City of Boynton Beach ASR-2

Rotary Drilling Log: City of Boynton Beach ASR-2

CH2MHILL

Sheet _____ of _____ Logged by GRB Date 2/24/2006

Lithologic Log 805 feet to 855 feet BLS

Scale	Run	Graphic	Depth	Lithological Description	Comments
			805		
				Same as above.	
1			810	Same as above.	
2			815	CLAY, as above, with an increasing proportion of SANDSTONE, CHERT and SHELL FRAGMENTS.	
3			820	LIMESTONE, white (N9) to yellowish gray (5Y 8/1), arenaceous, containing abundant phosphorite, shell fragments, and SANDSTONE, dark gray (N3), fine grained.	Circulation returns from reaming; compare to coring data. 50% of sample is cement chips.
4			825	Same as above.	Circulation returns from reaming; compare to coring data. 50% of sample is cement chips.
5			830	LIMESTONE, yellowish gray (5Y 8/1) to medium gray (N5), arenaceous, containing shell fragments, fish teeth, lithics, phosphorite, and chert, olive gray (5Y 4/1).	Circulation returns from reaming; compare to coring data. 25% of sample is cement chips.
6			835	Same as above.	Circulation returns from reaming; compare to coring data. 25% of sample is cement chips.
7			840	LIMESTONE, as above but predominantly yellowish gray (5Y 8/1) with coarser shell fragments. Contains abundant subrounded coarse phosphorite and lithic grains.	Circulation returns from reaming; compare to coring data.
8			845	Same as above.	Circulation returns from reaming; compare to coring data.
9			850	Same as above.	Circulation returns from reaming; compare to coring data.
			855		

City of Boynton Beach ASR-2

Rotary Drilling Log: City of Boynton Beach ASR-2

CH2MHILL

Sheet [ ] of [ ] Logged by [GRB] Date [3/1/2006]

Lithologic Log [855] feet to [905] feet [BLS]

Scale	Run	Graphic	Depth	Lithological Description	Comments
			855	LIMESTONE, yellowish gray (5Y 8/1) to medium gray (N5), moderately well consolidated, containing abundant shell fragments and shark teeth, with some phosphorite grains (not as abundant as above).	Circulation returns from reaming; compare to coring data.
1			860	Same as above.	Circulation returns from reaming; compare to coring data.
2			865	Same as above.	Circulation returns from reaming; compare to coring data.
3			870	As above, better consolidated, with a greater proportion of white (N9) to yelllowish gray (5Y 8/1) LIMESTONE; contains little phosphorite.	Circulation returns from reaming; compare to coring data.
4			875	Same as above.	Circulation returns from reaming; compare to coring data.
5			880	LIMESTONE, pale yellowish gray (5Y 7/2) to light gray (N7), moderately consolidated, arenaceous, poorly sorted.	Circulation returns from reaming; compare to coring data.
6			885	Same as above.	Circulation returns from reaming; compare to coring data.
7			890	Same as above.	
8			895	As above, better consolidated, containing some very light gray (N8) LIMESTONE.	
9			900	Same as above.	
			905		

Rotary Drilling Log: City of Boynton Beach ASR-2

CH2MHILL

Sheet [ ] of [ ] Logged by [GRB] Date [3/6/2006]

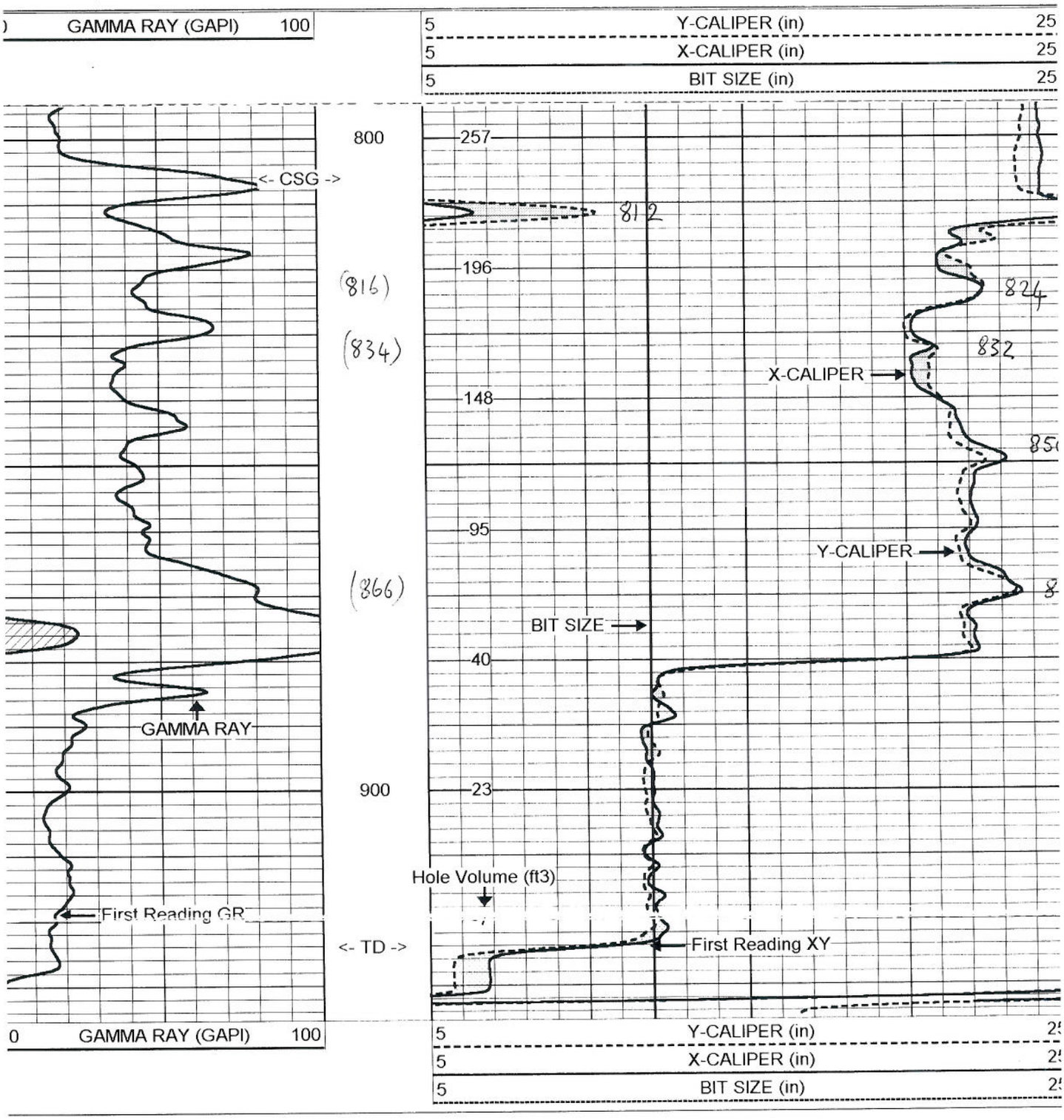
Lithologic Log [905] feet to [955] feet [BLS]

Scale	Run	Graphic	Depth	Lithological Description	Comments
			905	Same as above.	
1			910	LIMESTONE, predominantly very light gray (N8), arenaceous, fine grained, moderately to well consolidated, contains some SHELL FRAGMENTS.	
2			915	Same as above.	
3			920	As above, with proportionally more well consolidated hard LIMESTONE.	
4			924	TOTAL DEPTH OF PILOT HOLE.	
5					
6					
7					
8					
9					

MV Geophysical

MAIN PASS

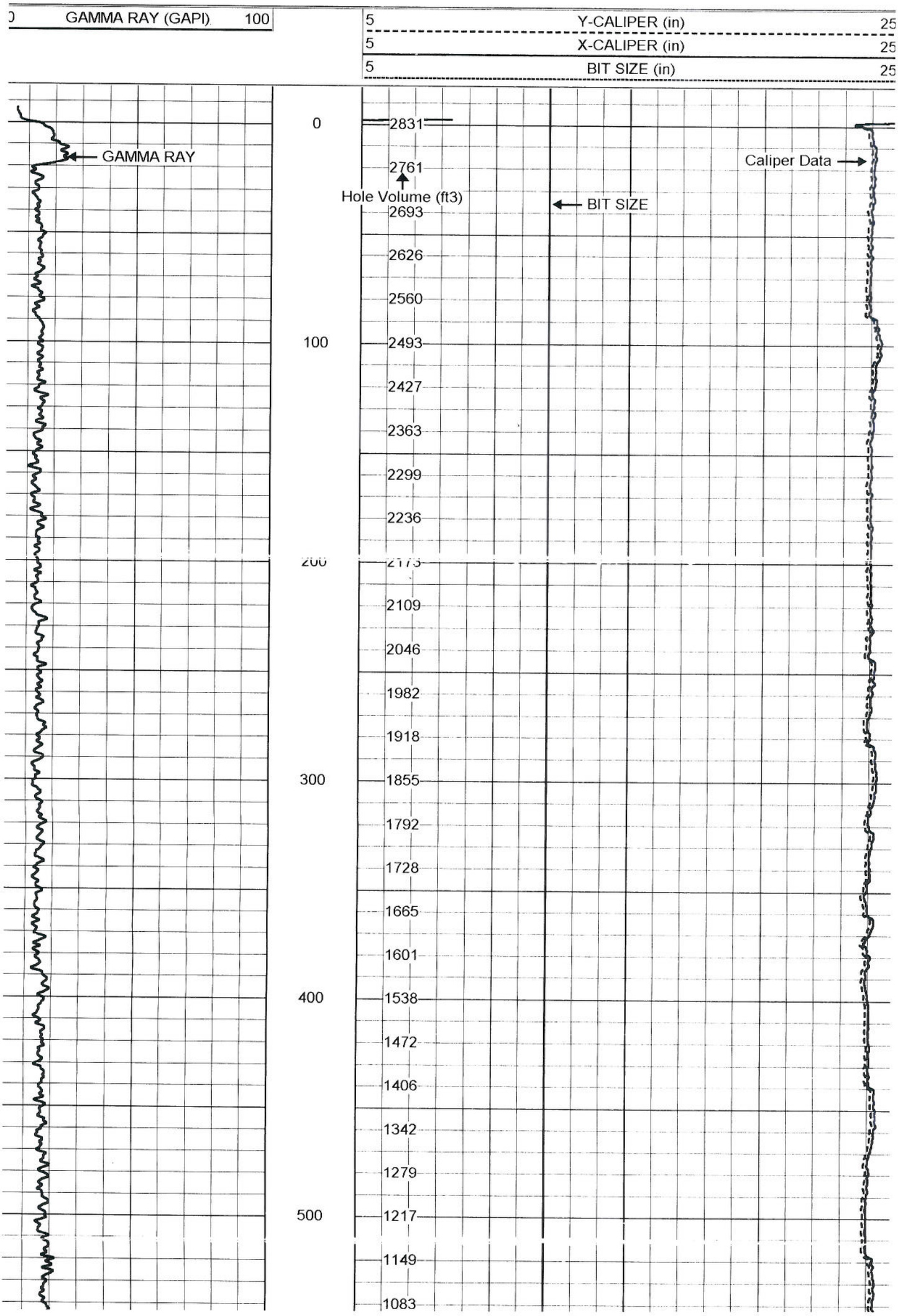
Database File: swsbbasr.db
Dataset Pathname: run9/MAIN
Presentation Format: xy525-5.prs
Dataset Creation: Mon Mar 06 18:25:06 2006
Charted by: Depth in Feet scaled 1:240

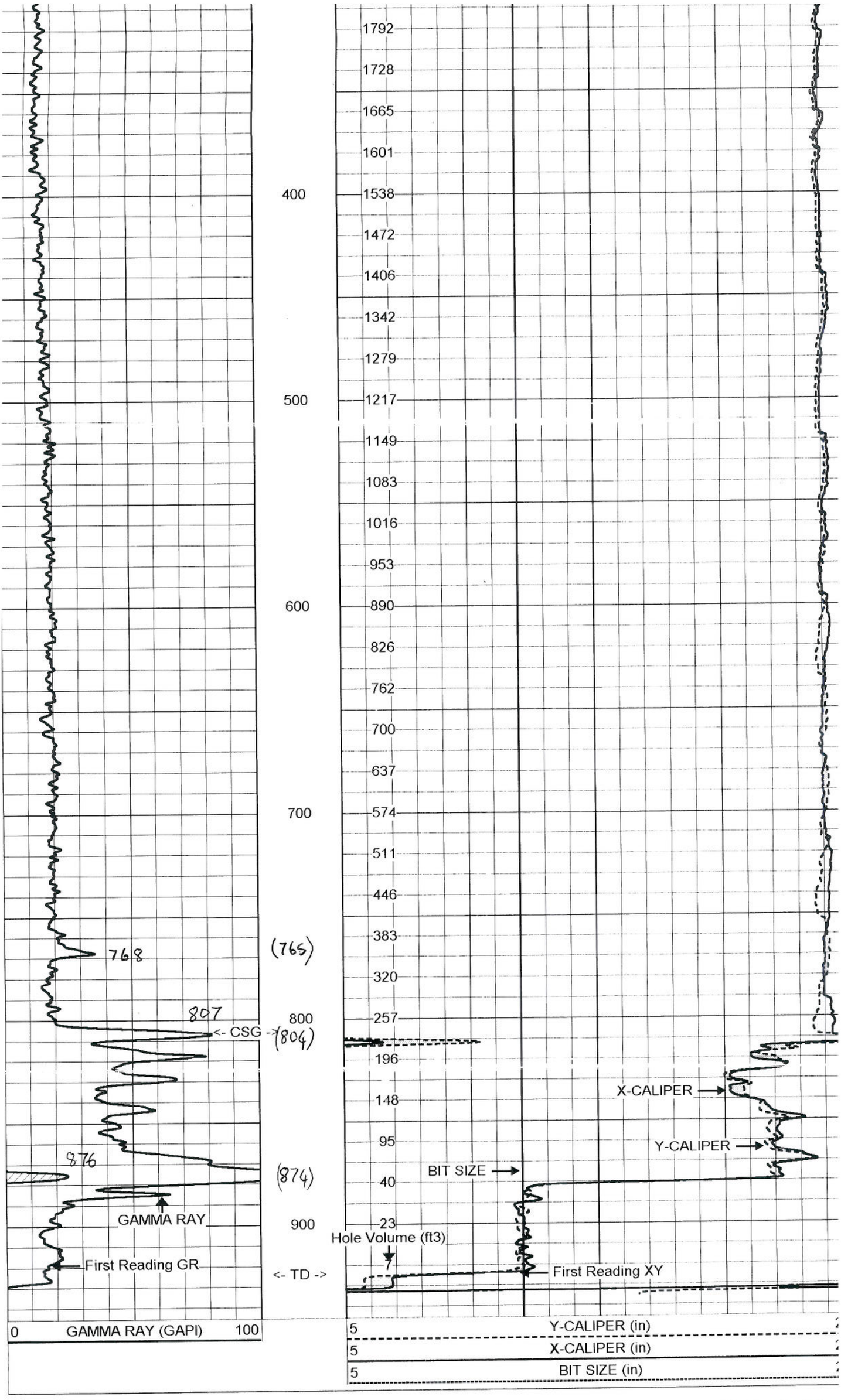


MV Geophysical

MAIN PASS

Database File:	swsbbasr.db
Dataset Pathname:	run9/MAIN
Presentation Format:	xy525-5.prs
Dataset Creation:	Mon Mar 06 18:25:06 2006
Charted by:	Depth in Feet scaled 1:600

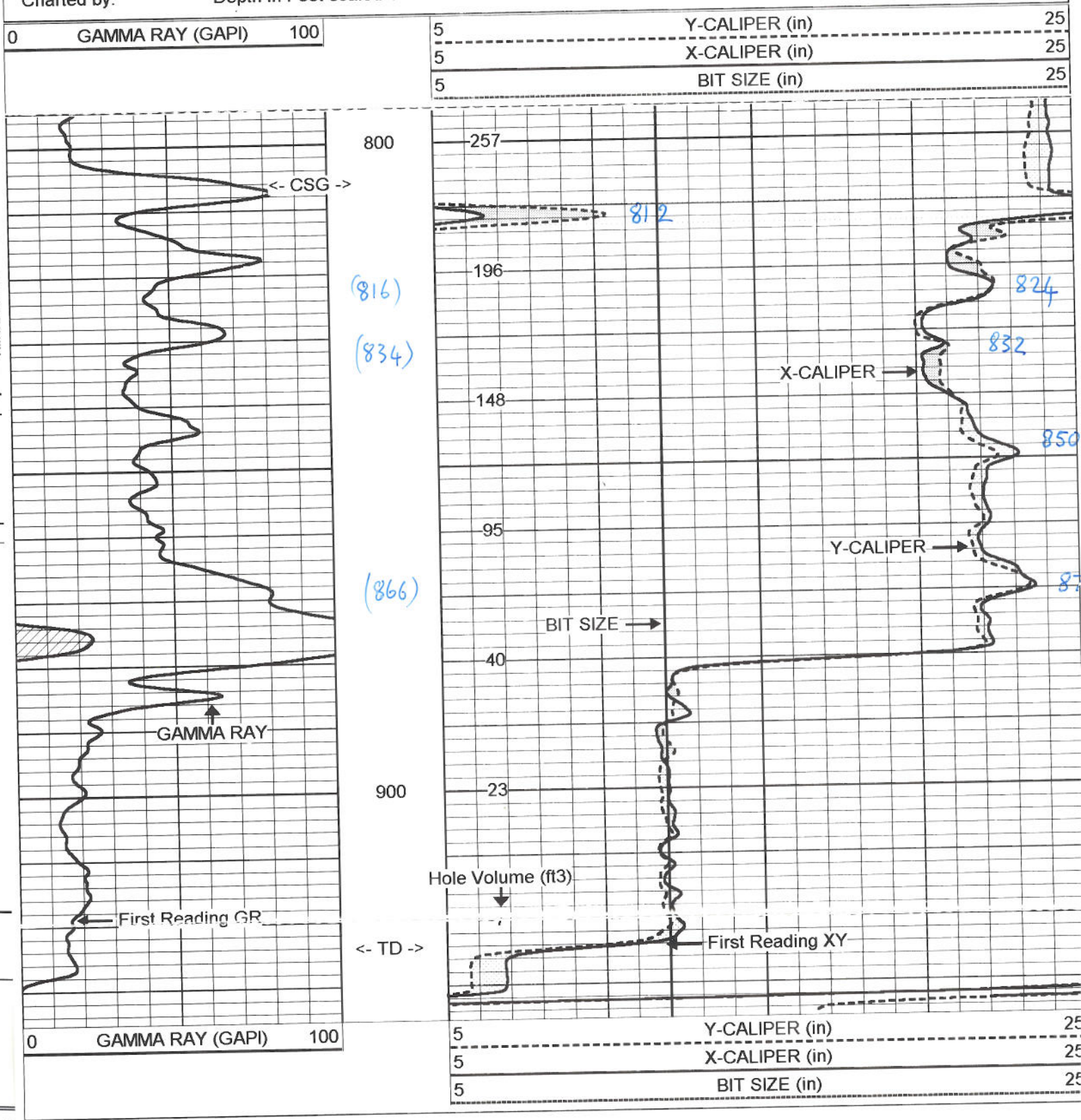



1792
1728
1665
1601
400
1538
1472
1406
1342
1279
500
1217
1149
1083
1016
953
600
890
826
762
700
637
700
574
511
446
383
(765)
768
320
807
800
257
<- CSG ->
(804)
196
148
X-CALIPER
95
Y-CALIPER
876
BIT SIZE
(874)
40
GAMMA RAY
900
23
Hole Volume (ft3)
First Reading GR
<- TD ->
7
First Reading XY
0
GAMMA RAY (GAPI)
100
5
Y-CALIPER (in)
5
X-CALIPER (in)
5
BIT SIZE (in)

MV Geophysical

MAIN PASS

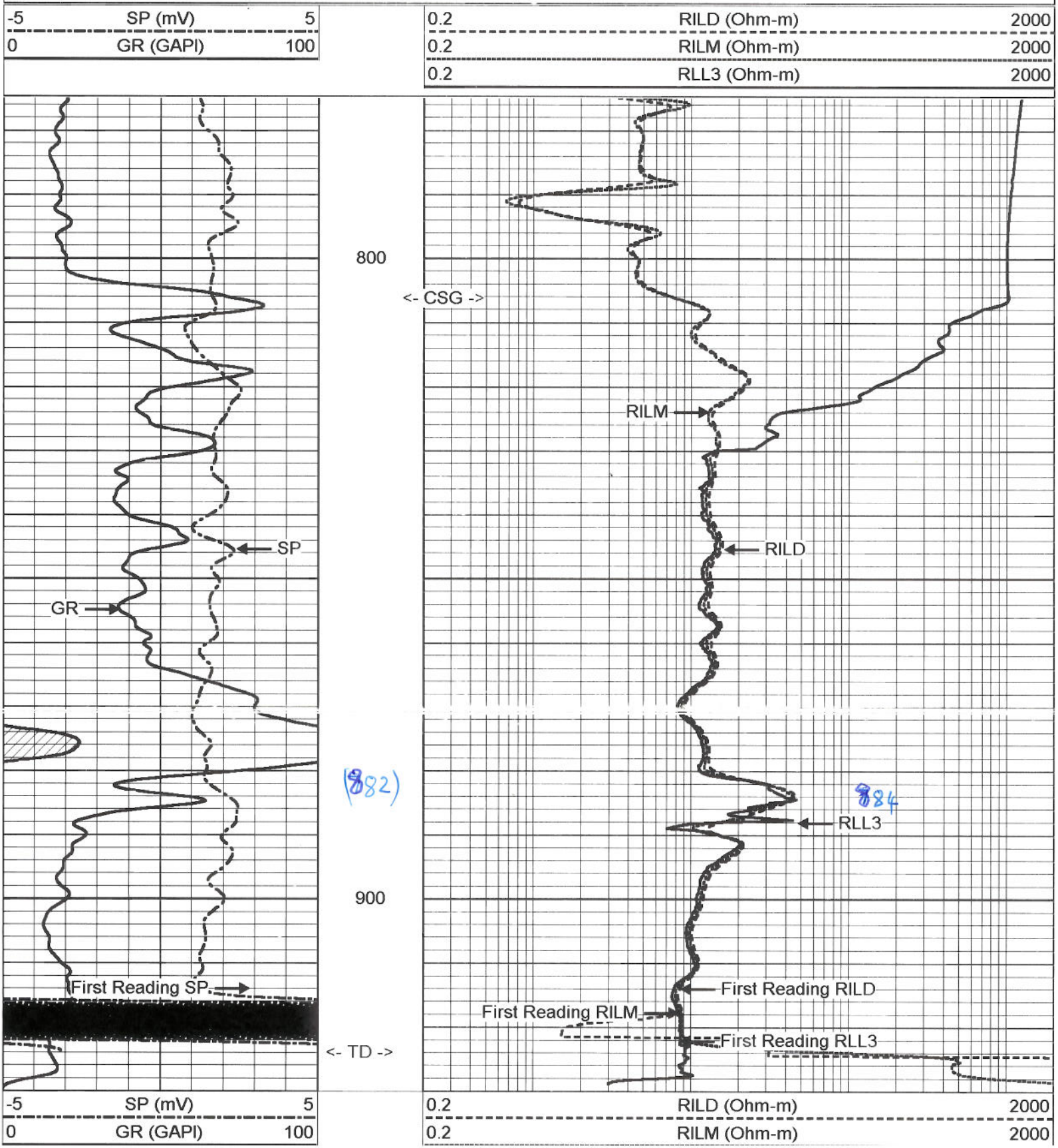
Database File: swsbbasr.db
Dataset Pathname: run9/MAIN
Presentation Format: xy525-5.prs
Dataset Creation: Mon Mar 06 18:25:06 2006
Charted by: Depth in Feet scaled 1:240



MV Geophysical

MAIN PASS

Database File: swsbbasr.db
Dataset Pathname: run9/MAIN
Presentation Format: dil.prs
Dataset Creation: Mon Mar 06 18:25:06 2006
Charted by: Depth in Feet scaled 1:240



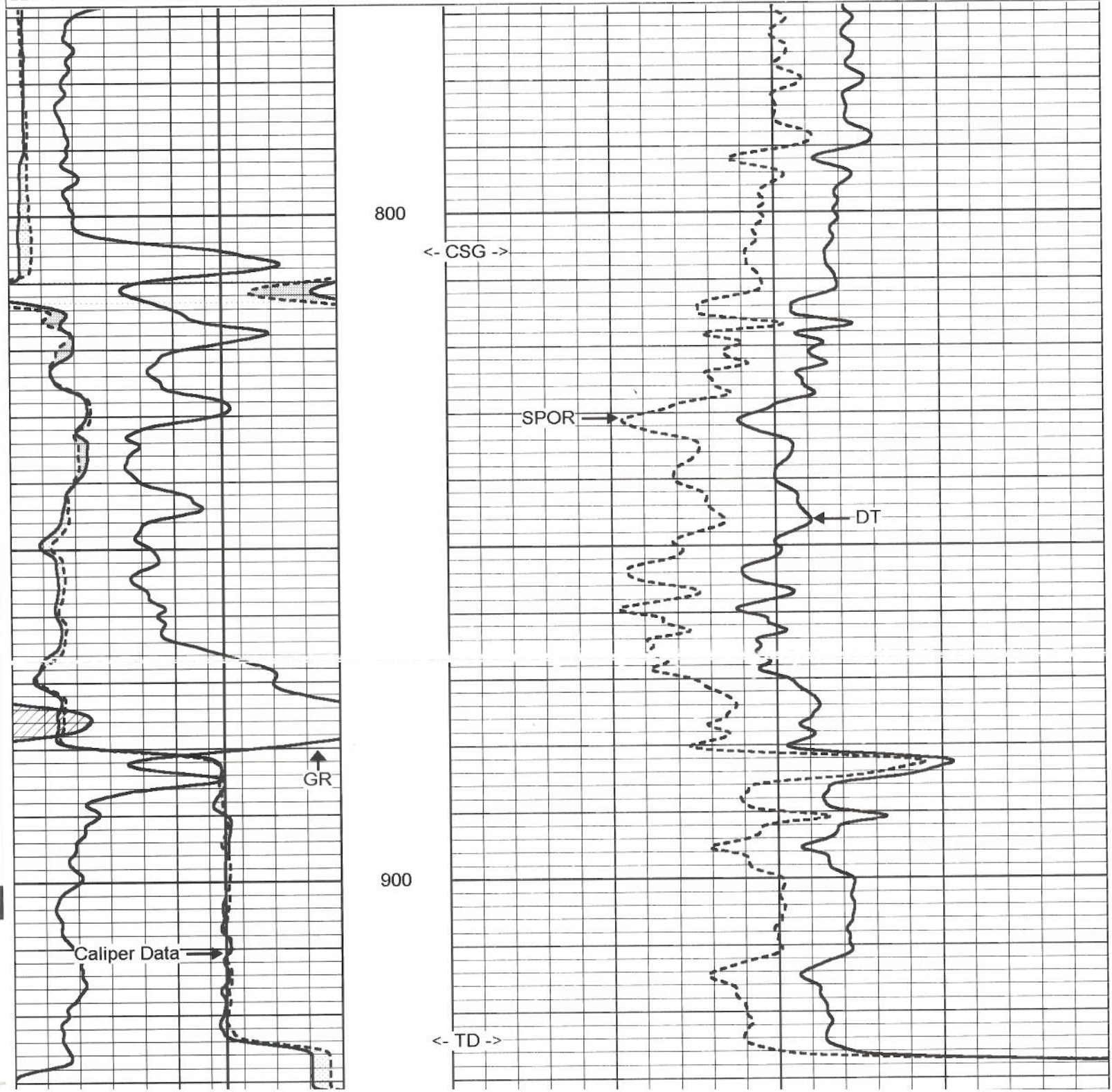
MV Geophysical

MAIN PASS

Database File:	swsbbasr.db
Dataset Pathname:	run9/MAIN
Presentation Format:	dtxy525g.prs
Dataset Creation:	Mon Mar 06 18:25:06 2006
Charted by:	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	100
25	XCAL (in)	5
25	YCAL (in)	5

240	DT (usec/ft)	40
100	Sonic Porosity (pu) (pu)	0



CORE LOG SUMMARY

CITY OF BOYNTON BEACH ASR-2 WELL
DATE: 2/14/2006
CONTRACTOR: Southern Well Services
DRILLER: B. Schmidt/R. Moon
OBSERVER: G. BULMAN/CH2M HILL
D. SMITH/CH2M HILL
CORE: 1 OF 4
PERCENT RECOVERY: 29

CORING DEPTH (FT BELOW LAND SURFACE): 818.3 TO 835.9
POTENTIAL LENGTH OF CORE (FT): 17.6
DIAMETER OF CORING BARREL (IN): 4 (id) 5.5 (od)
DRILLING METHOD/FLUID: Mud/Diamond bit rotary
DRILLING SPEED (RPM): 250
WEIGHT ON BARREL (LBS): 4,000

CORE DEPTH (BLS)* FROM	TO	RECOVERED (FT)	SAMPLE?	FRACTURES	DESCRIPTION
818.3	818.8	0.5		None	Cement Plug underlain by repacked core debris and drilling mud.
818.8	819.2	0.4		None	LIMESTONE, medium light gray (N6) to light olive gray (5Y 6/1), arenaceous, grading from poorly to well consolidated (lower), contains well dissemanated abundant subrounded phosphorite and detrital grains.
819.2	821.9	2.7		None	LIMESTONE, medium light gray (N6) to light olive gray (5Y 6/1), well consolidated, contains well dissemanated abundant subrounded phosphorite and detrital grains.
821.9	823.4	1.5		None	Core debris, repacked, light olive gray (5Y 5/2), containing abundant, dissemanated, phosphorite grains and subangular detrital grains.

* Intervals defined by lithologic change.

GRB

CORE LOG SUMMARY

CITY OF BOYNTON BEACH ASR-2 WELL
DATE: 2/22/2006
CONTRACTOR: Southern Well Services
DRILLER: B. Schmidt
OBSERVER: G. BULMAN/CH2M HILL

CORE: 2 OF 4
PERCENT RECOVERY: 56

CORING DEPTH (FT BELOW LAND SURFACE): 839 TO 857
POTENTIAL LENGTH OF CORE (FT): 18
DIAMETER OF CORING BARREL (IN): 4 (id) 5.5 (od)
DRILLING METHOD/FLUID: Mud/Diamond bit rotary

DRILLING SPEED (RPM): 80
WEIGHT ON BARREL (LBS): 4,000

CORE DEPTH (BLS)* FROM	TO	RECOVERED (FT)	SAMPLE?	FRACTURES	DESCRIPTION
839	840.1	1.1		None	*SANDSTONE to ARENACIOUS LIMESTONE, medium gray (N5), very poorly consolidated sediment, calcareous, poorly sorted, containing phosporite grains and clastic sediments.*
840.1	845.5	5.4		None	*LIMESTONE, medium gray (N5) to light olive gray (5Y 6/1), poorly to moderately consolidated, gradational with above lithology, arenaceous, with well abundant well dissemenated subrounded phosphorite grains.*
845.5	847.8	2.3		None	*SANDSTONE to ARENACIOUS LIMESTONE, light medium gray (N5), very poorly consolidated sediment, calcareous cement, poorly sorted (silty to medium grained), containing phosporite grains and clastic sediments, discrete high permeability horizon.*
847.8	847.9	0.1		None	*LIMESTONE, white (N9) to yellow gray (5Y 8/1), biosparite, well lithified.*
847.9	849	1.1		None	*LIMESTONE, medium gray (N5) to pale olive gray (10Y 6/2), moderately well consolidated, with well abundant well dissemenated subrounded phosphorite grains and some well preserved mullusk shell casts.*

* Intervals defined by lithologic change.

CORE LOG SUMMARY

CITY OF BOYNTON BEACH ASR-2 WELL
DATE: 2/24/2006
CONTRACTOR: Southern Well Services
DRILLER: B. Schmidt
OBSERVER: G. BULMAN/CH2M HILL

CORE: 3 OF 4
PERCENT RECOVERY: 6

CORING DEPTH (FT BELOW LAND SURFACE): 857 TO 876
POTENTIAL LENGTH OF CORE (FT): 19
DIAMETER OF CORING BARREL (IN): 4 (id) 5.5 (od)
DRILLING METHOD/FLUID: Mud/Diamond bit rotary

DRILLING SPEED (RPM): 80
WEIGHT ON BARREL (LBS): 2,000

CORE DEPTH (BLS)* FROM	TO	RECOVERED (FT)	SAMPLE?	FRACTURES	DESCRIPTION
857	858.2	1.2	Yes	No	*SANDSTONE to ARENACIOUS LIMESTONE, olive gray (5Y 3/2), calcareous, weakly consolidated,containing subrounded, well consolidated LIMESTONE clasts, medium gray (N5).*

* Intervals defined by lithologic change.

CORE LOG SUMMARY

CITY OF BOYNTON BEACH ASR-2 WELL
DATE: 3/2/2006
CONTRACTOR: Southern Well Services
DRILLER: B. Schmidt
OBSERVER: G. BULMAN/CH2M HILL

CORE: 4 OF 4
PERCENT RECOVERY: 79

CORING DEPTH (FT BELOW LAND SURFACE): 876.4 TO 891
POTENTIAL LENGTH OF CORE (FT): 14.6
DIAMETER OF CORING BARREL (IN): 4 (id) 5.5 (od)
DRILLING METHOD/FLUID: Mud/Diamond bit rotary

DRILLING SPEED (RPM): 42-72
WEIGHT ON BARREL (LBS): 1,000

CORE DEPTH (BLS)* FROM	TO	RECOVERED (FT)	SAMPLE?	FRACTURES	DESCRIPTION
876.4	878.6	2.2		None	LIMESTONE, very light gray (N8), well consolidated,hard, fossiliferous, micritic, containing abundant well preserved horizontally bedded bivalve shell casts, partially dissolved (increasing porosity). NOTE: core contamination from core barrel iron filings.
878.6	880.3	1.7		None	LIMSTONE, pale yellowish gray (5Y 7/2), well consolidated, hard, gradational with above lithology, fewer shell casts.
880.3	880.7	0.4		None	ARENACEOUS LIMESTONE, pale yellowish gray (5Y 7/2), poorly consolidated, fine to coarse calcareous grains; highly permeable.
880.7	881.25	0.55		None	LIMSTONE, pale yellowish gray (5Y 7/2), well consolidated, arenaceous, massively bedded.
881.25	881.5	0.25		None	ARENACEOUS LIMESTONE, pale yellowish gray (5Y 7/2), poorly consolidated, fine to coarse calcareous grains; highly permeable.
881.5	882.3	0.8		None	LIMESTONE, very light gray (N8), well consolidated, fossiliferous, containing abundant well preserved horizontally bedded bivalve shell casts, partially dissolved.
882.3	887.1	4.8		None	LIMESTONE, light gray (N7), massively bedded, arenaceous, moderately well consolidated, a few identifiable dissolution cavities, very dense.
887.1	888	0.9		None	ARENACEOUS LIMESTONE, very light gray (N8), moderately consolidated, well sorted fine grained. NOTE: core contamination from core barrel iron filings.

* Intervals defined by lithologic change.