMMA RAY
GRG - GAMMA RAY GROSS
NG - NEUTRON
NN - NEUTRON
NATG - NEUTRON ATTENUATION TOTAL GAMMA
CALP - CASING LOG
FT - FORMATION TIME
FR - FORMATION RESISTIVITY
WRES - WIRELINE RESISTIVITY
SP - SPONTANEOUS POTENTIAL

DENSITY LOG LOG INCREASES
POROSITY LOG LOG INCREASES
WATER LEVEL

NOTE: SCALE MAY VARY ABOVE WATER LEVEL

12N/20E-36P1

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: SIMON MARTINEZ
DATE LOGGED: 05/31/79
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 12N/21E-17L1
SURFACE ELEVATION: 1563
TOTAL DEPTH LOGGED: 1563
DEPTH TO WATER LEVEL: 6
CASING & LINERS: 4" 23-20 4" 000-16 785-1551+12
CASING IS PERFORATED BELOW 961 FT

LEGEND
LOG TITLES
GG - GAMMA RAY
NG - NEUTRON
NN - NEUTRON
NATG - NEUTRON
FT - RESISTIVITY
SP - SONIC
WRES - WATER RESISTIVITY
WEL - WATER LEVEL
WEL - WATER LEVEL
NOTE: SCALE WEL CHANGE ABOVE WATER LEVEL

12N/21E-17L1

12N/21E - 17L1

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: D. MARTINEZ
DATE LOGGED: 8/1/97/75
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 12N/21E-2001
SURFACE ELEVATION: 1408
TOTAL DEPTH LOGGED: 475
DEPTH TO WATER LEVEL: 255
CASING & LINERS: 4-3/8-12

LEGEND

LOG TITLES
GG - GAMMA RAY
NG - NEUTRON POROSITY
NN - NEUTRON LOG
NATG - NEUTRON POROSITY
CALP - CALIPER
FT - FLUID TEMPERATURE
FR - FLUID RESISTIVITY
SP - SPONTANEOUS POTENTIAL
WRES - WATER RESISTIVITY
WEL - WELL RESISTIVITY
WEL - WELL RESISTIVITY
WEL - WELL RESISTIVITY

DENSITY (GG-LOG) INCREASES ———
POROSITY (NN-LOG) INCREASES ———
WATER LEVEL - - - - -

NOTE - SCALE MAY CHANGE WITH WATER LEVEL

12N/21E-2001

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL HARLEY ORCHARDS
DATE LOGGED 88/38-78
STATE WASHINGTON
COUNTY YAKIMA
LOCALITY 12N/22E-21R1
SURFACE ELEVATION 1750
TOTAL DEPTH LOGGED 887
DEPTH TO WATER LEVEL 187
CASING & LINERS
8" 212-16
DRILLING MUD FILLED BELOW 212'

LEGEND
LOG TITLES
NN - NATURAL GAMMA
NATG - NATURAL GAMMA
CALP - CALIPER LOG
FT - FISH TAIL LOG
FR - FISH TAIL LOG
WRES - WIRE RESISTANCE
SP - SPECTROSCOPY
DENS - DENSITY LOG
POROS - POROSITY LOG
WATER - WATER LEVEL
NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL

DENSITY (LOG-LOG) INCREASES
POROSITY (MM-LOG) INCREASES
WATER LEVEL

12 N / 22 E - 21 R 1

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: S. CHANGALA
DATE LOGGED: 02/14/77
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 12N/22E-29B1
SURFACE ELEVATION: 1700
TOTAL DEPTH LOGGED: 1411
DEPTH TO WATER LEVEL: 252
CASING & LINERS:
8" 402-10 300" 515-12 500" 738-10

SECOND LOGGING

LEGEND

LOG TITLES

RES - RESISTIVITY
DENS - DENSITY
CALP - CALIPER
FT - TRUE STRIKE
FR - TRUE STRIKE
MRES - MAGNETIC RESISTIVITY
SP - SPONTANEOUS POTENTIAL
SIL - SILICA
SILIC - SILICA

DENSITY (CG-LOG) INCREASES

POISSON'S (NN-LOG) INCREASES

WATER LEVEL

NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL

12N/22E-29B1

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL BLACK ROCK #1 (DNR)
DATE LOGGED 09/13/88
STATE WASHINGTON
COUNTY YAKIMA
LOCATION 12N/23E-16J1
SURFACE ELEVATION 1400
TOTAL DEPTH LOGGED 1151
DEPTH TO WATER LEVEL 457
CASING & LINERS:
0- 90-18 90- 683-16

LEGEND

LOG TITLES

NATG - NEUTRON POROSITY
FMR - FORMATION MICRORESISTIVITY
CALP - CALIPER
FT - FORMATION THICKNESS
FR - FORMATION RESISTIVITY
WRES - WIRELINE RESISTIVITY
SP - SPONTANEOUS POTENTIAL
WEL - WELL LOG
WEL - WELL LOG
WEL - WELL LOG

DENSITY (LOG-LOG) INCREASES
POROSITY (NN-LOG) INCREASES
WATER LEVEL
NOTE: SCALE PRT CHANGE ABOVE WATER LEVEL

12N/23E-16J1

12N/23E-16J1

12N/23E-19A1

13N/17E-2881

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: HULL RANCHES INC.
DATE LOGGED: 23/12/88
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 13N/18E-31P1
SURFACE ELEVATION: 1330
TOTAL DEPTH LOGGED: 1160
DEPTH TO WATER LEVEL: 98
CASING & LINERS:

HOLE FILLED WITH MUD.

LEGEND
LOG TITLES

GG - GAMMA RAY
NG - NEUTRON
NN - NEUTRON POROSITY
NATG - NEUTRON LOG
CALP - CALIPER
WRES - RESISTIVITY
SP - SPONTANEOUS POTENTIAL

RES - RESISTIVITY
SP - SPONTANEOUS POTENTIAL
WATER LEVEL

NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL.

13N/18E-31P1

13N/18E - 31P1

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL J. C. RIEBE
DATE LOGGED 80/05/78
STATE WASHINGTON
COUNTY YAKIMA
LOCATION 13N/20E-18N1
SURFACE ELEVATION 1700
TOTAL DEPTH LOGGED 568
DEPTH TO WATER LEVEL 568
CASING & LINERS:
8" 10-14 8" 405-10 793-807: 8
CASING PENETRATED FROM 475-492, 857-880 FT
DRILLED TO 1203 FT AFTER 8/8/78

LEGEND

LOG TYPES

GG - GAMMA RAY
NG - NEUTRON LOG
NN - NEUTRON LOG
NATG - NEUTRON LOG
FmTR - FmTR LOG
CALP - CALP LOG
FT - FT LOG
FR - FR LOG
WRES - WRES LOG
SP - SP LOG
DENSITY LOG - DENSITY LOG
RESISTIVITY LOG - RESISTIVITY LOG
WATER LEVEL - WATER LEVEL

NOTE: SCALE MAY VARY ABOVE WATER LEVEL

13N/20E - 18N1

13N/20E-19N1

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: REGINALD YERGEN
DATE LOGGED: 8/22/88
STATE: WASHINGTON
COUNTY: FRANKLIN
LOCATION: 13N/20E-30A1
SURFACE ELEVATION: 1390
TOTAL DEPTH LOGGED: 949
DEPTH TO WATER LEVEL: 229
CASING & LINERS: 8" 547-8

LEGEND

LOG TITLES

GG - GAMMA RAY
NG - NEUTRON POROSITY
NN - NEUTRON LOG
NR - NEUTRON LOG
CALP - CALIPER
FR - FORMATION RESISTIVITY
SP - SPONTANEOUS POTENTIAL
RES - RESISTIVITY
SNT - SONIC

DENSITY (LOG-LOG) INCREASES →
POROSITY (IN-LOG) INCREASES ←
WATER LEVEL: - - -

NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL

13N/20E-30A1

WASHINGTON STATE UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: BRUCE COOMBS #2
 DATE LOGGED: 83/11/88
 STATE: WASHINGTON
 COUNTY: YAKIMA
 LOCATION: 13N/20E-33M1
 SURFACE ELEVATION: 1345
 TOTAL DEPTH LOGGED: 1454
 DEPTH TO WATER LEVEL: 173
 CASING & LINERS: 8" 482' 0" 765'-1178' 0"

LEGEND
 LOG TITLES
 GR - GAMMA RAY
 NG - NEUTRON
 NN - NEUTRON
 NRG - NEUTRON
 FMIR - FORMATION MICRO
 CALP - CALIPER
 FT - TRUE STRAIN
 FR - FORMATION RESISTIVITY
 HRES - HOLE RESISTIVITY
 SP - SPONTANEOUS POTENTIAL
 W - WATER LEVEL
 S - SOLID

DENSITY (GG-LOG) INCREASES
 POROSITY (NN-LOG) INCREASES
 WATER LEVEL

NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL

13N/20E-33M1

13N/20E - 33M1

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL MARTINEZ, D. -2
DATE LOGGED 02/16/77
STATE WASHINGTON
COUNTY YAKIMA
LOCATION 13N/21E-34H1
SURFACE ELEVATION 2320
TOTAL DEPTH LOGGED 1822
DEPTH TO WATER LEVEL 756
CASING & LINERS
24-24 493-14 493- 693-12
DRILLING COMPLETED 10/26/71

LEGEND
LOG TITLES
DATE - DATE LOG
GG - GRAMM-GROSS
NG - NORTON-GROSS
NN - NORTON-NEEDHAM
NATG - NORTON-ATKINS
CRLP - CRAWFORD-LEWIS
FT - FULTON-THOMAS
FR - FULTON-REYNOLDS
WRES - WILSON-REYNOLDS
SP - SPENCER
DENSITY (LOG-LOG) INCREASES
POROSITY (MM-LOG) INCREASES
WATER LEVEL
NOTE - SCALE MAY CHANGE ABOVE WATER LEVEL

13N/21E-34H1

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING DEPARTMENT
WELL LOGGING COURSE

NAME OF WELL: KELLER 14N/16E-13K1
DATE LOGGED: 2/14/77
STATE: WASHINGTON
COUNTY: SPOKANE
TOWNSHIP: 14N/16E
SURFACE ELEVATION: 2210
TOTAL DEPTH: 150
DEPTH TO WATER LEVEL: 125
Casing & Liner: 2 1/2" x 10' x 10'

LEGEND
LOG TITLES
GG: Gravel
NC: Clay
NN: Silt
NATG: Natural Gas
LFLP: Lithology
FT: Facies
FR: Facies
WRES: Water Reservoir
SP: Sandstone
DENSITY LOG: LOG TITLES
PULSITY LOG: LOG TITLES
WATER LEVEL: ---
NOTE: SCALE MAY DIFFER FROM WATER LEVEL

14N/16E-13K1

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL	KELLER FRUIT #1
DATE LOGGED	09/13/77
STATE	WASHINGTON
COUNTY	YAKIMA
LOCATION	14N/16E-24K1
SURFACE ELEVATION	2100
TOTAL DEPTH LOGGED	870
DEPTH TO WATER LEVEL	242
CASING & LINERS	

LEGEND

LOG TITLES

NRTC	-	NATURAL CEMENT
CC	-	CEMENT CEMENT
NC	-	NEUTRAL NEUTRON
NT	-	NEUTRON THERM
FT	-	FLUID TEMPERATURE
FR	-	FLUID RESISTIVITY
CRP	-	CORROSION
SP	-	SOUND PRESSURE POTENTIAL
WNS	-	WATER RESISTIVITY
PMR	-	PIED METER
SNIC	-	SONIC

DENSITY (GG-LOG) INCREASES $\longrightarrow$
 POROSITY (MW-LOG) INCREASES $\longleftarrow$
 WATER LEVEL - - -

14N/16E - 24KI

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL: FRANK MARINICH
DATE LOGGED: 05/27/77
STATE: WASHINGTON
COUNTY: YAKIMA
LOCATION: 14N/17E-15N1
SURFACE ELEVATION: 1955
TOTAL DEPTH LOGGED: 515
DEPTH TO WATER LEVEL: 392
CASING & LINERS:
06-18

LEGEND
LOG TITLES
GC - GAMMA RAY
NG - NEUTRON LOG
NN - NATURAL GAMMA
NPTG - NEUTRON POROSITY
CALP - CALIPER
FR - FORMATION RESISTIVITY
FT - TRUE RESISTIVITY
AR - APPARENT RESISTIVITY
SP - SPONTANEOUS POTENTIAL
WATER LEVEL
NOTE: SCALE MAY CHANGE ABOVE WATER LEVEL

14N/17E - 15N1

WASHINGTON STATE
UNIVERSITY
COLLEGE OF ENGINEERING
GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL 211E-100RST
DATE LOGGED 05/01/77
STATE WASHINGTON
COUNTY TWIN FALLS
LOCATION 14N/17E-27A1
SURFACE ELEVATION 1500
TOTAL DEPTH LOGGED 529
DEPTH TO WATER LEVEL 337
CASING & LINERS
2 1/2" - 8"

LEGEND

LOG TITLES

GR - Gamma Ray
NG - Neutron
NN - Neutron
NATG - Neutron
CALP - Caliper
FT - Formation Temperature
FR - Formation Resistivity
WRES - Wireline Resistivity
SP - Spontaneous Potential

DENSITY LOG - LOG INCREASES
POROSITY LOG - LOG INCREASES
WATER LEVEL -

NOTE: SCALE WILL CHANGE ABOVE WATER LEVEL

14N/17E-27A1

WASHINGTON STATE UNIVERSITY

COLLEGE OF ENGINEERING

GEOLOGICAL ENGINEERING SECTION
WELL LOG PROCESSING SYSTEM

NAME OF WELL W. 21AKLE
DATE LOGGED 07/11/77
STATE WASHINGTON
COUNTY YAKIMA
LOCATION 14N/18E-20G1
SURFACE ELEVATION 1628
TOTAL DEPTH LOGGED 1869
DEPTH TO WATER LEVEL 743
CASING & LINES
B-738112
CORRECTED TO 738 FT. 20 TO 50 DAYS PRIOR
TO LOGGING.

LEGEND

LOG TITLES

GR - Gamma Ray
NG - Neutron Log
NN - Natural Neutron
NATG - Neutron Attenuation
CLP - Caliper
FT - Fluid Temperature
FR - Formation Resistivity
WRES - Wireline Resistivity
SF - Spontaneous Potential

DENSITY LOG LOG INCREASES
POROSITY LOG LOG INCREASES
WATER LEVEL
NOTE: SCALE FOR CHANGE FROM WATER LEVEL

14N/18E-20G1