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Imperial Oil Limited
COMPANY

SIGNED BY *J. J. Asboth*

TITLE Well Records Supervisor

DATE April 2, 1971.

SECTION I --- SUMMARY OF WELL DATA

- (a) Name --- IOE SPRING RIVER YT N-58-69-10-138-30
- (b) Permittee --- Imperial Oil Enterprises Ltd.
- (c) Operator --- Imperial Oil Enterprises Ltd.
10025 Jasper Avenue, EDMONTON, Alberta.
- (d) Location --- N-58-69-10-138-30
LAT. 69°07'53"N. LONG. 138°44'05"W.
Unique Well Identifier: 300N586910138300
Universal Well Location Reference: LAT: 69°.13139N
LONG: 138°.73472W
- (e) Co-ordinates -- N/A
- (f) Permit No. -- 3766
- (g) Drilling Contractor -- Imperial Oil Enterprises
Rig #3 Rotary
- (h) Drilling Authority -- #475 issued December 21, 1970
- (i) Classification -- NFW
- (j) Elevations -- GR:304' KB:318'
- (k) Spud -- January 7, 1971 Conductor hole
January 19, 1971 Bore hole
- (l) Completed Drilling -- March 13, 1971
- (m) FTD --- 7009' Driller's
6997' Logger's
- (n) Status --- D & A
- (o) Rig Release --- March 18, 1971
- (p) Hole Size ---
- | | | | |
|---------|----|------|----------|
| Surface | -- | 71' | 44" |
| 71 | -- | 540 | 17 1/2" |
| 540 | -- | 1982 | 12 1/4" |
| 1982 | -- | 6998 | 9 1/2" |
| 6998 | -- | 7009 | 8 11/16" |
- (q) Casing 20" & 28" x 62 x C220
13 3/8" x 523 x C645
10 3/4" x 1979 x C800

SECTION II --- GEOLOGICAL SUMMARY

(a) Formation Tops

<u>Formation</u>	<u>Log</u>	<u>Sub-Sea</u>
Pleistocene / Recent	Surface	
Lower Cretaceous	150'	+ 168'
Jurassic	600	- 282
Lower Jurassic Sand	6437	-6119
Upper Paleozoic	6671	-6353
F.T.D.	7009	-6691

(b) Cored Intervals

<u>No.</u>	<u>Interval</u>	<u>Rec.</u>	<u>Formation</u>
1	1970 - 1981'	11'	Jurassic
2	3577 - 3588	11	"
3	4400 - 4420	20	"
4	4900 - 4912	12	"
5	5405 - 5420	15	"
6	5939 - 5949.5	10.5	"
7	6245 - 6264	18.5	"
8	6459 - 6480	21	Lower Jurassic Sand
9	6760 - 6767	7	" "
10	6998 - 7009	11	" "
Mechanical Core Slicer (SW)			
1	5688 - 5685	2.3	Jurassic
2	5630 - 5627	3	"
3	6852 - 6849	3	Upper Paleozoic
4	6671 - 6668	2	"
5	6662 - 6659	2.5	Lower Jurassic Sand
6	6439 - 6436	.8	" "
7	6439 - 6436	.5	" "
8	6373 - 6370	1.2	Jurassic
9	5890 - 5887	1.3	"
10	5893 - 5890	.5	"

(c) Core Description

- CORE #1 1970 - 1981' Rec. 11/11'
- Interbedded shale and sandstone -- dark grey, non-calcareous, micaceous, somewhat pyritic, slickensided.
- 38, 21, 18, 17, 17, 13, 12, 12, 8, 9, 12 minutes per foot.
- CORE #2 3577 - 3588' Rec. 11/11'
- 3577 - 3586.5 Shale, dark grey, laminated with sandy-silty beds, slightly
09.5 carbonaceous and pyritic, slickensided.
- 3586.5 - 3588 Quartz conglomerate -- rounded to subrounded, poorly sorted,
01.5 in shale matrix contains some pyrite nodules.
- 48, 23, 21, 17, 18, 20, 20, 21, 17, 16, 16 minutes per foot.
- CORE #3 4400 - 4420 Rec. 20/20'
- Shale -- medium grey, laminated with siltstone, micaceous, somewhat fissile to hard.
- 23, 26, 20, 19, 22, 22, 18, 20, 21, 21, 18, 18, 19, 16, 20, 19, 19, 18, 16, 18 minutes/foot.
- CORE #4 4900 - 4912 Rec. 12/12'
- Interbedded shale and siltstone with shale medium to dark grey, silty, micro-micaceous, massive to sub-fissile siltstone, salt and pepper, slickensided.
- 25, 20, 25, 19, 21, 18, 21, 19, 20, 20, 20, 19 minutes/foot.
- CORE #5 5405 - 5420 Rec. 15/15'
- Shale -- medium grey to black, thin bands of pyritic light grey shale, slickensided.
- 27, 20, 20, 20, 19, 18, 21, 19, 21, 20, 23, 19, 18, 16, 18 mins./ft.
- CORE #6 5939 - 5949.5 Rec. 10.5/10.5
- Shale, medium to dark grey, hard, siliceous, pyritic, fissile to slaty, with bedding being vertical.
- 43, 20, 27, 27, 29, 28, 31, 30, 27, 23 minutes/ft.
- CORE #7 6245 - 6264 Rec. 18.5/19'
- Shale, dark grey, fissile, hard, trace nodules and very thin bands pyrite, minutely fractured, bands waxy brown shale and clay ironstone.
- 40, 19, 21, 23, 21, 21, 21, 19, 18, 17, 15, 15, 17, 18, 19, 22, 23, 20, 22 mins./ft.

(c) Core Description (Cont'd)

CORE #8	6459 - 6480'	Rec. 21/21'
6459 - 6462' 03.0'	Shale, dark grey with thin interbeds of ultra fine sandstone fractured with slickensides.	
6462 - 6465.5 03.5	Sandstone/quartzite -- medium grey, subrounded, well sorted, argillaceous laminae.	
6465.5 - 6468.5 03.0'	Shale -- dark grey with very fine grained sandstone laminae, slickensided.	
6468.5 - 6480 (11.5')	Sandstone/quartzite -- medium grey, very fine grained, subrounded, slightly calcareous, some argillaceous laminae fractured.	
	28, 17, 21, 25, 30, 28, 24, 23, 20, 21, 21, 22, 26, 28, 27, 23, 30, 35, 34, 32, 39 minutes per foot.	
CORE #9	6760 - 6767'	Rec. 7/07'
	Interbedded shale and limestone with shale being dark grey, fissile, pyritic, calcareous, fractured. Limestone being dark grey-brown, very argillaceous.	
	36, 21, 35, 33, 46, 39, 26 minutes per foot.	
CORE #10	6998 - 7009	Rec. 11/11'
	Limestone -- dark grey-brown, micritic, hard, dense, argillaceous with thin shale interbeds.	

Sidewall -- Mechanical Core Slicer

CORE #1	5688 - 5685	Rec. 2.3/3'
	Shale -- grey, fractured.	
CORE #2	5630 - 5627'	Rec. 3/3'
	Shale -- grey, fractured.	
CORE #3	6852 - 6849'	Rec. 3/3
	Limestone -- grey-brown, micritic, fractured.	
CORE #4	6871 - 6668	Rec. 2/3'
	Limestone -- grey-brown, micritic, fractured.	

CORE #5	6662 - 6659'	Rec. 2.5'3'
	Sandstone -- grey, fine grained.	
CORE #6	6439 - 6436'	Rec. 0.8'3'
	Shale, dark grey.	
CORE #7	6439 - 6436'	Rec. 0.5'3'
	Shale, dark grey.	
CORE #8	6373 - 6370	Rec. 01.2'3'
	Shale, dark grey.	
CORE #9	5890 - 5887	Rec. 01.3'3'
	Shale, dark grey.	
CORE #10	5893 - 5890	Rec. 0.5'3'
	Shale, dark grey.	

SECTION II -- GEOLOGICAL SUMMARY (Cont'd)

(d) Sample Description

- 0 - 140' Conglomerate -- unconsolidated with clay and sand.
- 140 - 1275' Shale, medium to dark grey, micro-miaceous, pyritic, trace carbonaceous material, non-fissile.
- 1275 - 2700 Shale and interbedded siltstone -- medium grey, medium hard.
- 2700 - 2990 Sandstone, varicolored, fine to medium grained, angular to subangular, medium sorting, moderately hard, calcaceous with traces of chert, white to black, somewhat interbedded with shale, medium to dark grey.
- 2990 - 5300 Interbedded shale and siltstone, medium grey, minor traces pyrite, micaceous.
- 5300 - 6440 Shale, medium to dark brownish grey, trace pyrite, traces light grey dolomite common from fractures.
- 6440 - 6670 Sandstone/quartzite -- medium grey, very fine grained, sub-rounded, well sorted, argillaceous laminae, fractured, slickensides.
- 6670 - 7009 Limestone, dark grey-brown, micritic, very argillaceous, silty in part, trace pyrite, some slickensides.

SECTION II -- GEOLOGICAL SUMMARY (Cont'd)

(e) Paleontological Determinations

SECTION III -- ENGINEERING SUMMARY

(a) Report of Drill Stem Tests -- No tests run.

(b) Casing Record

Set 51' double wall insulated conductor pipe 20" and 28" with 30' refrigerated. Cemented with 220 sacks cement and gypseal.
Set at 62' K.B.

Ran 13 joints 505.24' 13 3/8" N 80 72# Range 3 Buttress thread Mannesman casing cemented with 600 sacks.
Permafrost cement and landed at 523.24' K.B. No cement returns.
Ran additional 45 sacks with 1 1/4" tubing down annulus and got returns.

Ran 54 joints 1980.96' 10 3/4" N80 51# Range 3
Buttress thread Mannesmann casing landed at 1979' K.B. and cemented with 800 sacks neat cement.

SECTION III --- ENGINEERING SUMMARY (Cont'd)

(c) Bit Record

NO.	TYPE	SIZE	DEPTH		FOOTAGE DRILLED	HRS. ON BOTTOM	REMARKS
			In	Out			
	AUGER	44"	0	71'	71'	88	Conductor hole
1	OSC1G	12 1/4	71	190	119	10	
2	YT1A	12 1/4	190	540	350	17 1/2	
	REAMER	17 1/2				25 1/2	Reamed 540'
3	OWVJ	17 1/2				3	Reamed 34'
4	YT1A	12 1/4	540	1333	793	27	
5	OSCJ	12 1/4	1333	1898	565	31 1/2	
6	OSCJ	12 1/4	1898	1970	72	6 1/4	
C1	DIAMOND	8 11/16	1970	1981	11	3 1/4	Core #1
6RR	OSCJ	12 1/4	1981	1982	1	1	Reamed 11'
7	OSC3	9 1/2	1982	2542	560	16 1/2	
8	OSC1G	9 1/2	2542	2850	308	24	
9	YTLJ	9 1/2	2850	2869	19	2 3/4	
10	4JS	9 1/2	2869	3458	589	40 1/2	
11	5JS	9 1/2	3458	3577	119	9 1/2	
C1RR	DIAMOND	8 11/16	3577	3588	11	3 3/4	Core #2
12	S88	9 1/2	3588	3900	312	23	Reamed 11'
12RR	S88	9 1/2	3900	4018	118	14 1/2	Took off reader
13	4JS	9 1/2	4018	4400	382	31	
C1RR	DIAMOND	8 11/16	4400	4420	20	6 1/4	Core #3
13RR	4JS	9 1/2	4420	4768	348	34 1/2	Reamed 20'
14	4JS	9 1/2	4768	4900	132	11	
C2RR	DIAMOND	8 11/16	4900	4912	12	4 1/2	Core #4
15	4JS	9 1/2	4912	5405	493	29 1/2	Reamed 12'
C1RR	DIAMOND	8 11/16	5405	5420	15	5 1/4	Core #5
16	4JS	9 1/2	5420	5939	519	29 1/2	Reamed 15'
C1RR	DIAMOND	8 11/16	5939	5949.5	10.5	5 1/4	Core #6
17	YHW2	9 1/2	5949.5	5957	7.5	2 1/4	Reamed 10.5
18	M88	9 1/2	5957	6245	288	25 1/2	
C1RR	DIAMOND	8 11/16	6245	6264	19	6 3/4	Core #7
11RR	5JS	9 1/2	6264	6288	24	5	Reamed 19'
19	M88	9 1/2	6288	6459	171	27 1/2	
C1RR	DIAMOND	8 11/16	6459	6480	21	9 1/2	Core #8
19RR	M88	9 1/2	6480	6760	280	48	Reamed 21'
C1RR	DIAMOND	8 11/16	6760	6767	7	4 3/4	Core #9
18RR	M88	9 1/2	6767	6998	231	32	Reamed 7'
C1RR	DIAMOND	8 11/16	6998	7009	11	8 1/2	Core #10

F.T.D.

SECTION III --- ENGINEERING SUMMARY (Cont'd)

(d) Mud Report

<u>DATE</u>	<u>GEL</u>	<u>CAUSTIC</u>	<u>KELZAN</u>	<u>CHROMIC ALUMINUM</u>	<u>DOWICIDE B</u>	<u>WEIGHT MATERIAL</u>	<u>PLASTER</u>
1971							
Jan. 19	5900	50					
20	9300	100					
21	4800	50	150	51			
22	4700	100	400	136			
23	2200	25	115	68			
24	2000	25	200	51			
25	300		25	17			
31		200					
Feb. 1	4200	400	350	51			
2	3200		150	20			
3	1000	50	50	17			
4	3200	300			50	800	
5	800	50	100	17	75	1800	
6		50				800	
7						500	
9	4600	125	75	20			
10		100					
11	10,300	50					
12	5300	50	400	80		2500	
13	5500	150	500	100	70	1400	
14	6000	150	550	95	45		
15	2500	100	250	50	75		
16	1900	100	300	50	25	3000	
17	4000	150	350	60	40	1000	100
18	1500	150	150	30	25	2000	50
19	4300	100	450	90	20	1000	150
20	1000	100	100	10			100
21	3500	150	350	60	20		650
22						1000	
23	3200	150	300	60	25		50
24	3000	150	300	40	55	1100	200
25		100			40	3100	
26	4500	100	350	90	40		200
27	1000	150	100	20			100
28	2500	100	250	50			100
Mar. 1	2100	150	150	20	25	2000	200
2		50				1200	
3	3000	100	300	60	25	3200	100
4	2800	150	250	60	25	1200	100
5	1500	150	150	35	45	2400	

. . . Cont'd

SECTION III --- ENGINEERING SUMMARY (Cont'd)

(e) Deviation Record

<u>Depth</u>	<u>Degrees</u>	<u>Depth</u>	<u>Degrees</u>	<u>Depth</u>	<u>Degrees</u>
250'	1/4	3883'	14 3/4	5984'	11 1/2
332	1/4	3895	14 3/4	6044	10 1/4
448	?	3928	14 1/4	6108	11 3/4
535	1 1/2	3959	15	6170	13
727	2	3990	15	6201	14
915	2 3/4	4013	14 3/4	6238	MR
1040	2 7/8	4048	15	6244	14 1/4
1163	3	4087	14 3/4	6280	14 1/2
1289	3	4118	15	6324	14 1/4
1330	3 1/4	4180	14	6362	15
1450	3 1/4	4210	12 1/4	6428	14
1573	3	4225	15 3/4	6450	14
1695	3	4267	15 1/2	6517	14
1825	4	4336	16	6555	13 1/2
1890	4	4394	?	6615	14
1965	4 1/4	4420	17	6664	14 1/4
2095	4 1/2	4460	17	6750	15 1/2
2246	5 1/2	4490	17 3/4	6810	16
2339	6	4545	17	6852	MR
2434	6 1/2	4621	18	6920	17
2535	7 1/4	4673	17 1/2	6990	MR
2630	7	4743	17 1/4		
2723	7 1/2	4816	17 3/4		
2816	8	4894	MR		
2842	7 7/8	4900	17		
2865	8	4997	16 1/2		
2915	8	5092	15		
2985	8	5154	14 1/2		
3067	8 1/2	5216	13 3/4		
3160	8 1/4	5276	13		
3250	8 1/2	5342	11 7/8		
3374	10	5400	10 1/4		
3455	10	5465	10 1/2		
3540	11 1/4	5527	9 3/4		
3575	11 3/4	5588	9 7/8		
3628	12	5640	10		
3681	13	5714	10 1/8		
3775	14	5776	10		
3783	14	5838	11		
3820	14 1/4	5900	12		
3847	?	5936	11 1/2		

SECTION III --- ENGINEERING SUMMARY (Cont'd)

(f) Abandonment Plugs

<u>NO.</u>	<u>INTERVAL</u>	<u>CEMENT</u>	<u>FELT</u>	<u>ZONE</u>
1	7009 - 6900'	85 sacks	6900	Upper Paleozoic
2	6450 - 6350	75 sacks	6380	Jurassic
3	2030 - 1930	90 sacks + 2% CaCl ₂	1940	Jurassic
4	Surface	5 sacks		

Cut off casing 3' below ground level. Welded on steel plate and name plate. 2 sacks in mouse hole and 3 in rat hole.

(g) Lost Circulation Zones -- Nil

(h) Blowouts -- Nil

SECTION IV --- LOGS

<u>RUN NO.</u>	<u>DATE</u>	<u>TYPE</u>	<u>INTERVAL</u>
1	February 6, 1971	BHCS	50 - 1980'
1	February 6, 1971	DIL	522 - 1978
1	February 6, 1971	VELOCITY	50 - 1980
1	March 14, 1971	FDC	1978 - 6992
2	March 14, 1971	BHCS	1978 - 6995
2	March 14, 1971	DIL	1978 - 6991
2	March 14, 1971	VELOCITY	1978 - 6995
1	March 14, 1971	DIP	1978 - 6996
1	March 15, 1971	TEMP	50 - 3000
2	March 16, 1971	TEMP	50 - 6435
1	March 15, 1971	DIRECTIONAL	1978 - 6996

SECTION V --- ANALYSIS

(a) Core --- Not analysed

(b) Water --- Nil

(c) Gas --- Nil

(d) Oil --- Nil

SECTION VI --- COMPLETION SUMMARY

(a) Tubing Record --- Nil

(b) Perforation Record --- Nil

(c) Cementation Record

<u>NO.</u>	<u>DATE</u>	<u>INTERVAL</u>	<u>CEMENT</u>	<u>FELT</u>	<u>ZONE</u>
1	March 17, 1971	7009 - 6900'	85 sacks	6900'	Upper Paleozoic
2	March 17	6450 - 6350	75 sacks	6380	Jurassic
3	March 17	2030 - 1930	90 sacks + 2% CaCl ₂	1940	"
4	March 18	Surface	5 sacks		

(d) Acidization and Fracturing Record --- Nil

(e) Back Pressure and Production Tests --- Nil