

WS-232

Confidential  
5-16-89

FORM 16

API WELL NO. 45 - 195 - 21034  
State County Permit

PHILA. OIL CO.  
BANNER COAL CO.  
P-366  
WS-232  
EL-1936.5  
45-195-21034  
COEBURN-7 1/2'

Date: July 6, 1987  
Operator's Well  
Name Banner Coal Company P366

VIRGINIA OIL AND GAS INSPECTOR  
205 W. MAIN STREET  
ABINGDON, VA 24210  
703-628-8115

**CONFIDENTIAL**

REPORT OF COMPLETION OF WELL WORK

Pursuant to Regulation 4.06 of the Regulations under the Virginia Oil and Gas Act, the undersigned well operator reports completion of the type(s) of well work specified below on the referenced well in Lipps District, Wise County, Virginia on 16 day, May month, 19 87.

WELL TYPE: Oil \_\_\_/ Gas X/ Enhanced recovery \_\_\_/ Waste Disposal \_\_\_/ If "Gas", Production X/ Underground Storage \_\_\_/

Exempt by Code Section 45.1-300.B.1. from general oil and gas conservation law: yes \_\_\_/ no \_\_\_/

WELL WORK: Drill X/ Deepen \_\_\_/ Redrill \_\_\_/ Stimulate \_\_\_/ Plug off old formation \_\_\_/ Perforate new formation \_\_\_/ Plug \_\_\_/ Replug \_\_\_/ Other physical change in well (specify \_\_\_\_\_)

The well work was done as shown in the Appendix(es) applicable to the type(s) of well work involved.

CONFIDENTIALITY STATUS UNDER CODE OF VIRGINIA SECTION 45.1-332.

- \_\_\_ Ninety days from the filing of this report OR
- X Two years from 5/16, 1987, the date on which the referenced well was COMPLETED, the well being an exploratory well as defined in Code of Virginia Section 45.1-288.21.



APPLICANT: Philadelphia Oil Company  
BY Brint Camp  
TITLE District Geologist  
ADDRESS 1989 E. Stone Dr., Kingsport, TN. 37660  
TELEPHONE (615) 378-5101

FORM 16  
APPENDIX A,  
SHEET 1, (OBVERSE)

API WELL NO. 45 - 195 - 21034  
State County Permit  
Date: July 6, 1987  
Operator's Well  
Name Banner Coal Company P-366

REPORT OF COMPLETION OF WELL WORK  
IF DRILLING, REDRILLING, OR DEEPENING IS INVOLVED

DRILLING CONTRACTOR Union Drilling, Inc.  
ADDRESS P. O. Drawer 40, Buckhannon, W. Va. 24201  
TELEPHONE 304-472-4610

GEOLOGICAL TARGET FORMATION Upper Shale  
DEPTH OF COMPLETED WELL 4614 FEET  
DATE DRILLING COMMENCED 4/21/87  
DATE DRILLING COMPLETED 5/2/87  
DRILLING RIG: ROTARY X / CABLE TOOL        /

GEOLOGICAL DATA      Depth      Thickness  
                            Top      Bottom

Fresh Water      84,220

Salt water

	Name	MINING IN AREA			
		<del>Yes</del>	No	<del>Mined Out</del>	
Coal Seams	91-93	200-02	331-33	486-88	671-73
	163-66	231-33	348-50	581-83	1034-37
	170-72	284-86	350-54	650-52	

Oil      Formation

Gas      Formation

below:      The data on depth of strata is based on the source(s) checked

- Applicant's own drilling experience in the area
- Information supplied by the coal operator in the area
- Information already in possession of the Inspector
- Other (as follows) \_\_\_\_\_

Form 16  
Appendix A, Sheet 1 (Reverse)  
Continued from Obverse side

**OTHER GENERAL INFORMATION**

An electric log survey was \_\_\_/ was not \_\_\_/ conducted pursuant to Code of Virginia Section 45.1-333.B.2, at the coal owner's or operator's request.

An electric log survey was X/ was not \_\_\_/ run for other purposes. This survey did \_\_\_/ did not X/ disclose the vertical location of a coal seam.

Note: If a coal seam was located, the part of the survey from the surface through the coal is attached in accordance with Code of Virginia Section 45.1-333.B.3.

Deviation surveys were X/ were not \_\_\_/ required under Code of Virginia Section 45.1-333.C "to the bottom of the lowest published coal seam depth."

Note: If deviation surveys were required, the survey results are attached.

A continuous survey was \_\_\_/ was not X/ required under Code of Virginia Section 45.1-333.C.

Note: If a continuous directional survey was required, the survey results are attached.

**CHANGES IN THE PERMITTED WELL WORK**

The well operator did \_\_\_/ did not X/ make any change(s) in the permitted well work, verbally approved by the Inspector or Assistant Inspector under Regulation 4.03 of the Regulations under the Virginia Oil and Gas Act, for the purpose of insuring successful completion of the well work.

Note: The nature and purpose of each such change, if any, is set out below or on additional sheets if such are required.

DRILLER'S LOGCompiled by Brint Camp

Geolo- gical Age	Formation	General Lithology	Color	Depth (feet)		Thickness	Remarks
				Top	Bottom		
Pennsylvanian	Sand & Shale			0	1946	1946	
Mississippian	Ravencliff			1946	2046	100	
"	"	Little Stone Gap		2046	2085	39	
"	"	Shale		2085	2318	233	
"	"	Maxon Sands		2318	2860	542	
"	"	Shale		2860	3018	158	
"	"	Little Lime		3018	3080	62	
"	"	Lime and Shale		3080	3235	155	
"	"	Big Lime		3235	3772	537	
"	"	Keener		3772	3778	6	
"	"	Weir		3778	4230	452	
"	"	Coffee Shale		4230	4303	73	
"	"	Berea		4303	4428	125	
Devonian	Brown Shale			4428	4614	186	
	Loggers T. D.			4614			

Complete on supplemental sheet as necessary

CASING AND TUBING PROGRAM

PRELIMINARY INFORMATION

Is the subject well underlaid by the red shales? Yes X / No \_\_\_ /  
If Yes, was a coal protection string set to the red shales? Yes X / No \_\_\_ /

	SIZE	TOP	BOTTOM	LENGTH	PERFORATIONS	
					FROM	TO
<u>CONDUCTOR:</u>	16"	0	30	30		
<u>CASING CIRCULATED AND CEMENTED IN TO SURFACE:</u>	11 3/4"	0	340	340		
	8 5/8"	0	1721	1721		

COAL PROTECTION CASING  
SET UNDER SPECIAL RULE OF  
CODE OF VIRGINIA 45.1-334.B:

<u>OTHER CASING AND TUBING LEFT IN WELL;</u>	SIZE	TOP	BOTTOM	LENGTH	PERFORATIONS FROM	TO
	4 1/2"	0	4565	4565	4344	4474
	2 3/8"	0	4367	4367		

LINERS LEFT IN WELL UNDER  
CODE OF VIRGINIA SECTION  
45.1-336 OR OTHERWISE:

<u>PACKERS OR BRIDGE PLUGS:</u>	<u>KIND</u>	<u>SIZE</u>	<u>SET AT</u>
			NONE

REMARKS: SHUT DOWN DEPTHS, DATES; FISHING JOB DEPTHS, DATES; CAVING;  
ETC.)

SAMPLES AND CUTTINGS

WILL X WILL NOT \_\_\_ BE AVAILABLE FOR EXAMINATION BY A MEMBER OF THE  
VIRGINIA DIVISION OF MINERAL RESOURCES  
WILL X WILL NOT \_\_\_ BE FURNISHED THE VIRGINIA DIVISION OF MINERAL  
RESOURCES UPON REQUEST  
WILL \_\_\_ WILL NOT X REQUIRE SACKS TO BE FURNISHED BY THE VIRGINIA  
DIVISION OF MINERAL RESOURCES.

APPENDIX TO REPORT OF COMPLETION OF WELL WORK  
ON A WELL DRILLED IN SEARCH OF OIL OR GAS

DISCOVERY OF OIL OR INDICATIONS THEREOF

Indicated potential flow before stimulation \_\_\_\_\_ BOD  
Gravity and grade: \_\_\_\_\_

DISCOVERY OF GAS OR INDICATIONS THEREOF

Indicated potential flow before stimulation 0 MCFD  
Rock pressure: \_\_\_\_\_ psig \_\_\_\_\_ hour test

RECORD OF STIMULATION

Full description of stimulation:

Zone 1: Berea/Upper Shale Formation  
Stimulate with 75 Q-Foam using 115,000 20/40 Sand,  
Gals. % Acid, 1,200,000 SCF/N2 & 572 BBLS. Fluid  
Perforated 4344-4474 # Perfs. 39 Perf. Size .39  
Breakdown 2399 psig. Avg. Injection 2533 psig.  
Avg. I.R. 18 BPM Init. S.I.P. 1707 psig 15 Min. S.I.P. 1607 psig

Zone 2: \_\_\_\_\_ Formation

Perforated \_\_\_\_\_ # Perfs. \_\_\_\_\_ Perf. Size \_\_\_\_\_  
Breakdown \_\_\_\_\_ psig. Avg. Injection \_\_\_\_\_ psig.  
Avg. I.R. \_\_\_\_\_ BPM Init. S.I.P. \_\_\_\_\_ psig 15 Min. S.I.P. \_\_\_\_\_ psig

Zone 3: \_\_\_\_\_ Formation

Perforated \_\_\_\_\_ # Perfs. \_\_\_\_\_ Perf. Size \_\_\_\_\_  
Breakdown \_\_\_\_\_ psig. Avg. Injection \_\_\_\_\_ psig.  
Avg. I.R. \_\_\_\_\_ BPM Init. S.I.P. \_\_\_\_\_ psig 15 Min. S.I.P. \_\_\_\_\_ psig

Final production ( ) natural ( x ) after stimulation

	BOD	MCFD	Hours Tested	Rock Pressure	Hours Tested
Zone 1:	_____	<u>1060</u>	<u>6</u>	<u>650</u>	<u>48</u>
Zone 2:	_____	_____	_____	_____	_____
Zone 3:	_____	_____	_____	_____	_____

Final production if gas zones are comingled: \_\_\_\_\_ MCFD

\_\_\_\_\_ hours tested: \_\_\_\_\_ psig. \_\_\_\_\_ hours tested

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

INTERVAL SHEET

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Well Repository No: <sup>1237</sup>  
~~P-366~~  
 1359

Date rec'd:

Date Processed: 6/27/90

Sample Interval: from: to: 4560

PROPERTY: Banner Coal CO. (WS-232)  
<sup>P-366</sup>

Number of samples: 96

COMPANY: Philadelphia Oil CO.

Total Depth: 4614

COUNTY: WISE

Oil or Gas:  Water:  Exploratory:

From-To	From-To	From-To	From-To
1359 - 1362	2946 - 2950	3270 - 3300	3700 - 3710
1400 - 1410	2950 - 2960	3300 - 3310	3710 - 3720
1410 - 1420	2960 - 2970	3310 - 3320	3720 - 3730
1420 - 1430	2970 - 2980	3320 - 3330	3730 - 3740
1430 - 1440	2980 - 2990	3330 - 3340	3740 - 3750
1440 - 1450	2990 - 3000	3340 - 3350	3750 - 3760
1450 - 1460	3100 - 3110	3350 - 3360	3760 - 3770
1460 - 1470	3110 - 3120	3360 - 3370	3770 - 3780
1470 - 1480	3120 - 3130	3370 - 3380	3780 - 3790
1480 - 1490	3130 - 3140	3380 - 3390	3790 - 3800
1490 - 2000	3140 - 3150	3390 - 3400	3900 - 3910
2300 - 2310	3150 - 3160	3560 - 3570	3910 - 3920
2310 - 2320	3160 - 3170	3570 - 3580	3920 - 3930
2320 - 2330	3170 - 3180	3580 - 3590	3930 - 3940
2330 - 2340	3180 - 3190	3590 - 3600	3940 - 3950
2340 - 2350	3190 - 3200	3600 - 3610	3950 - 3960
2350 - 2360	3200 - 3210	No sample	3960 - 3970
2360 - 2370	3210 - 3220	NO sample	3970 - 3980
2370 - 2380	3220 - 3230	No sample	3980 - 3990
2380 - 2390	3230 - 3240	3640 - 3650	3990 - 4000
2390 - 2400	3240 - 3250	3650 - 3660	4220 - 4230
2400 - 2410	3250 - 3260	3660 - 3670	4310 - 4320
2410 - 2420	3260 - 3270	3670 - 3680	4460 - 4470
2420 - 2430	3270 - 3280	3680 - 3690	4560 - 4570
2430 - 2440	3280 - 3290	3690 - 3700	





8,250'

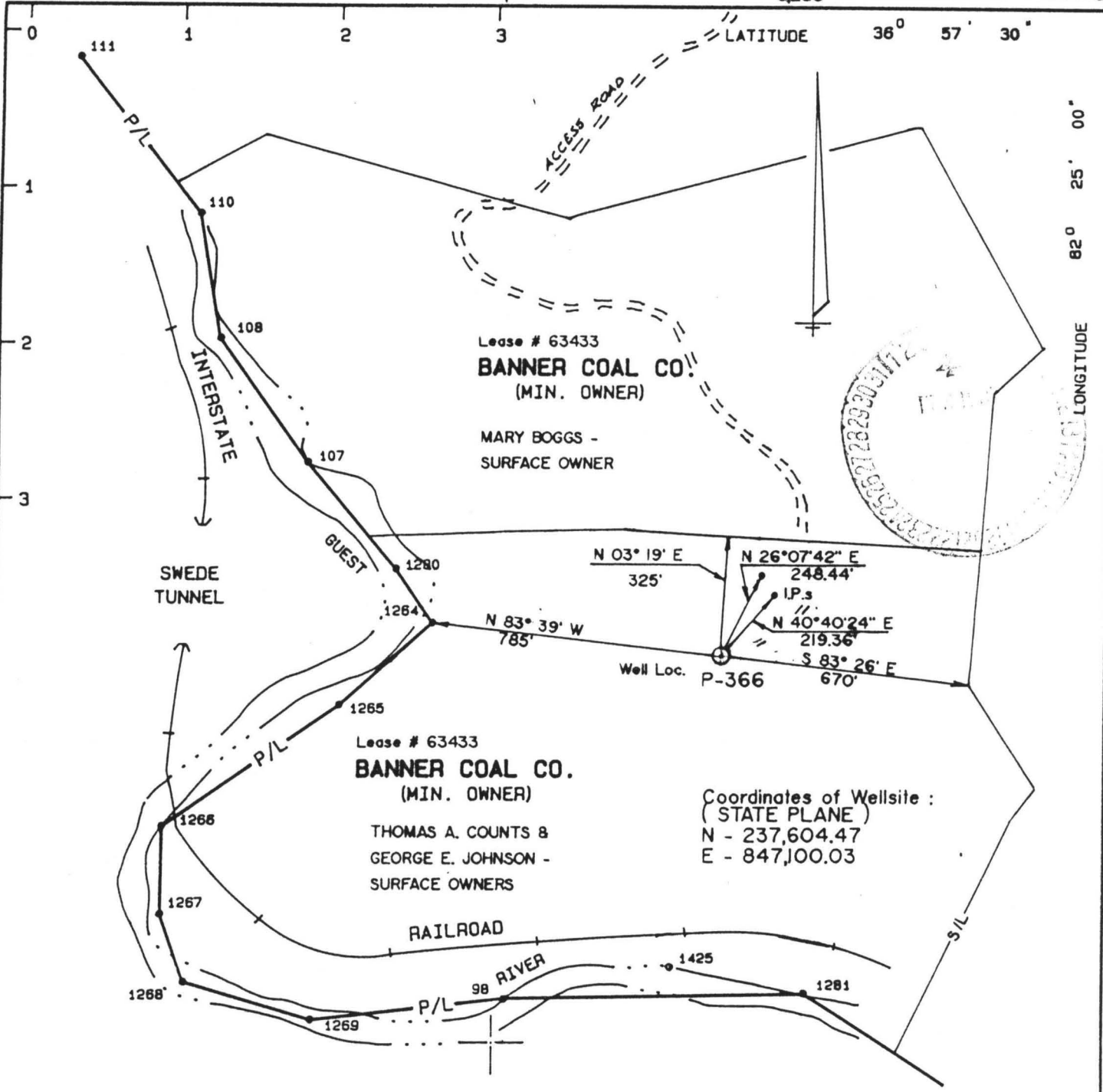
LATITUDE

36° 57' 30"

82° 25' 00"

LONGITUDE

13,950'



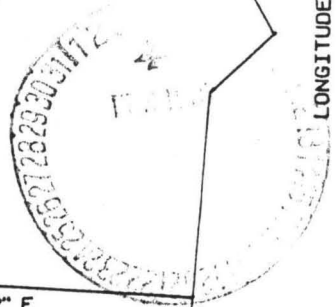
Lease # 63433  
**BANNER COAL CO.**  
 (MIN. OWNER)

MARY BOGGS -  
 SURFACE OWNER

Lease # 63433  
**BANNER COAL CO.**  
 (MIN. OWNER)

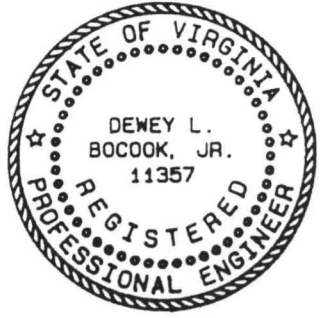
THOMAS A. COUNTS &  
 GEORGE E. JOHNSON -  
 SURFACE OWNERS

Coordinates of Wellsite :  
 ( STATE PLANE )  
 N - 237,604.47  
 E - 847,100.03



**LEGEND**

	P/L	PROPERTY LINE
	S/L	SURFACE LINE



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

INTERVAL SHEET

Page 1 of 2

Date rec'd: Date Processed: 8/9/93

PROPERTY: Banner Coal Co. P-366

COMPANY: Equitable Resources Exptl.

COUNTY: Wise (Coeburn) W6-232

Well Repository No: 7237

Sample Interval: from: <sup>1359</sup> to: 4620

Number of samples: 187

Total Depth: 4614

Oil or Gas: Water: Exploratory:

From-To	From-To	From-To	From-To
1359 - 1362	50-60	2900 - 10	3200 - 10
-	60-70	10 - 20	10 - 20
-	70-80	20 - 30	20 - 30
-	80-90	30 - 40	30 - 40
-	90 - <u>2400</u>	40 - 50	40 - 50
1900 - 10	-	50 - 60	50 - 60
10 - 20	-	60 - 70	60 - 70
20 - 30	710 Samples	70 - 80	70 - 80
30 - 40	-	80 - 90	80 - 90
40 - 50	-	90 - <u>3000</u>	90 - <u>3300</u>
50 - 60	-	-	3300 - 10
60 - 70	-	-	10 - 20
70 - 80	2720 - 30	-	20 - 30
80 - 90	30 - 40	-	30 - 40
90 - <u>2000</u>	40 - 50	-	40 - 50
-	50 - 60	3100 - 10	50 - 60
-	60 - 70	10 - 20	60 - 70
-	70 - 80	20 - 30	70 - 80
-	80 - 90	30 - 40	80 - 90
-	90 - <u>2800</u>	40 - 50	90 - <u>3400</u>
2300 - 10	-	50 - 60	3400 - 10
10 - 20	2810 - 20	60 - 70	10 - 20
20 - 30	20 - 30	70 - 80	20 - 30
30 - 40	-	80 - 90	30 - 40
40 - 50	-	90 - <u>3200</u>	40 - 50

Unwashed only.

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

INTERVAL SHEET  
 Continued

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Well Repository No.: W- 7237

From-To	From-To	From-To	From-To	From-To
3450 - 60	50 - 60	50 - 60	-	-
60 - 70	60 - 70	60 - 70	-	-
70 - 80	70 - 80	70 - 80	-	-
80 - 90	80 - 90	80 - 90	-	-
90 - 3500	90 - 3900	90 - 4300	-	-
3500 - 10	3900 - 10	4300 - 10	-	-
10 - 20	10 - 20	10 - 20	-	-
20 - 30	20 - 30	20 - 30	-	-
30 - 40	30 - 40	30 - 40	-	-
40 - 50	40 - 50	40 - 50	-	-
-	50 - 60	50 - 60	-	-
60 - 70	60 - 70	60 - 70	-	-
70 - 80	70 - 80	70 - 80	-	-
80 - 90	80 - 90	80 - 90	-	-
90 - 3600	90 - 4000	90 - 4400	-	-
00 - 10	4000 - 10	4400 - 10	-	-
70 Samples	10 - 20	10 - 20	-	-
40 - 50	20 - 30	20 - 30	-	-
	30 - 40	30 - 40	-	-
	40 - 50	40 - 50	-	-
50 - 60	50 - 60	50 - 60	-	-
60 - 70	-	60 - 70	-	-
70 - 80	70 - 80	70 - 80	-	-
80 - 90	80 - 90	80 - 90	-	-
90 - 3700	90 - 4100	90 - 4500	-	-
3700 - 10	4100 - 10	4500 - 10	-	-
10 - 20	10 - 20	10 - 20	-	-
20 - 30	20 - 30	20 - 30	-	-
30 - 40	30 - 40	30 - 40	-	-
40 - 50	40 - 50	40 - 50	-	-
50 - 60	50 - 60	50 - 60	-	-
60 - 70	60 - 70	60 - 70	-	-
70 - 80	70 - 80	70 - 80	-	-
80 - 90	80 - 90	80 - 90	-	-
90 - 3800	90 - 4200	90 - 4600	-	-
3800 - 10	4200 - 10	4600 - 10	-	-
10 - 20	10 - 20	10 - 20	-	-
20 - 30	20 - 30	-	-	-
30 - 40	-	-	-	-
40 - 50	40 - 50	-	-	-