

Esso Australia Ltd.

907469 002

Page 2 of 90

PETROLEUM DIVISION

WELL COMPLETION REPORT

25 OCT 1999

BLACKBACK A-1 & A-1ST1

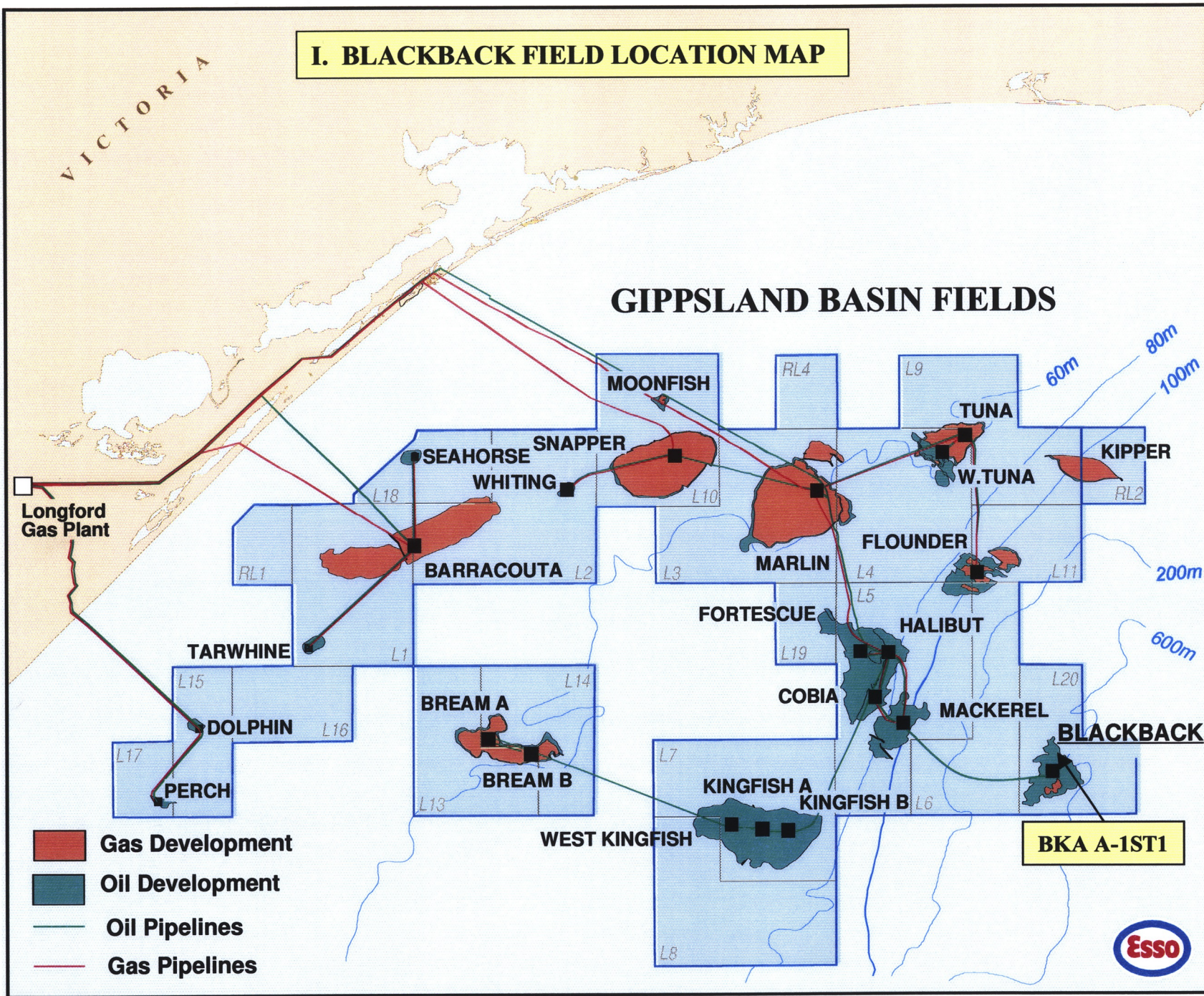
GIPPSLAND BASIN, VICTORIA

Author: Kevin Lanigan
Compiler: Sheryl Sazenis
September 1999

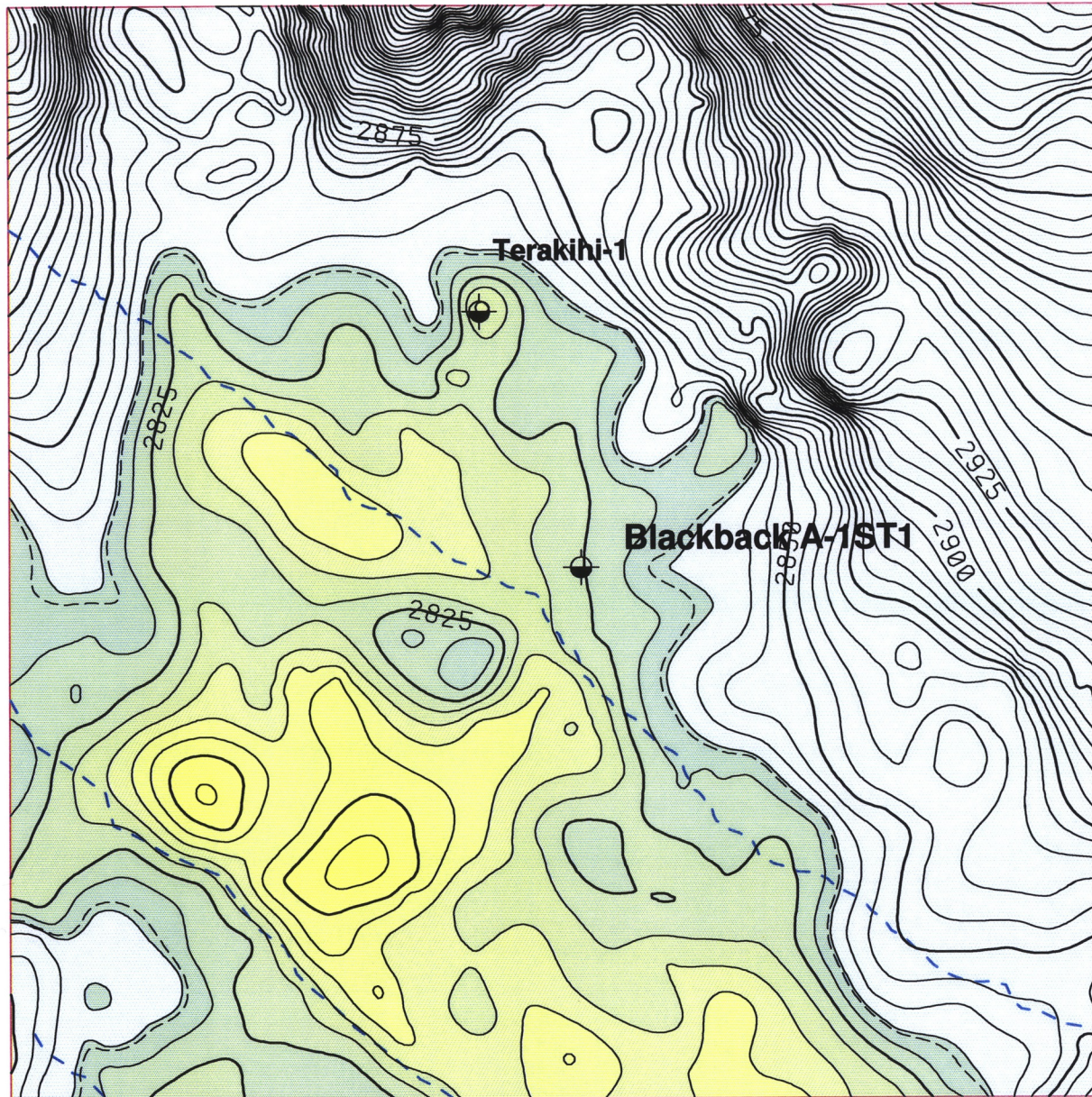
CONTENTS

	Page
I. FIELD LOCATION MAP	1
II. WELL DATA RECORD	
Well Location Map	2
Location	3
Elevations & Depths	3
Dates	3
Miscellaneous	3
Well Classification	3
Casing Record	4
Cementing Record	4
Drilling Performance	5
Wellbore Sketch (Final P&A)- Blackback A-1ST1	6
III. SAMPLES	7
IV. LOGS AND SURVEYS	8
V. FORMATION/RESERVOIR TOPS	9
VI. GEOLOGICAL ANALYSIS	10
Drilling Operations Summary	
Objectives	
Results	
Depth Uncertainty	
Hydrocarbons	
Geophysical Analysis	
VII. APPENDICES	
1. Survey Data & Listing	
1a. Survey Data- Blackback A-1	
1b. Survey Data- Blackback A-1ST1	
1c. MD-TVD Survey Data Listing- Blackback A-1	
1d. MD-TVD Survey Data Listing- Blackback A-1ST1	
2. Petrophysics	
2a. Petrophysics Evaluation Summary- Blackback A-1ST1	
3. Sample Descriptions	
3a. Lithology/Show Descriptions- Blackback A-1	
3b. Lithology/Show Descriptions- Blackback A-1ST1	
4. Logs	
4a. Mud Log- Blackback A-1	
4b. Mud Log- Blackback A-1ST1	
4c. Well Completion Log- Blackback A-1ST1	
5. Velocity Survey Report- Blackback A-1ST1	

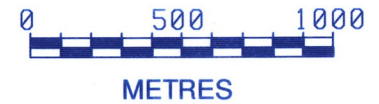
I. BLACKBACK FIELD LOCATION MAP



Preliminary Top of Latrobe Group Depth Structure Map



INTRA-LATROBE
FAULT



CONTOUR INTERVAL 5 M

II. WELL DATA RECORD (cont.)

Field	Blackback	Conductor #1 Surface Coordinates	
Well Name	Blackback A-1 & A-1ST1	AMG X	635354.94mE
Conductor Number	N/A	AMG Y	5732873.34mN
State	Victoria	Latitude	38° 32' 31.68"S
Permit/Licence	Vic/L20	Longitude	148° 33' 11.27"E
Geological Basin	Gippsland		
Toe end	4273.0mMDRT	Perforations	
(Original)	2695.06mTVDRT	(Original)	None-Well plugged back and sidetracked. Kickoff plug set 3667 - 3826m MDRT
AMG X	635129.3mE		
AMG Y	5735699.0mN		
Top of Latrobe	4569.5mMDRT		
(Sidetrack)	2853.2mTVDRT	(Sidetrack)	None- Plugged and Abandoned 1197-1450mMDRT
AMG X	635092.01mE		
AMG Y	5735946.67mN		

ELEVATIONS & DEPTHS

Water Depth	395.7m
Top Wellhead to MSL	417.75m
Main Deck Rel to MSL	N/A
RT Relative to MSL	26.0m
Average Well Angle	60°
Total Depth	4273mMDRT
(Original)	2695.06mTVDRT
Total Depth	4695mMDRT
(Sidetrack)	2921.1mTVDRT
Plug Back Depth	1197mMDRT

MISCELLANEOUS

Operator	Esso Australia Ltd
Esso Interest	50%
Permittee/Licencee	Esso/BHPP
Other Interest	50% BHPP
Overriding Royalty	N/A
Drilling AFE No.	L06249905

DATES

Skid Rig	24/02/1999
Spudded Well	24/02/1999
Spudded Well	01/04/1999(kick-off sidetrack)
Development Rig Days	56.3
NPT Days	15.3
Rig Released	24/04/1999
I.P. Established	Plugged and Abandoned

WELL CLASSIFICATION

Before Drilling	Subsea Development	After Drilling	Plugged and abandoned
	*Datum	AGD-66	
	Spheroid	ANS	
	Projection	UTM	

II. WELL DATA RECORD (cont.)

CASING RECORD

Type	Size (inches)	Weight (ppf)	Grade	Thread	Depth (mMDRT)
Conductor	30	457 / 310	X-52	RL-4	487.0
Surface	20	129.3	X-56	RL-4S	682.0
Intermediate	13.375	68	K-55	BTC	1302.12

CEMENTING RECORD

String Cemented	Cement Type	Dry Cmt Vol (sx)	Cement Additives	Mix Water (bbls)	Slurry Vol (bbls)	Slurry Density (ppg)	Cement to/from (mMDRT)	Csg Test Pressure (psi)
Conductor	Class %	1040	2% Calcium Chloride	128	219	15.9	487 - 421	--
Surface Casing Lead	Class G	340	0.45 gal/sx Econolite	105	135	12.5	532 - 421	1000
Surface Casing Tail	Class G	1295	1% Calcium Chloride	159	268	15.9	682 - 532	1000
Intermediate Casing	Class G	949		115	196	15.8	1302 - 852	2500
Plug #1	Class G	421	.2 gal/bbl SCR-100L retarder; 3.2gal/bbl Halad 413L fluidloss; 2gal/bbl Gascon 469 FW control; .05gal/bbl NFS Antifoam	25	87	15.8	4640-4473	
Plug #2	Class G	625	.2 gal/bbl SCR-100L retarder; 3.2gal/bbl Halad 413L fluidloss; 2gal/bbl Gascon 469 FW control; .05gal/bbl NFS Antifoam	88	149	15.8	1450-1197	

II. WELL DATA RECORD (cont.)

DRILLING PERFORMANCE

Esso Australia Ltd./ Drilling Division - Technical Report BLACKBACK A-1 FINAL WELL REPORT

Facility: Blackback	Rig: Sedco 702	Reservoir: Latrobe
Well: A-1	Location: VIC-L-20	Well Type: Subsea

**DEPTH:	**INCLINATION:	**MUD:
m MD: 4695	Average (deg): 59.6	Type: Petrofree
m TVD: 2921	Maximum (deg): 61.6	Max. wt. (ppg): 11.3

Vert. Section (m): 3178.7m	m per day: 116.5
----------------------------	------------------

****TIME ANALYSIS:**

Start Date: 24 Feb 99 @ 00:00	Finish Date: 23 April 99 @ 24:00	Total Days: 56.3
Target Days: 34.4	% Over/Under Target: 63.7% Over	AFE Days: 59

NPT Days: 15.3	% of Total: 27.20%
----------------	--------------------

****COSTS:**

AFE No.: L06249905	Revisions: 1
--------------------	--------------

	Material	Equipment	Contracts	Allocations	Contingency	TOTAL
AFE	\$2,140,000	\$2,880,000	\$10,510,000	\$1,870,000	\$0	\$17,400,000
Revised AFE	\$2,380,000	\$2,880,000	\$15,990,000	\$2,850,000	\$0	\$24,100,000
DIMS	\$2,471,710	\$514,090	\$15,274,825	\$2,667,274	\$0	\$20,927,899
Projected	\$2,471,710	\$514,090	\$15,274,825	\$2,667,274	\$0	\$20,927,899

\$ per day: 371721	\$ per day (excl. T&L): 353300	\$ per m: 4304
--------------------	--------------------------------	----------------

****CASING:**

	Size / Weight / Grade / Thread	m MDRT	m TVDRT	PIT
Structural	30"/457&310/X-52/RL4HT&RL4	487	487	N/A
Conductor	20"/129.3/X-56/RL4S	682	682	10.8 ppg, jug
Surface Casing	13-3/8"/68/K55/BTC	1302	1205	12.5 ppg, jug

Casing Comments:

No production casing was run on this well. This well was plugged back and later sidetracked as A-1A.

****COMPLETION:**

Size: N/A	Type:	Perforation Intervals:
-----------	-------	------------------------

Completion Comments:

Completion Guide Base No. 1 was run after installing the 18-3/4" wellhead housing. This flowbase became part of the Blackback A-1 completion.

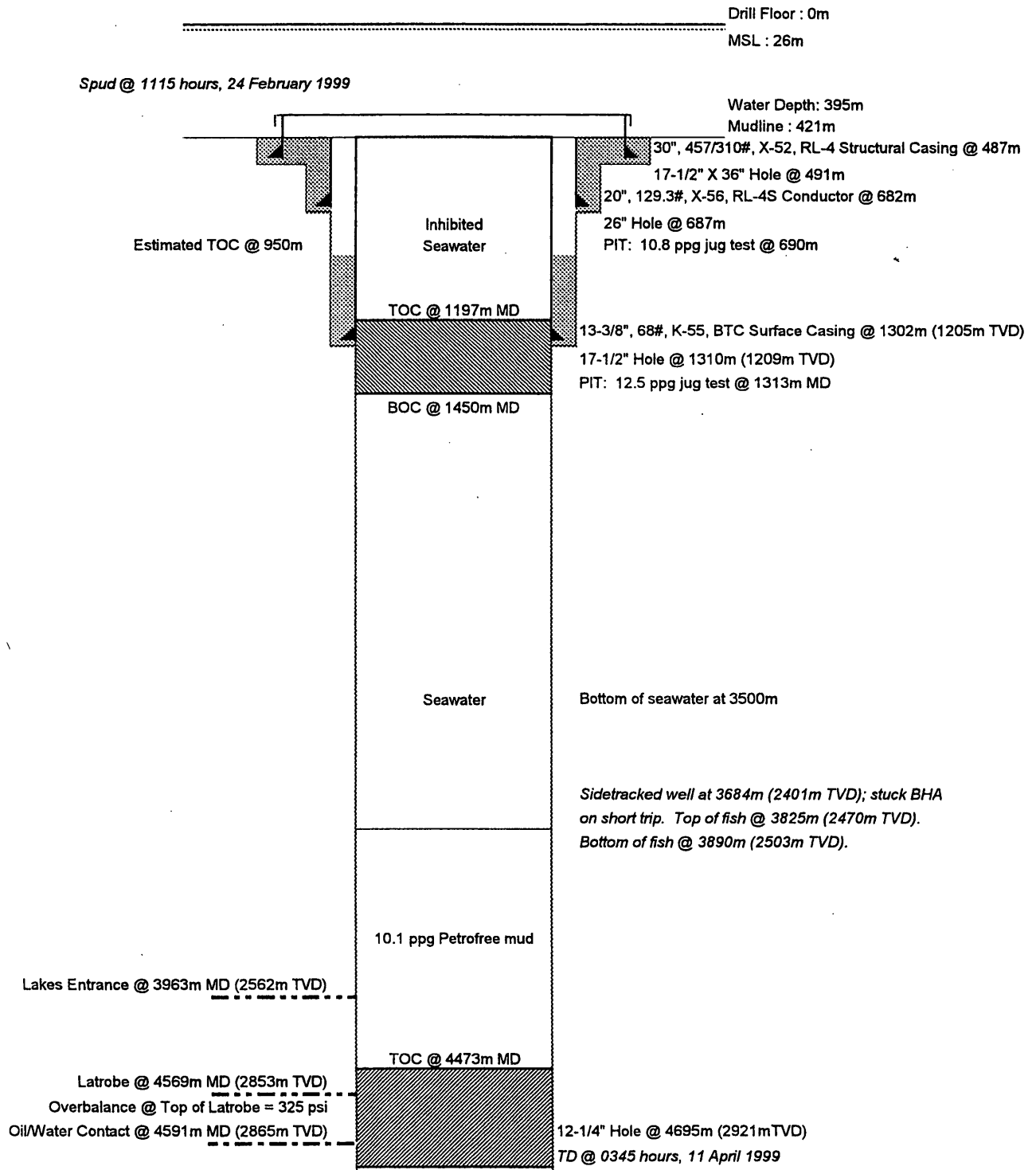
****ADDITIONAL:**
Logging Comments:

Ran AIT/DSI/PEX/HNGS on electric line with no problems. Attempted to run VSP on electric line but tool kept hanging up. Picked up drillpipe conveyed tools and successfully reran VSP with CSAT and AMS. All appraisal objectives were met.

Additional Comments:

This was the first well drilled in the Blackback Subsea Development Drilling Program. The well did not have economic reserves to justify a subsea completion. There were no lost time accidents but there were three safety incidents on this well, one Restricted Work Incident and two Medical Treatment Incidents.

Wellbore Sketch Blackback A-1 ST1 Final Suspension



III. SAMPLES

Cuttings

Blackback A-1

Cuttings descriptions for the interval 687m to 4273 m MDRT are contained in Appendix 3a.

Blackback A-1ST1

Three sets of washed and oven dried cuttings were taken at 10m intervals from 4380 metres (150m MDRT above predicted top of Latrobe Group) to 4530 metres (approximate top of Latrobe Group) then at 5m intervals to TD. Cuttings descriptions for the interval 3667m to 4695 m MDRT are contained in Appendix 3b.

Conventional coring

No conventional cores were cut.

Sidewall coring

No sidewall cores were shot.

IV. LOGS AND SURVEYS

Blackback A-1

Survey/Log	Company	Top (m MDRT)	Bottom (m MDRT)
MWD (Directional)	Anadrill	421	4250.74

Blackback A-1ST1

Survey/Log	Company	Top (m MDRT)	Bottom (m MDRT)
MWD (Directional)	Anadrill	687	Last point 4678.23 Proj to TD 4695
PEX(AIT-H), DSI, HNGS	Schlumberger	4341.9	4647
DSI, GR, CAL	Schlumberger	637	4647
DUAL CSAT, GR	Schlumberger	395	1312m (wireline)
DUAL CSAT, GR	Schlumberger	3150	4440m (TLC)

V. FORMATION RESERVOIR TOPS

Formation/ Zone	m TVDSS			m MDRT	m TVT Net Oil Sand	
	Predicted	Actual	Difference	Actual	Predicted	Actual
Sea Floor	402	395	-7	421		
Gippsland Limestone	402	395	-7	421		
Base of High Velocity Channel (BHVC)		2465.4		3860.6		
Top of Lakes Entrance Formation (TOLE)	2530	2544.8	14.8	4010.6		
Mid-Miocene Marker (MMM)		2587.7		4092.7		
Top of Latrobe Group (TOL)*	2809	(2827.2)		4569.5	23.75 ⁺	See below*
TOL* (LPO datum)		2825.6*	16.6			
TOL* (HPW datum)		2821.9*	12.9			
Lowest Proved Oil (LPO)		2834.8		4584.0		(as small as 5.6)*
Highest Proved Water (HPW)		2838.5		4591.0		(as much as 6.3)*
Total Depth (TD)	2875	2895.1	20.1	4695.0		

⁺ Prognosed 25m gross column with 95% net.

* Range of possibilities due to depth/datum uncertainty of 1.6-5.3 metres.

TOL (LKO datum) is TOL TVDSS depth assuming LKO equates to Terakihi-1 OWC (2833.2 mTVDSS).

TOL (HKW datum) is TOL TVDSS depth assuming HKW equates to Terakihi-1 OWC (2833.2 mTVDSS).

VI. GEOLOGICAL ANALYSIS

Drilling Operations Summary

Phase I of the Blackback "new field" development comprises three subsea wellheads spaced 25 metres apart and joined by flexible jumpers in a "daisy chain" arrangement at the end of a 23 kilometre pipeline to host facilities on Mackerel platform.

The Blackback Phase I (BKA) development program commenced at 1930hrs on February 13, 1999, with the arrival of the Sedco 702 semi-submersible drilling rig at the nominated location of the subsea completion. Drilling operations commenced at 0000hrs on February 16 with the batch drilling and emplacement of three conductors (A-3, then A-2 and A-1) followed by deployment of the inter-well flexible jumpers and Completion Guide Bases (CGBs).

Having already set surface casing for BKA A-3 and BKA A-2, the rig began to move to the A-1 location at 0000hrs on February 24 and, after running a Temporary Guide Base to the sea floor (395mSS) the BKA A-1 well was spudded at 1115hrs that day. A 36" hole was drilled to 491m with 30" casing set to 487m and then a 26" hole was drilled to 687m with 20" casing set to 682m.

At 0200hrs on February 27 the rig was temporarily released from BKA A-1 to deploy the flexible jumpers and the CGBs for A-3 and A-2. The rig returned to A-1 at 1930hrs on March 1 and (with some difficulty) ran the CGB, and completed rebuilding and testing of the BOP.

On March 9 at 1215hrs drilling of BKA A-1 re-commenced with a 17½" bit drilling out of surface casing and continuing to 1310m, after which 13 ¾" casing was set at 1302.12m. The 12¼" hole section commenced on March 16 and was drilled to 4273m when, during a wiper trip on March 29, the hole packed off with the bit at 3890m. The drill string was backed off just below the drilling jars, leaving the remainder of the BHA stuck in the hole below 3826m. Retrieval of the fish was deemed unlikely, so a cement kick-off plug was emplaced from 3826m to 3667m.

The attempt to sidetrack began at 1845hrs on April 1 at 3684m, and finally succeeded at 1045hrs on April 4, after changing out the bit and mud motor. BKA A-1ST1 was then drilled to a total depth (TD) of 4695mMD (2921mTVDRT) – an extension 20mTVD beyond the pre-drill target due to the Top of Latrobe coming in about 20m TVD deep to prognosis.

Wireline logs were acquired from TD without incident, and a 150-metre cement plug was then emplaced across the Top of Latrobe (top of cement tagged at 4473m) prior to conducting the Velocity Survey. Despite several attempts on wireline, the velocity survey tool could not get deeper than 1907m, so it was acquired from that depth up to the casing shoe at 1300m. It was then run on drillpipe to 4440m and began acquiring data above that depth until, due to deteriorating weather conditions, the survey was prematurely terminated at 3150m.

VI. GEOLOGICAL ANALYSIS(cont'd)

BKA A-1ST1 was then abandoned by placing a 200m cement plug across the 13^{3/8}" casing shoe (top of cement tagged at 1197m) leaving the surface casing accessible for re-use in a subsequent well. The rig was then skidded from the A-1 well head (to A-2) at 0000hrs on 24/4/99.

Objectives

First in the Blackback Phase I development program, the BKA A-1 well was designed to develop high-productivity oil-bearing Cretaceous sands immediately below the Top of Latrobe (TOL) unconformity in the northern-most fault block of the Blackback field. The target (pre-drill 'Location A') is more centrally located, as well as being mapped structurally higher than the 18-metre oil column encountered in the Terakihi-1 exploration well approximately one kilometre to the north west.

In the "most likely" case interpretation the TOL was expected to be six metres TVD higher at A-1 than Terakihi-1, thereby accessing an optimally positioned 24-metre oil column in multi-darcy reservoir. However, the validity of the structural interpretation was a major risk, due to significant uncertainty in both the conversion of two-way-time to depth and the time pick position (of the TOL horizon). Depth conversion at TOL is complicated by complex water bottom topography and extensive channelling within the overlying Gippsland limestone. Both of these effects produce lateral and vertical distortions of the shallow velocity field. Time pick position uncertainty is due to lateral changes in impedance contrast at TOL and poor seismic data quality in this part of the field.

A secondary objective of the BKA A-1 well was to obtain sonic/velocity data to aid in the time-to-depth conversion of the seismic interpretation across the undrilled "North East Paleocene" fault block.

Reservoir quality was also a risk, since seismic resolution is not sufficient to completely rule out the possibility of at least some poorer quality reservoir occurring within the oil column.

Results

Depth Uncertainty

Although wireline logs in BKA A-1ST1 were acquired without getting stuck (but also without reaching TD) the length and relatively high angle of the well bore *and* the lack of a clear oil-water contact (OWC) - to provide a comparative datum with Terakihi-1 - resulted in considerable depth uncertainty with the wireline data.

VI. GEOLOGICAL ANALYSIS(cont'd)

To obtain internal consistency the wireline logs were depth shifted as follows;

- (i) all wireline data was shifted up to fit a single point depth tie between the wireline GR and MWD GR at 4577mMD (Driller's depth) - a shale unit within the Cretaceous reservoir (this step was done prior to issue of "final" wireline log prints).
- (ii) subsequently, a clear mis-match at the 13^{3/8}" casing shoe was noted on these "final" prints between the Driller's depth (1302mMD) and wireline depths (caliper & GR 1293mMD; sonic 1289.5mMD) - to remedy this the wireline data was anchored at 3650mMD and the GR-Caliper-Sonic data above that point were adjusted to the Driller's depth for the 13^{3/8}" casing shoe.

Log picks have been made on the resulting measured depth logs and converted to TVD using the MWD survey data. However, the extent to which these picks are in error relative to the "true" depths remains unknown. The best relative datum against which BKA A-1ST1 can be measured is the OWC in Terakihi-1 (2833.2 mTVDSS from logs) located just 1.0 kilometre to the north west of the BKA A-1ST1 TOL intersection.

Given that the OWC in BKA A-1ST1 *must* occur between the Lowest Known Oil (LKO 4584.0mMD; 2834.8mTVDSS) and Highest Known Water (HKW 4591.0mMD; 2838.5mTVDSS) - and assuming a common, flat OWC between the two wells - there is clearly a "bust" in datums between the two wells of between 1.6 to 5.3 metres.

Hydrocarbons

BKA A-1ST1 intersected TOL within the 50-metre radius target circle, but found that this horizon was apparently 18.2 metres TVT low to the "most likely" prognosis (10.2m low to "low side"). Given the aforementioned uncertainty about depth relative to the Terakihi-1 OWC, this translates to somewhere between 16.6m TVT and 12.9m TVT low to prognosis. This suggests an oil column between 7.6m TVT gross (5.6m net) and 11.3m TVT gross (6.3m net), largely comprising two units of similar thickness separated by a one-metre thick shale - compared to an expected 24-metre gross column.

The net reservoir averages 21% porosity and 73% oil saturation and, based on both logs and cuttings descriptions (Appendix 3a) compares favourably to the commonly multi-darcy, clean quartz sandstones cored in Terakihi-1. However, the much smaller than expected column height in BKA A-1ST1 has necessitated a major reduction in the mapped oil volume for this northernmost fault block, rendering it relatively unattractive for development - and uneconomic to do so from this location.

VI. GEOLOGICAL ANALYSIS(cont'd)

Geophysical Analysis

The TOL encountered in BKA A-1ST1 is 0.46% (12.9m) to 0.59% (16.6m) low to the "most likely" prognosis. This has subsequently been attributed to a probable combination of the following factors;

- (i) the velocity of the post-Lakes Entrance strata being slightly underestimated (possibly contributing 7-10m of the total error),
- (ii) the pre-drill time pick position for TOL being slightly too high (possibly contributing 4-6m of the total error), and
- (iii) the velocity of the Lakes Entrance Formation being slightly underestimated (possibly contributing 0-5m of the total error).

907469 017

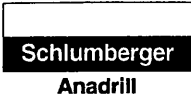
APPENDIX 1



APPENDIX 1a

BLACKBACK A-1

Survey Data



Survey

Client: Esso Australia Ltd Field: BlackBack Gippsland Offshore Structure: BlackBack Sedco 702 A-1 Well: A-1 Borehole: A-1 API #: Date: March 29, 1999 Grid Convergence: -0.96788765° Scale Factor: 0.99982562 Location: S 38 32 31.677, E 148 33 11.274 : N 5732873.400 m, E 635355.100 m Coordinate System: UTM Zone 55 S on Australian Datum 1984	Survey Computation Method: Minimum Curvature DLS Computation Method: Lubinski Vertical Section Azimuth: 355.700° Vertical Section Origin: N 0.000 m, E 0.000 m TVD Reference: Rotary Table 26.0 m above MSL Magnetic Declination: 13.384° Total Field Strength: 60296.251 nT Dip: -69.042° Declination Date: March 12, 1999 Magnetic Declination Model: BGS 1998 North Reference: Grid North Coordinate Reference To: Structure Reference Point
---	---

Station ID	MD (m)	Incl (°)	Azim (°)	TVD (m)	VSec (m)	N-S (m)	E-W (m)	Closure (m)	at Azim (°)	DLS (°/30m)	TF (°)
Sidetrack Tie-In 12th March 1999	807.91	6.57	13.29	807.57	3.83	4.34	6.67	7.96	56.93	0.00	-6.8
	838.21	9.51	11.16	837.56	7.90	8.49	7.55	11.36	41.67	2.93	-10.3
	865.42	12.94	8.40	864.25	13.04	13.71	8.43	16.10	31.60	3.83	-22.1
	896.24	16.67	3.22	894.04	20.79	21.54	9.19	23.42	23.10	3.85	-17.0
	924.88	20.03	0.25	921.22	29.75	30.55	9.44	31.97	17.17	3.65	-7.9
13th March 1999	951.82	23.17	359.15	946.27	39.65	40.46	9.38	41.54	13.05	3.53	-8.9
	981.56	25.16	358.42	973.40	51.80	52.64	9.12	53.42	9.83	2.03	8.7
	1009.78	28.29	359.43	998.60	64.47	65.32	8.89	65.92	7.75	3.36	8.3
	1038.86	31.04	0.21	1023.87	78.82	79.71	8.85	80.20	6.33	2.86	-9.7
	1067.13	33.93	359.33	1047.71	93.97	94.89	8.78	95.30	5.29	3.11	-12.2
	1096.16	36.75	358.31	1071.39	110.73	111.68	8.43	112.00	4.32	2.98	-7.6
	1127.05	39.69	357.70	1095.66	129.83	130.78	7.76	131.01	3.40	2.88	-30.1
17th March 1999	1155.88	43.87	354.25	1117.16	149.02	149.93	6.39	150.06	2.44	4.96	-20.3
	1183.49	47.66	352.36	1136.41	168.78	169.57	4.07	169.62	1.38	4.37	20.0
	1212.09	51.37	354.08	1154.98	190.51	191.16	1.52	191.17	0.45	4.13	12.3
	1242.07	54.60	354.94	1173.03	214.44	214.99	-0.77	214.99	359.79	3.30	9.2
	1271.80	57.80	355.55	1189.56	239.14	239.60	-2.81	239.62	359.33	3.27	6.4
	1289.16	60.26	355.87	1198.50	254.03	254.45	-3.93	254.48	359.12	4.28	14.8
	1326.74	60.69	356.00	1217.01	286.72	287.06	-6.25	287.13	358.75	0.35	-4.3
	1354.99	61.51	355.93	1230.67	311.46	311.74	-7.99	311.84	358.53	0.87	163.7
	1384.41	61.45	355.95	1244.71	337.31	337.52	-9.82	337.66	358.33	0.06	-103.8
	1414.39	61.39	355.67	1259.06	363.63	363.78	-11.74	363.97	358.15	0.25	100.4
18th March 1999	1442.19	61.35	355.92	1272.38	388.03	388.11	-13.53	388.35	358.00	0.24	-162.9
	1471.63	60.53	355.63	1286.68	413.77	413.78	-15.42	414.06	357.87	0.87	6.9
	1501.64	60.89	355.68	1301.36	439.94	439.87	-17.41	440.22	357.73	0.36	-125.1
	1530.17	60.53	355.09	1315.32	464.82	464.68	-19.41	465.08	357.61	0.66	61.6
	1558.47	60.71	355.47	1329.20	489.48	489.25	-21.44	489.72	357.49	0.40	-148.1
	1586.27	60.25	355.14	1342.90	513.67	513.36	-23.42	513.90	357.39	0.59	164.7
	1617.82	60.06	355.20	1358.60	541.04	540.63	-25.72	541.24	357.28	0.19	-4.5
	1643.74	60.17	355.19	1371.51	563.51	563.02	-27.60	563.70	357.19	0.13	-14.9
1674.41	60.53	355.08	1386.69	590.16	589.58	-29.87	590.34	357.10	0.36	134.1	
1705.36	60.32	355.33	1401.96	617.08	616.41	-32.12	617.24	357.02	0.29	-176.4	
1732.48	59.91	355.30	1415.47	640.59	639.84	-34.04	640.75	356.96	0.45	-53.3	

	1762.81	60.02	355.13	1430.66	666.85	666.01	-36.23	666.99	356.89	0.18	61.9
	1791.92	60.22	355.56	1445.16	692.09	691.16	-38.27	692.22	356.83	0.44	117.4
	1819.51	60.09	355.85	1458.89	716.02	715.03	-40.07	716.15	356.79	0.31	175.5
	1849.39	59.87	355.87	1473.84	741.89	740.83	-41.93	742.02	356.76	0.22	0.0
	1880.00	59.87	355.87	1489.20	768.36	767.24	-43.84	768.49	356.73	0.00	127.7
	1907.89	59.81	355.96	1503.21	792.48	791.29	-45.56	792.60	356.70	0.11	79.2
	1932.35	59.85	356.20	1515.51	813.62	812.39	-47.00	813.75	356.69	0.26	-36.2
	1961.76	59.98	356.09	1530.25	839.07	837.78	-48.72	839.19	356.67	0.16	16.1
	1991.39	60.13	356.14	1545.04	864.75	863.39	-50.46	864.87	356.66	0.16	29.6
19th March 1999	2021.50	60.36	356.29	1559.98	890.89	889.48	-52.18	891.01	356.64	0.26	46.8
	2053.78	60.54	356.51	1575.90	918.96	917.50	-53.94	919.09	356.64	0.24	-88.5
	2082.87	60.56	355.75	1590.21	944.29	942.78	-55.65	944.42	356.62	0.68	65.4
	2108.94	60.70	356.10	1602.99	967.01	965.44	-57.27	967.13	356.61	0.39	17.0
	2129.98	60.90	356.17	1613.26	985.38	983.76	-58.51	985.50	356.60	0.30	99.3
20th March 1999	2137.25	60.89	356.24	1616.79	991.73	990.10	-58.93	991.85	356.59	0.26	-68.1
	2167.69	61.07	355.73	1631.56	1018.35	1016.65	-60.79	1018.47	356.58	0.47	4.0
	2195.97	61.32	355.75	1645.19	1043.13	1041.36	-62.63	1043.25	356.56	0.27	-75.7
	2221.57	61.52	354.87	1657.43	1065.61	1063.77	-64.47	1065.72	356.53	0.94	-48.5
	2251.47	61.59	354.78	1671.68	1091.90	1089.95	-66.84	1092.00	356.49	0.11	156.3
21st March 1999	2280.41	61.23	354.96	1685.52	1117.30	1115.26	-69.11	1117.40	356.45	0.41	-39.6
	2310.84	61.40	354.80	1700.13	1144.00	1141.85	-71.50	1144.09	356.42	0.22	-175.4
	2341.94	60.86	354.75	1715.15	1171.23	1168.97	-73.98	1171.31	356.38	0.52	168.4
	2367.51	59.72	355.02	1727.82	1193.43	1191.09	-75.96	1193.51	356.35	1.37	-164.4
22nd March 1999	2398.31	58.68	354.68	1743.59	1219.89	1217.44	-78.33	1219.96	356.32	1.05	113.7
	2426.78	58.62	354.84	1758.40	1244.20	1241.65	-80.55	1244.26	356.29	0.16	29.8
	2455.75	59.57	355.47	1773.28	1269.05	1266.42	-82.65	1269.11	356.27	1.13	-32.5
	2481.11	59.91	355.22	1786.06	1290.96	1288.25	-84.43	1291.02	356.25	0.48	145.4
	2511.84	59.71	355.38	1801.51	1317.52	1314.73	-86.60	1317.57	356.23	0.24	123.8
	2540.56	59.56	355.64	1816.03	1342.30	1339.43	-88.54	1342.35	356.22	0.28	-159.7
	2569.31	59.42	355.58	1830.63	1367.07	1364.13	-90.44	1367.12	356.21	0.16	158.4
	2597.51	58.88	355.83	1845.09	1391.28	1388.27	-92.25	1391.33	356.20	0.62	-172.1
23rd March 1999	2629.14	58.39	355.75	1861.55	1418.29	1415.20	-94.24	1418.34	356.19	0.47	131.2
	2658.37	58.13	356.10	1876.93	1443.14	1440.00	-96.00	1443.20	356.19	0.41	83.7
	2687.52	58.15	356.31	1892.32	1467.90	1464.70	-97.64	1467.95	356.19	0.18	-91.4
	2718.09	58.14	355.76	1908.45	1493.87	1490.61	-99.44	1493.92	356.18	0.46	105.1
	2743.91	58.00	356.38	1922.10	1515.78	1512.47	-100.94	1515.83	356.18	0.63	-71.1
	2773.53	58.44	354.90	1937.71	1540.96	1537.57	-102.85	1541.01	356.17	1.35	-23.9
	2802.50	59.04	354.59	1952.74	1565.72	1562.23	-105.12	1565.77	356.15	0.68	139.5
	2833.23	58.77	354.86	1968.61	1592.03	1588.44	-107.54	1592.07	356.13	0.35	6.1
	2858.12	59.17	354.91	1981.44	1613.35	1609.68	-109.44	1613.40	356.11	0.48	-22.0
	2887.62	59.34	354.83	1996.52	1638.71	1634.93	-111.71	1638.74	356.09	0.19	-38.2
	2917.72	59.57	354.62	2011.82	1664.62	1660.74	-114.09	1664.66	356.07	0.29	43.3
	2946.84	59.68	354.74	2026.54	1689.74	1685.76	-116.42	1689.77	356.05	0.16	7.4
	2975.99	59.88	354.77	2041.21	1714.93	1710.84	-118.72	1714.96	356.03	0.21	78.4
24th March 1999	3006.75	59.95	355.16	2056.63	1741.54	1737.36	-121.06	1741.57	356.01	0.34	-131.0
	3035.02	59.77	354.92	2070.83	1765.99	1761.71	-123.17	1766.01	356.00	0.29	52.0
	3063.76	59.98	355.23	2085.25	1790.84	1786.48	-125.31	1790.87	355.99	0.36	138.2
	3092.62	59.70	355.52	2099.75	1815.80	1811.35	-127.32	1815.82	355.98	0.39	-80.6
	3121.60	59.72	355.38	2114.37	1840.82	1836.29	-129.31	1840.84	355.97	0.13	141.5
	3151.49	59.46	355.62	2129.50	1866.60	1861.99	-131.33	1866.62	355.97	0.33	-90.0
	3179.29	59.46	355.20	2143.63	1890.54	1885.86	-133.24	1890.56	355.96	0.39	-70.6
	3207.72	59.93	353.69	2157.97	1915.08	1910.29	-135.62	1915.10	355.94	1.46	150.5
	3235.57	59.64	353.88	2171.99	1939.13	1934.21	-138.23	1939.15	355.91	0.36	149.0

25th March 1999	3266.39	59.34	354.09	2187.63	1965.67	1960.62	-141.01	1965.68	355.89	0.34	147.8
	3296.82	59.00	354.34	2203.23	1991.79	1986.62	-143.64	1991.80	355.86	0.40	75.2
	3325.72	59.05	354.56	2218.10	2016.57	2011.28	-146.04	2016.57	355.85	0.20	-129.1
	3354.64	58.78	354.17	2233.04	2041.33	2035.93	-148.47	2041.33	355.83	0.45	117.5
26th March 1999	3380.91	58.66	354.44	2246.68	2063.77	2058.27	-150.70	2063.78	355.81	0.30	169.4
	3413.02	57.98	354.59	2263.54	2091.09	2085.47	-153.31	2091.09	355.80	0.65	127.4
	3423.01	57.87	354.76	2268.84	2099.56	2093.90	-154.10	2099.56	355.79	0.54	1.9
	3440.37	58.13	354.77	2278.04	2114.28	2108.56	-155.44	2114.28	355.78	0.45	-36.0
	3469.22	58.53	354.43	2293.19	2138.82	2133.00	-157.75	2138.83	355.77	0.51	-44.2
27th March 1999	3498.05	58.98	353.92	2308.14	2163.46	2157.52	-160.25	2163.47	355.75	0.65	-10.6
	3526.68	59.44	353.82	2322.80	2188.05	2181.98	-162.88	2188.05	355.73	0.49	-40.9
	3557.62	59.86	353.40	2338.43	2214.73	2208.51	-165.85	2214.73	355.71	0.54	-7.8
	3586.46	60.43	353.31	2352.79	2239.72	2233.35	-168.74	2239.72	355.68	0.60	74.8
	3614.50	60.59	353.98	2366.59	2264.11	2257.61	-171.45	2264.11	355.66	0.65	-179.3
28th March 1999	3643.60	59.87	353.97	2381.04	2289.36	2282.73	-174.10	2289.36	355.64	0.74	18.3
	3672.58	60.74	354.30	2395.40	2314.52	2307.77	-176.67	2314.53	355.62	0.95	123.6
	3699.95	60.63	354.49	2408.80	2338.38	2331.52	-179.00	2338.38	355.61	0.22	-44.2
	3731.11	60.90	354.19	2424.02	2365.57	2358.58	-181.68	2365.57	355.60	0.36	161.3
	3760.54	59.98	354.55	2438.54	2391.16	2384.06	-184.19	2391.16	355.58	0.99	-24.5
28th March 1999	3789.16	60.88	354.08	2452.66	2416.04	2408.83	-186.66	2416.05	355.57	1.04	-162.6
	3819.50	59.72	353.66	2467.69	2442.38	2435.03	-189.47	2442.39	355.55	1.20	10.3
	3845.87	60.34	353.79	2480.86	2465.21	2457.74	-191.97	2465.22	355.53	0.72	34.1
	3873.51	60.87	354.20	2494.43	2489.28	2481.69	-194.49	2489.30	355.52	0.69	112.2
	3904.23	60.76	354.51	2509.41	2516.10	2508.38	-197.13	2516.11	355.51	0.29	-27.9
29th March 1999	3933.13	61.19	354.25	2523.43	2541.36	2533.53	-199.60	2541.38	355.50	0.50	180.0
	3962.78	60.72	354.25	2537.83	2567.27	2559.32	-202.20	2567.29	355.48	0.48	147.2
	3991.66	59.81	354.93	2552.15	2592.34	2584.28	-204.56	2592.36	355.47	1.13	-13.0
	4021.04	60.30	354.80	2566.82	2617.80	2609.64	-206.84	2617.82	355.47	0.51	163.5
	4049.17	58.77	355.33	2581.08	2642.04	2633.79	-208.93	2642.07	355.46	1.70	43.6
29th March 1999	4077.41	58.95	355.53	2595.68	2666.21	2657.89	-210.86	2666.24	355.46	0.26	-70.0
	4106.75	59.12	354.99	2610.78	2691.37	2682.96	-212.93	2691.40	355.46	0.50	159.8
	4136.46	58.98	355.05	2626.06	2716.85	2708.34	-215.15	2716.87	355.46	0.15	2.1
	4166.09	59.22	355.06	2641.27	2742.27	2733.67	-217.34	2742.30	355.45	0.24	-40.8
	4194.92	59.55	354.73	2655.96	2767.08	2758.38	-219.55	2767.11	355.45	0.45	19.4
29th March 1999	4224.08	59.82	354.84	2670.68	2792.25	2783.45	-221.83	2792.28	355.44	0.29	-1.3
	4250.74	60.21	354.83	2684.00	2815.34	2806.45	-223.91	2815.37	355.44	0.44	

APPENDIX 1b

BLACKBACK A-1ST1

Survey Data

Schlumberger
Anadrill

Survey

Client: Esso Australia Ltd Field: BlackBack Gippsland Offshore Structure: BlackBack Sedco 702 A-1 Well: A-1 Borehole: A1 Sidetrack API #: Date: April 11, 1999 Grid Convergence: -0.96788765° Scale Factor: 0.99982562 Location: S 38 32 31.677, E 148 33 11.274 : N 5732873.400 m, E 635355.100 m Coordinate System: UTM Zone 55 S on Australian Datum 1984	Survey Computation Method: Minimum Curvature DLS Computation Method: Lubinski Vertical Section Azimuth: 355.700° Vertical Section Origin: N 0.000 m, E 0.000 m TVD Reference: Rotary Bushing 26.0 m above MSL Magnetic Declination: 13.385° Total Field Strength: 60295.505 nT Dip: -69.041° Declination Date: April 01, 1999 Magnetic Declination Model: BGS 1998 North Reference: Grid North Coordinate Reference To: Structure Reference Point
--	---

Station ID	MD (m)	Incl (°)	Azim (°)	TVD (m)	VSec (m)	N/S (m)	E/W (m)	Closure (m)	at Azim (°)	DLS (°/30m)	TF (°)
Rotary Table	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	119MTF
	421.00	0.00	118.67	421.00	0.00	0.00	0.00	0.00	0.00	0.00	119MTF
	424.40	0.44	118.67	424.40	-0.01	-0.01	0.01	0.01	118.67	3.88	119MTF
	433.90	0.67	118.67	433.90	-0.06	-0.05	0.09	0.11	118.67	0.73	119MTF
	443.60	1.22	118.67	443.60	-0.14	-0.13	0.23	0.27	118.67	1.70	119MTF
	453.30	1.40	118.67	453.30	-0.26	-0.23	0.43	0.49	118.67	0.56	119MTF
	463.00	1.35	118.67	462.99	-0.39	-0.35	0.63	0.72	118.67	0.15	119MTF
	472.60	1.94	118.67	472.59	-0.54	-0.48	0.87	1.00	118.67	1.84	119MTF
	482.30	1.67	118.67	482.28	-0.71	-0.62	1.14	1.30	118.67	0.84	119MTF
30" Casing	487.00	1.35	118.67	486.98	-0.78	-0.68	1.25	1.42	118.67	2.04	119MTF
	491.10	1.06	118.67	491.08	-0.82	-0.72	1.33	1.51	118.67	2.12	119MTF
	519.90	0.83	118.67	519.88	-1.08	-0.95	1.74	1.99	118.67	0.24	112MTF
	548.90	0.85	112.10	548.87	-1.29	-1.13	2.13	2.41	118.08	0.10	118MTF
	578.00	0.76	117.52	577.97	-1.49	-1.30	2.50	2.82	117.59	0.12	121MTF
	607.00	0.44	120.87	606.97	-1.65	-1.45	2.76	3.12	117.70	0.33	123MTF
	636.10	0.66	122.56	636.07	-1.82	-1.60	3.00	3.40	118.04	0.23	118MTF
TIP	650.00	0.56	118.40	649.97	-1.90	-1.67	3.13	3.55	118.15	0.24	120MTF
9th March 1999	689.12	1.26	120.18	689.08	-2.25	-1.98	3.67	4.17	118.37	0.54	65MTF
	719.19	1.50	65.10	719.15	-2.30	-1.98	4.31	4.74	114.69	1.29	23MTF
	748.79	3.53	23.44	748.72	-1.36	-0.98	5.02	5.12	101.06	2.64	17MTF
	779.88	5.87	17.27	779.70	0.97	1.41	5.88	6.05	76.47	2.31	-34
Sidetrack #1 Tie-In	807.91	6.57	13.29	807.57	3.83	4.34	6.67	7.96	56.93	0.88	-7
12th March 1999	838.21	9.51	11.16	837.56	7.90	8.49	7.55	11.36	41.67	2.93	-10
	865.42	12.94	8.40	864.25	13.04	13.71	8.43	16.10	31.60	3.83	-22
	896.24	16.67	3.22	894.04	20.79	21.54	9.19	23.42	23.10	3.85	-17
	924.88	20.03	0.25	921.22	29.75	30.55	9.44	31.97	17.17	3.65	-8
	951.82	23.17	359.15	946.27	39.65	40.46	9.38	41.54	13.05	3.53	-9
	981.56	25.16	358.42	973.40	51.80	52.64	9.12	53.42	9.83	2.03	9
	1009.78	28.29	359.43	998.60	64.47	65.32	8.89	65.92	7.75	3.36	8
	1038.86	31.04	0.21	1023.87	78.82	79.71	8.85	80.20	6.33	2.86	-10
	1067.13	33.93	359.33	1047.71	93.97	94.89	8.78	95.30	5.29	3.11	-12
	1096.16	36.75	358.31	1071.39	110.73	111.68	8.43	112.00	4.32	2.98	-8
13th March 1999	1127.05	39.69	357.70	1095.66	129.83	130.78	7.76	131.01	3.40	2.88	-30

	1155.88	43.87	354.25	1117.16	149.02	149.93	6.39	150.06	2.44	4.96	-20
	1183.49	47.66	352.36	1136.41	168.78	169.57	4.07	169.62	1.38	4.37	20
	1212.09	51.37	354.08	1154.98	190.51	191.16	1.52	191.17	0.45	4.13	12
	1242.07	54.60	354.94	1173.03	214.44	214.99	-0.77	214.99	359.79	3.30	9
	1271.80	57.80	355.55	1189.56	239.14	239.60	-2.81	239.62	359.33	3.27	6
	1289.16	60.26	355.87	1198.50	254.03	254.45	-3.93	254.48	359.12	4.28	15
17th March 1999	1326.74	60.69	356.00	1217.01	286.72	287.06	-6.25	287.13	358.75	0.35	-4
	1354.99	61.51	355.93	1230.67	311.46	311.74	-7.99	311.84	358.53	0.87	164
	1384.41	61.45	355.95	1244.71	337.31	337.52	-9.82	337.66	358.33	0.06	-104
	1414.39	61.39	355.67	1259.06	363.63	363.78	-11.74	363.97	358.15	0.25	100
	1442.19	61.35	355.92	1272.38	388.03	388.11	-13.53	388.35	358.00	0.24	-163
	1471.63	60.53	355.63	1286.68	413.77	413.78	-15.42	414.06	357.87	0.87	7
	1501.64	60.89	355.68	1301.36	439.94	439.87	-17.41	440.22	357.73	0.36	-125
	1530.17	60.53	355.09	1315.32	464.82	464.68	-19.41	465.08	357.61	0.66	62
	1558.47	60.71	355.47	1329.20	489.48	489.25	-21.44	489.72	357.49	0.40	-148
	1586.27	60.25	355.14	1342.90	513.67	513.36	-23.42	513.90	357.39	0.59	165
	1617.82	60.06	355.20	1358.60	541.04	540.63	-25.72	541.24	357.28	0.19	-5
	1643.74	60.17	355.19	1371.51	563.51	563.02	-27.60	563.70	357.19	0.13	-15
	1674.41	60.53	355.08	1386.69	590.16	589.58	-29.87	590.34	357.10	0.36	134
18th March 1999	1705.36	60.32	355.33	1401.96	617.08	616.41	-32.12	617.24	357.02	0.29	-176
	1732.48	59.91	355.30	1415.47	640.59	639.84	-34.04	640.75	356.96	0.45	-53
	1762.81	60.02	355.13	1430.66	666.85	666.01	-36.23	666.99	356.89	0.18	62
	1791.92	60.22	355.56	1445.16	692.09	691.16	-38.27	692.22	356.83	0.44	117
	1819.51	60.09	355.85	1458.89	716.02	715.03	-40.07	716.15	356.79	0.31	176
	1849.39	59.87	355.87	1473.84	741.89	740.83	-41.93	742.02	356.76	0.22	0
	1880.00	59.87	355.87	1489.20	768.36	767.24	-43.84	768.49	356.73	0.00	128
	1907.89	59.81	355.96	1503.21	792.48	791.29	-45.56	792.60	356.70	0.11	79
	1932.35	59.85	356.20	1515.51	813.62	812.39	-47.00	813.75	356.69	0.26	-36
	1961.76	59.98	356.09	1530.25	839.07	837.78	-48.72	839.19	356.67	0.16	16
	1991.39	60.13	356.14	1545.04	864.75	863.39	-50.46	864.87	356.66	0.16	30
	2021.50	60.36	356.29	1559.98	890.89	889.48	-52.18	891.01	356.64	0.26	47
19th March 1999	2053.78	60.54	356.51	1575.90	918.96	917.50	-53.94	919.09	356.64	0.24	-88
	2082.87	60.56	355.75	1590.21	944.29	942.78	-55.65	944.42	356.62	0.68	65
	2108.94	60.70	356.10	1602.99	967.01	965.44	-57.27	967.13	356.61	0.39	17
	2129.98	60.90	356.17	1613.26	985.38	983.76	-58.51	985.50	356.60	0.30	99
20th March 1999	2137.25	60.89	356.24	1616.79	991.73	990.10	-58.93	991.85	356.59	0.26	-68
	2167.69	61.07	355.73	1631.56	1018.35	1016.65	-60.79	1018.47	356.58	0.47	4
	2195.97	61.32	355.75	1645.19	1043.13	1041.36	-62.63	1043.25	356.56	0.27	-76
	2221.57	61.52	354.87	1657.43	1065.61	1063.77	-64.47	1065.72	356.53	0.94	-49
	2251.47	61.59	354.78	1671.68	1091.90	1089.95	-66.84	1092.00	356.49	0.11	156
21st March 1999	2280.41	61.23	354.96	1685.52	1117.30	1115.26	-69.11	1117.40	356.45	0.41	-40
	2310.84	61.40	354.80	1700.13	1144.00	1141.85	-71.50	1144.09	356.42	0.22	-175
	2341.94	60.86	354.75	1715.15	1171.23	1168.97	-73.98	1171.31	356.38	0.52	168
	2367.51	59.72	355.02	1727.82	1193.43	1191.09	-75.96	1193.51	356.35	1.37	-164
22nd March 1999	2398.31	58.68	354.68	1743.59	1219.89	1217.44	-78.33	1219.96	356.32	1.05	114
	2426.78	58.62	354.84	1758.40	1244.20	1241.65	-80.55	1244.26	356.29	0.16	30
	2455.75	59.57	355.47	1773.28	1269.05	1266.42	-82.65	1269.11	356.27	1.13	-32
	2481.11	59.91	355.22	1786.06	1290.96	1288.25	-84.43	1291.02	356.25	0.48	145
	2511.84	59.71	355.38	1801.51	1317.52	1314.73	-86.60	1317.57	356.23	0.24	124
	2540.56	59.56	355.64	1816.03	1342.30	1339.43	-88.54	1342.35	356.22	0.28	-160
	2569.31	59.42	355.58	1830.63	1367.07	1364.13	-90.44	1367.12	356.21	0.16	158
	2597.51	58.88	355.83	1845.09	1391.28	1388.27	-92.25	1391.33	356.20	0.62	-172
23rd March 1999	2629.14	58.39	355.75	1861.55	1418.29	1415.20	-94.24	1418.34	356.19	0.47	131

	2658.37	58.13	356.10	1876.93	1443.14	1440.00	-96.00	1443.20	356.19	0.41	84
	2687.52	58.15	356.31	1892.32	1467.90	1464.70	-97.64	1467.95	356.19	0.18	-91
	2718.09	58.14	355.76	1908.45	1493.87	1490.61	-99.44	1493.92	356.18	0.46	105
	2743.91	58.00	356.38	1922.10	1515.78	1512.47	-100.94	1515.83	356.18	0.63	-71
	2773.53	58.44	354.90	1937.71	1540.96	1537.57	-102.85	1541.01	356.17	1.35	-24
	2802.50	59.04	354.59	1952.74	1565.72	1562.23	-105.12	1565.77	356.15	0.68	139
	2833.23	58.77	354.86	1968.61	1592.03	1588.44	-107.54	1592.07	356.13	0.35	6
	2858.12	59.17	354.91	1981.44	1613.35	1609.68	-109.44	1613.40	356.11	0.48	-22
	2887.62	59.34	354.83	1996.52	1638.71	1634.93	-111.71	1638.74	356.09	0.19	-38
	2917.72	59.57	354.62	2011.82	1664.62	1660.74	-114.09	1664.66	356.07	0.29	43
	2946.84	59.68	354.74	2026.54	1689.74	1685.76	-116.42	1689.77	356.05	0.16	7
24th March 1999	2975.99	59.88	354.77	2041.21	1714.93	1710.84	-118.72	1714.96	356.03	0.21	78
	3006.75	59.95	355.16	2056.63	1741.54	1737.36	-121.06	1741.57	356.01	0.34	-131
	3035.02	59.77	354.92	2070.83	1765.99	1761.71	-123.17	1766.01	356.00	0.29	52
	3063.76	59.98	355.23	2085.25	1790.84	1786.48	-125.31	1790.87	355.99	0.36	138
	3092.62	59.70	355.52	2099.75	1815.80	1811.35	-127.32	1815.82	355.98	0.39	-81
	3121.60	59.72	355.38	2114.37	1840.82	1836.29	-129.31	1840.84	355.97	0.13	142
	3151.49	59.46	355.62	2129.50	1866.60	1861.99	-131.33	1866.62	355.97	0.33	-90
	3179.29	59.46	355.20	2143.63	1890.54	1885.86	-133.24	1890.56	355.96	0.39	-71
	3207.72	59.93	353.69	2157.97	1915.08	1910.29	-135.62	1915.10	355.94	1.46	151
	3235.57	59.64	353.88	2171.99	1939.13	1934.21	-138.23	1939.15	355.91	0.36	149
25th March 1999	3266.39	59.34	354.09	2187.63	1965.67	1960.62	-141.01	1965.68	355.89	0.34	148
	3296.82	59.00	354.34	2203.23	1991.79	1986.62	-143.64	1991.80	355.86	0.40	75
	3325.72	59.05	354.56	2218.10	2016.57	2011.28	-146.04	2016.57	355.85	0.20	-129
	3354.64	58.78	354.17	2233.04	2041.33	2035.93	-148.47	2041.33	355.83	0.45	118
	3380.91	58.66	354.44	2246.68	2063.77	2058.27	-150.70	2063.78	355.81	0.30	169
26th March 1999	3413.02	57.98	354.59	2263.54	2091.09	2085.47	-153.31	2091.09	355.80	0.65	127
	3423.01	57.87	354.76	2268.84	2099.56	2093.90	-154.10	2099.56	355.79	0.54	2
	3440.37	58.13	354.77	2278.04	2114.28	2108.56	-155.44	2114.28	355.78	0.45	-36
	3469.22	58.53	354.43	2293.19	2138.82	2133.00	-157.75	2138.83	355.77	0.51	-44
	3498.05	58.98	353.92	2308.14	2163.46	2157.52	-160.25	2163.47	355.75	0.65	-11
	3526.68	59.44	353.82	2322.80	2188.05	2181.98	-162.88	2188.05	355.73	0.49	-41
27th March 1999	3557.62	59.86	353.40	2338.43	2214.73	2208.51	-165.85	2214.73	355.71	0.54	-8
	3586.46	60.43	353.31	2352.79	2239.72	2233.35	-168.74	2239.72	355.68	0.60	75
	3614.50	60.59	353.98	2366.59	2264.11	2257.61	-171.45	2264.11	355.66	0.65	-179
Sidetrack #2 TIP	3643.60	59.87	353.97	2381.04	2289.36	2282.73	-174.10	2289.36	355.64	0.74	-31
1st April 1999	3649.14	60.13	353.79	2383.81	2294.15	2287.50	-174.61	2294.16	355.63	1.64	-31
	3672.54	60.63	353.44	2395.38	2314.48	2307.72	-176.87	2314.49	355.62	0.75	96
	3692.54	60.57	354.11	2405.19	2331.90	2325.04	-178.76	2331.90	355.60	0.88	-35
2nd April 1999	3700.54	60.62	354.07	2409.12	2338.86	2331.97	-179.48	2338.87	355.60	0.23	-2
	3719.65	61.09	354.05	2418.43	2355.55	2348.57	-181.21	2355.55	355.59	0.74	171
	3728.96	60.81	354.10	2422.95	2363.68	2356.67	-182.05	2363.69	355.58	0.91	173
3rd April 1999	3756.08	59.63	354.26	2436.42	2387.21	2380.08	-184.43	2387.22	355.57	1.31	-131
	3765.73	59.60	354.22	2441.30	2395.53	2388.37	-185.27	2395.54	355.56	0.14	180
	3768.39	59.56	354.22	2442.65	2397.83	2390.65	-185.50	2397.83	355.56	0.45	-134
4th April 1999	3775.11	59.08	353.63	2446.08	2403.60	2396.40	-186.11	2403.61	355.56	3.12	-172
	3786.27	58.44	353.53	2451.86	2413.14	2405.88	-187.18	2413.15	355.55	1.74	-112
	3799.87	57.94	352.08	2459.03	2424.68	2417.34	-188.62	2424.69	355.54	2.93	-98
	3810.10	57.74	350.23	2464.48	2433.31	2425.90	-189.96	2433.33	355.52	4.63	-89
5th April 1999	3866.55	57.81	347.93	2494.58	2480.74	2472.78	-199.00	2480.78	355.40	1.03	2
	3903.92	58.44	347.96	2514.32	2512.19	2503.82	-205.63	2512.25	355.31	0.51	102
	3934.85	58.21	349.26	2530.56	2538.31	2529.62	-210.83	2538.39	355.24	1.10	107
	3963.27	57.60	351.79	2545.66	2562.28	2553.37	-214.79	2562.39	355.19	2.35	46
	3990.63	57.99	352.27	2560.24	2585.39	2576.29	-218.00	2585.50	355.16	0.62	58

	4020.51	58.37	352.98	2576.00	2610.74	2601.47	-221.26	2610.87	355.14	0.72	-30
	4049.81	58.49	352.90	2591.34	2635.67	2626.25	-224.33	2635.81	355.12	0.14	71
6th April 1999	4078.87	58.58	353.21	2606.51	2660.44	2650.85	-227.33	2660.58	355.10	0.29	109
	4108.46	58.46	353.62	2621.96	2685.65	2675.92	-230.22	2685.81	355.08	0.37	-28
	4134.49	58.73	353.45	2635.52	2707.85	2698.00	-232.72	2708.01	355.07	0.35	34
	4162.49	59.07	353.72	2649.98	2731.81	2721.82	-235.40	2731.98	355.06	0.44	55
	4191.66	59.77	354.86	2664.82	2756.91	2746.81	-237.90	2757.09	355.05	1.24	-59
	4220.96	59.87	354.67	2679.55	2782.24	2772.03	-240.21	2782.42	355.05	0.20	-26
7th April 1999	4250.49	59.96	354.62	2694.36	2807.79	2797.47	-242.59	2807.97	355.04	0.10	-46
	4280.76	60.10	354.45	2709.48	2834.00	2823.58	-245.09	2834.19	355.04	0.20	67
	4310.18	60.63	355.88	2724.03	2859.57	2849.06	-247.25	2859.76	355.04	1.38	-66
	4339.21	60.72	355.65	2738.24	2884.88	2874.30	-249.12	2885.07	355.05	0.23	-30
9th April 1999	4368.56	60.96	355.49	2752.54	2910.51	2899.85	-251.09	2910.70	355.05	0.28	76
	4378.54	61.02	355.77	2757.38	2919.24	2908.55	-251.76	2919.43	355.05	0.76	164
	4407.69	60.87	355.82	2771.54	2944.72	2933.97	-253.63	2944.91	355.06	0.16	175
	4436.98	60.55	355.85	2785.87	2970.27	2959.44	-255.48	2970.45	355.07	0.33	160
10th April 1999	4467.11	60.10	356.04	2800.79	2996.45	2985.56	-257.33	2996.63	355.07	0.48	164
	4495.88	59.62	356.20	2815.23	3021.33	3010.38	-259.02	3021.50	355.08	0.52	161
	4523.91	59.15	356.39	2829.51	3045.45	3034.45	-260.58	3045.62	355.09	0.53	161
	4553.13	58.55	356.63	2844.62	3070.45	3059.41	-262.10	3070.62	355.10	0.65	-167
	4583.31	58.09	356.50	2860.47	3096.13	3085.05	-263.64	3096.29	355.12	0.47	150
	4611.60	57.67	356.79	2875.51	3120.09	3108.97	-265.04	3120.24	355.13	0.52	173
11th April 1999	4641.09	57.14	356.87	2891.40	3144.93	3133.77	-266.41	3145.08	355.14	0.54	-178
	4670.25	56.46	356.84	2907.37	3169.32	3158.14	-267.75	3169.47	355.15	0.70	138
	4678.23	56.34	356.97	2911.78	3175.97	3164.77	-268.11	3176.11	355.16	0.61	174
Projection To TD	4695.00	56.10	357.00	2921.11	3189.90	3178.69	-268.85	3190.04	355.17	0.43	

APPENDIX 1c

BLACKBACK A-1

MD-TVD Survey Data Listing

BLACKBACK A-1 MD-TVD Survey Data Listing

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
0	0.0	0.00	0.00	-26.00	0.00	0.00	5732873.3	635354.9
5	0.00	1.41	5.00	-21.00	0.00	0.00	5732873.3	635354.9
10	0.00	2.82	10.00	-16.00	0.00	0.00	5732873.3	635354.9
15	0.00	4.23	15.00	-11.00	0.00	0.00	5732873.3	635354.9
20	0.00	5.64	20.00	-6.00	0.00	0.00	5732873.3	635354.9
25	0.00	7.05	25.00	-1.00	0.00	0.00	5732873.3	635354.9
30	0.00	8.46	30.00	4.00	0.00	0.00	5732873.3	635354.9
35	0.00	9.87	35.00	9.00	0.00	0.00	5732873.3	635354.9
40	0.00	11.28	40.00	14.00	0.00	0.00	5732873.3	635354.9
45	0.00	12.68	45.00	19.00	0.00	0.00	5732873.3	635354.9
50	0.00	14.09	50.00	24.00	0.00	0.00	5732873.3	635354.9
55	0.00	15.50	55.00	29.00	0.00	0.00	5732873.3	635354.9
60	0.00	16.91	60.00	34.00	0.00	0.00	5732873.3	635354.9
65	0.00	18.32	65.00	39.00	0.00	0.00	5732873.3	635354.9
70	0.00	19.73	70.00	44.00	0.00	0.00	5732873.3	635354.9
75	0.00	21.14	75.00	49.00	0.00	0.00	5732873.3	635354.9
80	0.00	22.55	80.00	54.00	0.00	0.00	5732873.3	635354.9
85	0.00	23.96	85.00	59.00	0.00	0.00	5732873.3	635354.9
90	0.00	25.37	90.00	64.00	0.00	0.00	5732873.3	635354.9
95	0.00	26.78	95.00	69.00	0.00	0.00	5732873.3	635354.9
100	0.00	28.19	100.00	74.00	0.00	0.00	5732873.3	635354.9
105	0.00	29.60	105.00	79.00	0.00	0.00	5732873.3	635354.9
110	0.00	31.01	110.00	84.00	0.00	0.00	5732873.3	635354.9
115	0.00	32.42	115.00	89.00	0.00	0.00	5732873.3	635354.9
120	0.00	33.83	120.00	94.00	0.00	0.00	5732873.3	635354.9
125	0.00	35.23	125.00	99.00	0.00	0.00	5732873.3	635354.9
130	0.00	36.64	130.00	104.00	0.00	0.00	5732873.3	635354.9
135	0.00	38.05	135.00	109.00	0.00	0.00	5732873.3	635354.9
140	0.00	39.46	140.00	114.00	0.00	0.00	5732873.3	635354.9
145	0.00	40.87	145.00	119.00	0.00	0.00	5732873.3	635354.9
150	0.00	42.28	150.00	124.00	0.00	0.00	5732873.3	635354.9
155	0.00	43.69	155.00	129.00	0.00	0.00	5732873.3	635354.9
160	0.00	45.10	160.00	134.00	0.00	0.00	5732873.3	635354.9
165	0.00	46.51	165.00	139.00	0.00	0.00	5732873.3	635354.9
170	0.00	47.92	170.00	144.00	0.00	0.00	5732873.3	635354.9
175	0.00	49.33	175.00	149.00	0.00	0.00	5732873.3	635354.9
180	0.00	50.74	180.00	154.00	0.00	0.00	5732873.3	635354.9
185	0.00	52.15	185.00	159.00	0.00	0.00	5732873.3	635354.9
190	0.00	53.56	190.00	164.00	0.00	0.00	5732873.3	635354.9
195	0.00	54.97	195.00	169.00	0.00	0.00	5732873.3	635354.9
200	0.00	56.38	200.00	174.00	0.00	0.00	5732873.3	635354.9
205	0.00	57.78	205.00	179.00	0.00	0.00	5732873.3	635354.9
210	0.00	59.19	210.00	184.00	0.00	0.00	5732873.3	635354.9
215	0.00	60.60	215.00	189.00	0.00	0.00	5732873.3	635354.9
220	0.00	62.01	220.00	194.00	0.00	0.00	5732873.3	635354.9
225	0.00	63.42	225.00	199.00	0.00	0.00	5732873.3	635354.9
230	0.00	64.83	230.00	204.00	0.00	0.00	5732873.3	635354.9
235	0.00	66.24	235.00	209.00	0.00	0.00	5732873.3	635354.9
240	0.00	67.65	240.00	214.00	0.00	0.00	5732873.3	635354.9
245	0.00	69.06	245.00	219.00	0.00	0.00	5732873.3	635354.9
250	0.00	70.47	250.00	224.00	0.00	0.00	5732873.3	635354.9
255	0.00	71.88	255.00	229.00	0.00	0.00	5732873.3	635354.9
260	0.00	73.29	260.00	234.00	0.00	0.00	5732873.3	635354.9
265	0.00	74.70	265.00	239.00	0.00	0.00	5732873.3	635354.9
270	0.00	76.11	270.00	244.00	0.00	0.00	5732873.3	635354.9
275	0.00	77.52	275.00	249.00	0.00	0.00	5732873.3	635354.9
280	0.00	78.93	280.00	254.00	0.00	0.00	5732873.3	635354.9
285	0.00	80.33	285.00	259.00	0.00	0.00	5732873.3	635354.9
290	0.00	81.74	290.00	264.00	0.00	0.00	5732873.3	635354.9
295	0.00	83.15	295.00	269.00	0.00	0.00	5732873.3	635354.9
300	0.00	84.56	300.00	274.00	0.00	0.00	5732873.3	635354.9
305	0.00	85.97	305.00	279.00	0.00	0.00	5732873.3	635354.9
310	0.00	87.38	310.00	284.00	0.00	0.00	5732873.3	635354.9
315	0.00	88.79	315.00	289.00	0.00	0.00	5732873.3	635354.9
320	0.00	90.20	320.00	294.00	0.00	0.00	5732873.3	635354.9
325	0.00	91.61	325.00	299.00	0.00	0.00	5732873.3	635354.9
330	0.00	93.02	330.00	304.00	0.00	0.00	5732873.3	635354.9
335	0.00	94.43	335.00	309.00	0.00	0.00	5732873.3	635354.9

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
340	0.00	95.84	340.00	314.00	0.00	0.00	5732873.3	635354.9
345	0.00	97.25	345.00	319.00	0.00	0.00	5732873.3	635354.9
350	0.00	98.66	350.00	324.00	0.00	0.00	5732873.3	635354.9
355	0.00	100.07	355.00	329.00	0.00	0.00	5732873.3	635354.9
360	0.00	101.48	360.00	334.00	0.00	0.00	5732873.3	635354.9
365	0.00	102.88	365.00	339.00	0.00	0.00	5732873.3	635354.9
370	0.00	104.29	370.00	344.00	0.00	0.00	5732873.3	635354.9
375	0.00	105.70	375.00	349.00	0.00	0.00	5732873.3	635354.9
380	0.00	107.11	380.00	354.00	0.00	0.00	5732873.3	635354.9
385	0.00	108.52	385.00	359.00	0.00	0.00	5732873.3	635354.9
390	0.00	109.93	390.00	364.00	0.00	0.00	5732873.3	635354.9
395	0.00	111.34	395.00	369.00	0.00	0.00	5732873.3	635354.9
400	0.00	112.75	400.00	374.00	0.00	0.00	5732873.3	635354.9
405	0.00	114.16	405.00	379.00	0.00	0.00	5732873.3	635354.9
410	0.00	115.57	410.00	384.00	0.00	0.00	5732873.3	635354.9
415	0.00	116.98	415.00	389.00	0.00	0.00	5732873.3	635354.9
420	0.00	118.39	420.00	394.00	0.00	0.00	5732873.3	635354.9
425	0.45	118.67	425.00	399.00	-0.01	0.02	5732873.3	635355.0
430	0.58	118.67	430.00	404.00	-0.03	0.06	5732873.3	635355.0
435	0.73	118.67	435.00	409.00	-0.06	0.10	5732873.3	635355.1
440	1.02	118.67	440.00	414.00	-0.09	0.17	5732873.2	635355.1
445	1.25	118.67	445.00	419.00	-0.14	0.26	5732873.2	635355.2
450	1.34	118.67	450.00	424.00	-0.20	0.36	5732873.1	635355.3
455	1.39	118.67	455.00	429.00	-0.25	0.46	5732873.1	635355.4
460	1.37	118.67	459.99	433.99	-0.31	0.57	5732873.0	635355.5
465	1.47	118.67	464.99	438.99	-0.37	0.67	5732873.0	635355.6
470	1.78	118.67	469.99	443.99	-0.44	0.80	5732872.9	635355.7
475	1.87	118.67	474.99	448.99	-0.52	0.94	5732872.8	635355.9
480	1.73	118.67	479.99	453.99	-0.59	1.08	5732872.7	635356.0
485	1.49	118.67	484.98	458.98	-0.66	1.21	5732872.7	635356.2
490	1.14	118.67	489.98	463.98	-0.71	1.31	5732872.6	635356.3
495	1.03	118.67	494.98	468.98	-0.76	1.39	5732872.6	635356.3
500	0.99	118.67	499.98	473.98	-0.80	1.47	5732872.5	635356.4
505	0.95	118.67	504.98	478.98	-0.84	1.54	5732872.5	635356.5
510	0.91	118.67	509.98	483.98	-0.88	1.61	5732872.5	635356.6
515	0.87	118.67	514.98	488.98	-0.92	1.68	5732872.4	635356.6
520	0.83	118.65	519.98	493.98	-0.95	1.74	5732872.4	635356.7
525	0.83	117.51	524.98	498.98	-0.99	1.81	5732872.4	635356.8
530	0.84	116.38	529.98	503.98	-1.02	1.87	5732872.3	635356.8
535	0.84	115.25	534.98	508.98	-1.05	1.94	5732872.3	635356.9
540	0.84	114.12	539.98	513.98	-1.08	2.01	5732872.3	635357.0
545	0.85	112.98	544.97	518.97	-1.11	2.07	5732872.2	635357.0
550	0.85	112.30	549.97	523.97	-1.14	2.14	5732872.2	635357.1
555	0.83	113.24	554.97	528.97	-1.17	2.21	5732872.2	635357.2
560	0.82	114.17	559.97	533.97	-1.20	2.27	5732872.1	635357.2
565	0.80	115.10	564.97	538.97	-1.23	2.34	5732872.1	635357.3
570	0.78	116.03	569.97	543.97	-1.26	2.40	5732872.1	635357.3
575	0.77	116.96	574.97	548.97	-1.29	2.46	5732872.1	635357.4
580	0.74	117.75	579.97	553.97	-1.32	2.52	5732872.0	635357.5
585	0.68	118.33	584.97	558.97	-1.35	2.57	5732872.0	635357.5
590	0.63	118.91	589.97	563.97	-1.37	2.63	5732872.0	635357.6
595	0.57	119.48	594.97	568.97	-1.40	2.67	5732871.9	635357.6
600	0.52	120.06	599.97	573.97	-1.42	2.71	5732871.9	635357.7
605	0.46	120.64	604.97	578.97	-1.44	2.75	5732871.9	635357.7
610	0.46	121.04	609.97	583.97	-1.46	2.78	5732871.9	635357.7
615	0.50	121.33	614.97	588.97	-1.48	2.82	5732871.9	635357.8
620	0.54	121.62	619.97	593.97	-1.51	2.86	5732871.8	635357.8
625	0.58	121.92	624.97	598.97	-1.53	2.90	5732871.8	635357.8
630	0.61	122.21	629.97	603.97	-1.56	2.94	5732871.8	635357.9
635	0.65	122.50	634.97	608.97	-1.59	2.99	5732871.7	635357.9
640	0.63	121.39	639.97	613.97	-1.62	3.04	5732871.7	635358.0
645	0.60	119.90	644.97	618.97	-1.65	3.08	5732871.7	635358.0
650	0.56	118.40	649.97	623.97	-1.67	3.13	5732871.7	635358.1
655	0.65	118.63	654.97	628.97	-1.70	3.17	5732871.6	635358.1
660	0.74	118.86	659.97	633.97	-1.73	3.23	5732871.6	635358.2
665	0.83	119.08	664.97	638.97	-1.76	3.29	5732871.6	635358.2
670	0.92	119.31	669.97	643.97	-1.80	3.35	5732871.5	635358.3
675	1.01	119.54	674.97	648.97	-1.84	3.43	5732871.5	635358.4
680	1.10	119.77	679.96	653.96	-1.89	3.51	5732871.5	635358.5
685	1.19	119.99	684.96	658.96	-1.94	3.59	5732871.4	635358.5
690	1.27	118.57	689.96	663.96	-1.99	3.68	5732871.4	635358.6

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
695	1.31	109.41	694.96	668.96	-2.04	3.79	5732871.3	635358.7
700	1.35	100.25	699.96	673.96	-2.06	3.90	5732871.3	635358.8
705	1.39	91.09	704.96	678.96	-2.07	4.01	5732871.3	635359.0
710	1.43	81.93	709.96	683.96	-2.06	4.12	5732871.3	635359.1
715	1.47	72.77	714.96	688.96	-2.03	4.23	5732871.3	635359.2
720	1.56	63.96	719.95	693.95	-1.97	4.33	5732871.4	635359.3
725	1.90	56.92	724.95	698.95	-1.90	4.46	5732871.4	635359.4
730	2.24	49.89	729.95	703.95	-1.79	4.60	5732871.6	635359.5
735	2.58	42.85	734.95	708.95	-1.63	4.74	5732871.7	635359.7
740	2.93	35.81	739.94	713.94	-1.44	4.87	5732871.9	635359.8
745	3.27	28.77	744.93	718.93	-1.19	4.97	5732872.1	635359.9
750	3.62	23.20	749.92	723.92	-0.91	5.05	5732872.4	635360.0
755	4.00	22.21	754.91	728.91	-0.61	5.18	5732872.7	635360.1
760	4.37	21.22	759.90	733.90	-0.27	5.32	5732873.1	635360.3
765	4.75	20.22	764.88	738.88	0.11	5.45	5732873.4	635360.4
770	5.13	19.23	769.87	743.87	0.51	5.60	5732873.9	635360.5
775	5.50	18.24	774.84	748.84	0.95	5.74	5732874.3	635360.7
780	5.87	17.25	779.82	753.82	1.43	5.88	5732874.8	635360.8
785	6.00	16.54	784.79	758.79	1.92	6.03	5732875.3	635361.0
790	6.12	15.83	789.77	763.77	2.43	6.18	5732875.8	635361.1
795	6.25	15.12	794.74	768.74	2.95	6.32	5732876.3	635361.3
800	6.37	14.41	799.71	773.71	3.48	6.46	5732876.8	635361.4
805	6.50	13.70	804.67	778.67	4.02	6.60	5732877.4	635361.5
810	6.77	13.14	809.64	783.64	4.58	6.73	5732877.9	635361.7
815	7.26	12.79	814.60	788.60	5.18	6.86	5732878.5	635361.8
820	7.74	12.44	819.56	793.56	5.81	7.01	5732879.2	635362.0
825	8.23	12.09	824.51	798.51	6.49	7.15	5732879.8	635362.1
830	8.71	11.74	829.46	803.46	7.21	7.30	5732880.6	635362.2
835	9.20	11.39	834.40	808.40	7.98	7.46	5732881.3	635362.4
840	9.74	10.98	839.33	813.33	8.78	7.61	5732882.1	635362.6
845	10.37	10.47	844.25	818.25	9.64	7.77	5732883.0	635362.7
850	11.00	9.96	849.17	823.17	10.55	7.94	5732883.9	635362.9
855	11.63	9.46	854.07	828.07	11.52	8.10	5732884.9	635363.0
860	12.26	8.95	858.96	832.96	12.54	8.26	5732885.9	635363.2
865	12.89	8.44	863.84	837.84	13.62	8.42	5732887.0	635363.4
870	13.49	7.63	868.71	842.71	14.75	8.58	5732888.1	635363.5
875	14.10	6.79	873.56	847.56	15.93	8.73	5732889.3	635363.7
880	14.70	5.95	878.41	852.41	17.16	8.87	5732890.5	635363.8
885	15.31	5.11	883.24	857.24	18.45	8.99	5732891.8	635363.9
890	15.91	4.27	888.05	862.05	19.79	9.09	5732893.1	635364.0
895	16.52	3.43	892.85	866.85	21.19	9.17	5732894.5	635364.1
900	17.11	2.83	897.64	871.64	22.63	9.25	5732896.0	635364.2
905	17.70	2.31	902.41	876.41	24.12	9.31	5732897.5	635364.3
910	18.28	1.79	907.17	881.17	25.67	9.37	5732899.0	635364.3
915	18.87	1.27	911.91	885.91	27.26	9.41	5732900.6	635364.4
920	19.46	0.76	916.63	890.63	28.90	9.43	5732902.2	635364.4
925	20.04	1.85	921.34	895.34	30.59	9.44	5732903.9	635364.4
930	20.63	68.46	926.09	900.09	31.77	10.29	5732905.1	635365.2
935	21.21	135.07	931.06	905.06	31.00	10.79	5732904.3	635365.7
940	21.79	201.68	935.98	909.98	30.53	8.37	5732903.9	635363.3
945	22.38	268.29	940.42	914.42	33.96	5.54	5732907.3	635360.5
950	22.96	334.90	944.64	918.64	39.31	7.38	5732912.6	635362.3
955	23.38	359.07	949.19	923.19	41.72	9.36	5732915.1	635364.3
960	23.72	358.95	953.77	927.77	43.72	9.33	5732917.1	635364.3
965	24.05	358.83	958.35	932.35	45.74	9.29	5732919.1	635364.2
970	24.39	358.70	962.91	936.91	47.79	9.24	5732921.1	635364.2
975	24.72	358.58	967.45	941.45	49.87	9.19	5732923.2	635364.1
980	25.06	358.46	971.99	945.99	51.97	9.14	5732925.3	635364.1
985	25.54	358.54	976.51	950.51	54.11	9.08	5732927.4	635364.0
990	26.10	358.72	981.01	955.01	56.28	9.03	5732929.6	635364.0
995	26.65	358.90	985.49	959.49	58.50	8.98	5732931.8	635363.9
1000	27.21	359.08	989.95	963.95	60.77	8.94	5732934.1	635363.9
1005	27.76	359.26	994.38	968.38	63.08	8.91	5732936.4	635363.9
1010	28.31	356.71	998.80	972.80	65.42	8.88	5732938.8	635363.8
1015	28.78	294.95	1003.29	977.29	67.13	7.71	5732940.5	635362.7
1020	29.26	233.18	1008.20	982.20	66.31	6.72	5732939.7	635361.7
1025	29.73	171.42	1013.17	987.17	65.18	9.47	5732938.5	635364.4
1030	30.20	109.65	1017.32	991.32	68.59	13.92	5732941.9	635368.9
1035	30.67	47.89	1020.86	994.86	75.76	13.67	5732949.1	635368.6
1040	31.16	14.69	1024.85	998.85	80.29	8.92	5732953.6	635363.9
1045	31.67	78.21	1029.32	1003.32	81.70	10.49	5732955.0	635365.4

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
1050	32.18	141.73	1034.31	1008.31	80.31	10.88	5732953.7	635365.8
1055	32.69	205.24	1039.09	1013.09	79.95	6.80	5732953.3	635361.7
1060	33.20	268.76	1042.74	1016.74	85.32	2.77	5732958.7	635357.7
1065	33.71	332.27	1046.07	1020.07	92.95	5.48	5732966.3	635360.4
1070	34.21	359.23	1050.09	1024.09	96.50	8.76	5732969.8	635363.7
1075	34.69	359.05	1054.21	1028.21	99.33	8.72	5732972.7	635363.7
1080	35.18	358.88	1058.31	1032.31	102.19	8.67	5732975.5	635363.6
1085	35.67	358.70	1062.39	1036.39	105.09	8.61	5732978.4	635363.6
1090	36.15	358.53	1066.44	1040.44	108.02	8.53	5732981.4	635363.5
1095	36.64	358.35	1070.46	1044.46	110.99	8.45	5732984.3	635363.4
1100	37.12	358.23	1074.46	1048.46	113.98	8.36	5732987.3	635363.3
1105	37.59	358.14	1078.44	1052.44	117.02	8.26	5732990.4	635363.2
1110	38.07	358.04	1082.39	1056.39	120.08	8.16	5732993.4	635363.1
1115	38.54	357.94	1086.31	1060.31	123.18	8.05	5732996.5	635363.0
1120	39.02	357.84	1090.21	1064.21	126.31	7.94	5732999.6	635362.9
1125	39.49	357.74	1094.08	1068.08	129.47	7.81	5733002.8	635362.8
1130	40.12	357.35	1097.92	1071.92	132.67	7.68	5733006.0	635362.6
1135	40.84	356.75	1101.72	1075.72	135.91	7.51	5733009.2	635362.5
1140	41.57	356.15	1105.49	1079.49	139.19	7.31	5733012.5	635362.3
1145	42.29	355.55	1109.21	1083.21	142.53	7.06	5733015.9	635362.0
1150	43.02	354.95	1112.88	1086.88	145.90	6.78	5733019.2	635361.7
1155	43.74	354.36	1116.52	1090.52	149.32	6.45	5733022.7	635361.4
1160	44.44	353.97	1120.11	1094.11	152.78	6.10	5733026.1	635361.0
1165	45.12	353.63	1123.66	1097.66	156.28	5.72	5733029.6	635360.7
1170	45.81	353.28	1127.17	1101.17	159.82	5.31	5733033.2	635360.3
1175	46.49	352.94	1130.63	1104.63	163.40	4.87	5733036.7	635359.8
1180	47.18	352.60	1134.05	1108.05	167.02	4.41	5733040.4	635359.4
1185	47.86	352.45	1137.43	1111.43	170.67	3.93	5733044.0	635358.9
1190	48.50	352.75	1140.76	1114.76	174.37	3.45	5733047.7	635358.4
1195	49.15	353.05	1144.05	1118.05	178.10	2.98	5733051.4	635357.9
1200	49.80	353.35	1147.30	1121.30	181.88	2.53	5733055.2	635357.5
1205	50.45	353.65	1150.51	1124.51	185.69	2.10	5733059.0	635357.0
1210	51.10	353.95	1153.67	1127.67	189.54	1.69	5733062.9	635356.6
1215	51.68	354.16	1156.79	1130.79	193.43	1.28	5733066.8	635356.2
1220	52.22	354.31	1159.87	1133.87	197.35	0.89	5733070.7	635355.8
1225	52.76	354.45	1162.92	1136.92	201.29	0.50	5733074.6	635355.4
1230	53.30	354.59	1165.92	1139.92	205.27	0.12	5733078.6	635355.1
1235	53.84	354.74	1168.89	1142.89	209.27	-0.26	5733082.6	635354.7
1240	54.38	354.88	1171.82	1145.82	213.31	-0.62	5733086.6	635354.3
1245	54.92	355.00	1174.72	1148.72	217.37	-0.98	5733090.7	635354.0
1250	55.45	355.10	1177.57	1151.57	221.46	-1.33	5733094.8	635353.6
1255	55.99	355.21	1180.39	1154.39	225.58	-1.68	5733098.9	635353.3
1260	56.53	355.31	1183.16	1157.16	229.72	-2.03	5733103.1	635352.9
1265	57.07	355.41	1185.90	1159.90	233.89	-2.36	5733107.2	635352.6
1270	57.61	355.51	1188.60	1162.60	238.09	-2.70	5733111.4	635352.3
1275	58.25	355.61	1191.26	1165.26	242.31	-3.02	5733115.7	635351.9
1280	58.96	355.70	1193.86	1167.86	246.57	-3.35	5733119.9	635351.6
1285	59.67	355.79	1196.41	1170.41	250.85	-3.67	5733124.2	635351.3
1290	60.27	355.87	1198.91	1172.91	255.17	-3.98	5733128.5	635351.0
1295	60.33	355.89	1201.39	1175.39	259.51	-4.29	5733132.8	635350.7
1300	60.38	355.91	1203.86	1177.86	263.84	-4.60	5733137.2	635350.3
1305	60.44	355.92	1206.33	1180.33	268.18	-4.91	5733141.5	635350.0
1310	60.50	355.94	1208.80	1182.80	272.52	-5.22	5733145.9	635349.7
1315	60.56	355.96	1211.26	1185.26	276.86	-5.53	5733150.2	635349.4
1320	60.61	355.98	1213.71	1187.71	281.20	-5.83	5733154.5	635349.1
1325	60.67	355.99	1216.16	1190.16	285.55	-6.14	5733158.9	635348.8
1330	60.78	355.99	1218.61	1192.61	289.90	-6.44	5733163.2	635348.5
1335	60.93	355.98	1221.04	1195.04	294.26	-6.75	5733167.6	635348.2
1340	61.07	355.97	1223.47	1197.47	298.62	-7.06	5733172.0	635347.9
1345	61.22	355.95	1225.88	1199.88	302.99	-7.37	5733176.3	635347.6
1350	61.37	355.94	1228.28	1202.28	307.36	-7.68	5733180.7	635347.3
1355	61.51	355.93	1230.67	1204.67	311.74	-7.99	5733185.1	635347.0
1360	61.50	355.93	1233.06	1207.06	316.13	-8.30	5733189.5	635346.6
1365	61.49	355.94	1235.44	1209.44	320.51	-8.61	5733193.8	635346.3
1370	61.48	355.94	1237.83	1211.83	324.89	-8.92	5733198.2	635346.0
1375	61.47	355.94	1240.22	1214.22	329.27	-9.23	5733202.6	635345.7
1380	61.46	355.95	1242.61	1216.61	333.66	-9.54	5733207.0	635345.4
1385	61.45	355.94	1245.00	1219.00	338.04	-9.85	5733211.4	635345.1
1390	61.44	355.90	1247.39	1221.39	342.42	-10.17	5733215.8	635344.8
1395	61.43	355.85	1249.78	1223.78	346.80	-10.48	5733220.1	635344.5
1400	61.42	355.80	1252.17	1226.17	351.18	-10.80	5733224.5	635344.1

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
1405	61.41	355.76	1254.56	1228.56	355.55	-11.12	5733228.9	635343.8
1410	61.40	355.71	1256.95	1230.95	359.93	-11.45	5733233.3	635343.5
1415	61.39	355.68	1259.35	1233.35	364.31	-11.78	5733237.7	635343.2
1420	61.38	355.72	1261.74	1235.74	368.69	-12.11	5733242.0	635342.8
1425	61.37	355.77	1264.14	1238.14	373.06	-12.44	5733246.4	635342.5
1430	61.37	355.81	1266.53	1240.53	377.44	-12.76	5733250.8	635342.2
1435	61.36	355.86	1268.93	1242.93	381.82	-13.08	5733255.2	635341.9
1440	61.35	355.90	1271.33	1245.33	386.19	-13.39	5733259.5	635341.6
1445	61.27	355.89	1273.73	1247.73	390.57	-13.70	5733263.9	635341.2
1450	61.13	355.84	1276.13	1250.13	394.94	-14.02	5733268.3	635340.9
1455	60.99	355.79	1278.55	1252.55	399.30	-14.34	5733272.6	635340.6
1460	60.85	355.74	1280.98	1254.98	403.66	-14.66	5733277.0	635340.3
1465	60.71	355.70	1283.42	1257.42	408.01	-14.99	5733281.4	635340.0
1470	60.58	355.65	1285.88	1259.88	412.36	-15.32	5733285.7	635339.6
1475	60.57	355.64	1288.33	1262.33	416.70	-15.65	5733290.0	635339.3
1480	60.63	355.64	1290.79	1264.79	421.04	-15.98	5733294.4	635339.0
1485	60.69	355.65	1293.24	1267.24	425.39	-16.31	5733298.7	635338.6
1490	60.75	355.66	1295.68	1269.68	429.74	-16.64	5733303.1	635338.3
1495	60.81	355.67	1298.12	1272.12	434.09	-16.97	5733307.4	635338.0
1500	60.87	355.68	1300.56	1274.56	438.44	-17.30	5733311.8	635337.6
1505	60.85	355.61	1302.99	1276.99	442.80	-17.63	5733316.1	635337.3
1510	60.78	355.51	1305.43	1279.43	447.15	-17.97	5733320.5	635337.0
1515	60.72	355.40	1307.88	1281.88	451.50	-18.31	5733324.8	635336.6
1520	60.66	355.30	1310.32	1284.32	455.85	-18.67	5733329.2	635336.3
1525	60.60	355.20	1312.78	1286.78	460.19	-19.03	5733333.5	635335.9
1530	60.53	355.09	1315.23	1289.23	464.53	-19.40	5733337.9	635335.6
1535	60.56	355.15	1317.69	1291.69	468.86	-19.77	5733342.2	635335.2
1540	60.59	355.22	1320.15	1294.15	473.20	-20.13	5733346.5	635334.8
1545	60.62	355.29	1322.60	1296.60	477.55	-20.49	5733350.9	635334.5
1550	60.66	355.36	1325.05	1299.05	481.89	-20.85	5733355.2	635334.1
1555	60.69	355.42	1327.50	1301.50	486.23	-21.20	5733359.6	635333.7
1560	60.68	355.45	1329.95	1303.95	490.58	-21.54	5733363.9	635333.4
1565	60.60	355.39	1332.40	1306.40	494.93	-21.89	5733368.3	635333.1
1570	60.52	355.33	1334.86	1308.86	499.27	-22.24	5733372.6	635332.7
1575	60.44	355.27	1337.32	1311.32	503.60	-22.60	5733376.9	635332.3
1580	60.35	355.21	1339.79	1313.79	507.93	-22.96	5733381.3	635332.0
1585	60.27	355.16	1342.27	1316.27	512.26	-23.33	5733385.6	635331.6
1590	60.23	355.15	1344.75	1318.75	516.59	-23.69	5733389.9	635331.3
1595	60.20	355.16	1347.23	1321.23	520.91	-24.06	5733394.3	635330.9
1600	60.17	355.17	1349.72	1323.72	525.23	-24.43	5733398.6	635330.5
1605	60.14	355.18	1352.21	1326.21	529.56	-24.79	5733402.9	635330.2
1610	60.11	355.19	1354.70	1328.70	533.88	-25.15	5733407.2	635329.8
1615	60.08	355.19	1357.19	1331.19	538.19	-25.52	5733411.5	635329.4
1620	60.07	355.20	1359.69	1333.69	542.51	-25.88	5733415.9	635329.1
1625	60.09	355.20	1362.18	1336.18	546.83	-26.24	5733420.2	635328.7
1630	60.11	355.20	1364.67	1338.67	551.15	-26.61	5733424.5	635328.3
1635	60.13	355.19	1367.16	1341.16	555.47	-26.97	5733428.8	635328.0
1640	60.15	355.19	1369.65	1343.65	559.79	-27.33	5733433.1	635327.6
1645	60.18	355.19	1372.14	1346.14	564.11	-27.70	5733437.5	635327.3
1650	60.24	355.17	1374.62	1348.62	568.44	-28.06	5733441.8	635326.9
1655	60.30	355.15	1377.10	1351.10	572.76	-28.43	5733446.1	635326.5
1660	60.36	355.13	1379.58	1353.58	577.09	-28.80	5733450.4	635326.2
1665	60.42	355.11	1382.05	1356.05	581.42	-29.17	5733454.8	635325.8
1670	60.48	355.10	1384.52	1358.52	585.76	-29.54	5733459.1	635325.4
1675	60.53	355.08	1386.98	1360.98	590.09	-29.91	5733463.4	635325.0
1680	60.49	355.13	1389.44	1363.44	594.43	-30.28	5733467.8	635324.7
1685	60.46	355.17	1391.90	1365.90	598.76	-30.65	5733472.1	635324.3
1690	60.42	355.21	1394.37	1368.37	603.10	-31.01	5733476.4	635323.9
1695	60.39	355.25	1396.84	1370.84	607.43	-31.38	5733480.8	635323.6
1700	60.36	355.29	1399.31	1373.31	611.76	-31.73	5733485.1	635323.2
1705	60.32	355.33	1401.78	1375.78	616.09	-32.09	5733489.4	635322.9
1710	60.25	355.32	1404.26	1378.26	620.42	-32.44	5733493.8	635322.5
1715	60.17	355.32	1406.75	1380.75	624.75	-32.80	5733498.1	635322.1
1720	60.10	355.31	1409.24	1383.24	629.07	-33.15	5733502.4	635321.8
1725	60.02	355.31	1411.73	1385.73	633.39	-33.51	5733506.7	635321.4
1730	59.95	355.30	1414.23	1388.23	637.70	-33.86	5733511.0	635321.1
1735	59.92	355.29	1416.74	1390.74	642.01	-34.22	5733515.4	635320.7
1740	59.94	355.26	1419.24	1393.24	646.33	-34.57	5733519.7	635320.4
1745	59.96	355.23	1421.75	1395.75	650.64	-34.93	5733524.0	635320.0
1750	59.97	355.20	1424.25	1398.25	654.95	-35.29	5733528.3	635319.7
1755	59.99	355.17	1426.75	1400.75	659.27	-35.65	5733532.6	635319.3

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
1760	60.01	355.15	1429.25	1403.25	663.58	-36.02	5733536.9	635318.9
1765	60.04	355.16	1431.75	1405.75	667.90	-36.39	5733541.2	635318.6
1770	60.07	355.24	1434.25	1408.25	672.21	-36.75	5733545.6	635318.2
1775	60.10	355.31	1436.74	1410.74	676.53	-37.11	5733549.9	635317.8
1780	60.14	355.38	1439.23	1413.23	680.85	-37.46	5733554.2	635317.5
1785	60.17	355.46	1441.72	1415.72	685.18	-37.80	5733558.5	635317.1
1790	60.21	355.53	1444.20	1418.20	689.50	-38.15	5733562.8	635316.8
1795	60.21	355.59	1446.69	1420.69	693.83	-38.48	5733567.2	635316.5
1800	60.18	355.64	1449.17	1423.17	698.15	-38.81	5733571.5	635316.1
1805	60.16	355.70	1451.66	1425.66	702.48	-39.14	5733575.8	635315.8
1810	60.13	355.75	1454.15	1428.15	706.80	-39.46	5733580.1	635315.5
1815	60.11	355.80	1456.64	1430.64	711.13	-39.78	5733584.5	635315.2
1820	60.09	355.85	1459.13	1433.13	715.45	-40.10	5733588.8	635314.8
1825	60.05	355.85	1461.63	1435.63	719.77	-40.41	5733593.1	635314.5
1830	60.01	355.86	1464.13	1438.13	724.09	-40.72	5733597.4	635314.2
1835	59.98	355.86	1466.63	1440.63	728.41	-41.04	5733601.8	635313.9
1840	59.94	355.86	1469.13	1443.13	732.73	-41.35	5733606.1	635313.6
1845	59.90	355.87	1471.64	1445.64	737.04	-41.66	5733610.4	635313.3
1850	59.87	355.87	1474.14	1448.14	741.36	-41.97	5733614.7	635313.0
1855	59.87	355.87	1476.65	1450.65	745.67	-42.28	5733619.0	635312.7
1860	59.87	355.87	1479.16	1453.16	749.98	-42.60	5733623.3	635312.4
1865	59.87	355.87	1481.67	1455.67	754.30	-42.91	5733627.6	635312.0
1870	59.87	355.87	1484.18	1458.18	758.61	-43.22	5733632.0	635311.7
1875	59.87	355.87	1486.69	1460.69	762.92	-43.53	5733636.3	635311.4
1880	59.87	355.87	1489.20	1463.20	767.24	-43.84	5733640.6	635311.1
1885	59.86	355.89	1491.71	1465.71	771.55	-44.15	5733644.9	635310.8
1890	59.85	355.90	1494.22	1468.22	775.86	-44.46	5733649.2	635310.5
1895	59.84	355.92	1496.74	1470.74	780.17	-44.77	5733653.5	635310.2
1900	59.83	355.93	1499.25	1473.25	784.49	-45.08	5733657.8	635309.9
1905	59.82	355.95	1501.76	1475.76	788.80	-45.38	5733662.1	635309.6
1910	59.81	355.98	1504.28	1478.28	793.11	-45.69	5733666.4	635309.3
1915	59.82	356.03	1506.79	1480.79	797.42	-45.99	5733670.8	635309.0
1920	59.83	356.08	1509.30	1483.30	801.73	-46.29	5733675.1	635308.7
1925	59.84	356.13	1511.82	1485.82	806.05	-46.58	5733679.4	635308.4
1930	59.85	356.18	1514.33	1488.33	810.36	-46.87	5733683.7	635308.1
1935	59.86	356.19	1516.84	1490.84	814.67	-47.16	5733688.0	635307.8
1940	59.88	356.17	1519.35	1493.35	818.99	-47.45	5733692.3	635307.5
1945	59.91	356.15	1521.86	1495.86	823.30	-47.73	5733696.6	635307.2
1950	59.93	356.13	1524.36	1498.36	827.62	-48.03	5733701.0	635306.9
1955	59.95	356.12	1526.87	1500.87	831.94	-48.32	5733705.3	635306.6
1960	59.97	356.10	1529.37	1503.37	836.26	-48.61	5733709.6	635306.3
1965	60.00	356.10	1531.87	1505.87	840.58	-48.91	5733713.9	635306.0
1970	60.02	356.10	1534.37	1508.37	844.90	-49.20	5733718.2	635305.7
1975	60.05	356.11	1536.87	1510.87	849.22	-49.50	5733722.6	635305.5
1980	60.07	356.12	1539.36	1513.36	853.54	-49.79	5733726.9	635305.2
1985	60.10	356.13	1541.86	1515.86	857.86	-50.08	5733731.2	635304.9
1990	60.12	356.14	1544.35	1518.35	862.19	-50.37	5733735.5	635304.6
1995	60.16	356.16	1546.84	1520.84	866.52	-50.67	5733739.9	635304.3
2000	60.20	356.18	1549.32	1523.32	870.84	-50.96	5733744.2	635304.0
2005	60.23	356.21	1551.81	1525.81	875.17	-51.24	5733748.5	635303.7
2010	60.27	356.23	1554.29	1528.29	879.51	-51.53	5733752.8	635303.4
2015	60.31	356.26	1556.77	1530.77	883.84	-51.81	5733757.2	635303.1
2020	60.35	356.28	1559.24	1533.24	888.17	-52.10	5733761.5	635302.9
2025	60.38	356.31	1561.71	1535.71	892.51	-52.38	5733765.9	635302.6
2030	60.41	356.35	1564.19	1538.19	896.85	-52.66	5733770.2	635302.3
2035	60.44	356.38	1566.65	1540.65	901.19	-52.93	5733774.5	635302.0
2040	60.46	356.42	1569.12	1543.12	905.53	-53.20	5733778.9	635301.7
2045	60.49	356.45	1571.58	1545.58	909.87	-53.47	5733783.2	635301.5
2050	60.52	356.48	1574.04	1548.04	914.22	-53.74	5733787.6	635301.2
2055	60.54	356.48	1576.50	1550.50	918.56	-54.01	5733791.9	635300.9
2060	60.54	356.35	1578.96	1552.96	922.91	-54.28	5733796.2	635300.7
2065	60.55	356.22	1581.42	1555.42	927.25	-54.56	5733800.6	635300.4
2070	60.55	356.09	1583.88	1557.88	931.60	-54.86	5733804.9	635300.1
2075	60.55	355.96	1586.34	1560.34	935.94	-55.16	5733809.3	635299.8
2080	60.56	355.82	1588.80	1562.80	940.28	-55.47	5733813.6	635299.5
2085	60.57	355.78	1591.25	1565.25	944.62	-55.79	5733818.0	635299.2
2090	60.60	355.85	1593.71	1567.71	948.97	-56.11	5733822.3	635298.8
2095	60.63	355.91	1596.16	1570.16	953.31	-56.42	5733826.7	635298.5
2100	60.65	355.98	1598.61	1572.61	957.66	-56.73	5733831.0	635298.2
2105	60.68	356.05	1601.06	1575.06	962.01	-57.03	5733835.3	635297.9
2110	60.71	356.10	1603.51	1577.51	966.36	-57.33	5733839.7	635297.6

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
2115	60.76	356.12	1605.96	1579.96	970.71	-57.63	5733844.1	635297.3
2120	60.81	356.14	1608.40	1582.40	975.06	-57.92	5733848.4	635297.0
2125	60.85	356.15	1610.83	1584.83	979.42	-58.22	5733852.8	635296.7
2130	60.90	356.17	1613.27	1587.27	983.78	-58.51	5733857.1	635296.4
2135	60.89	356.22	1615.70	1589.70	988.14	-58.80	5733861.5	635296.1
2140	60.91	356.19	1618.13	1592.13	992.50	-59.09	5733865.8	635295.9
2145	60.94	356.11	1620.56	1594.56	996.86	-59.38	5733870.2	635295.6
2150	60.97	356.03	1622.99	1596.99	1001.22	-59.68	5733874.6	635295.3
2155	60.99	355.94	1625.41	1599.41	1005.58	-59.98	5733878.9	635295.0
2160	61.02	355.86	1627.84	1601.84	1009.94	-60.30	5733883.3	635294.7
2165	61.05	355.78	1630.26	1604.26	1014.30	-60.62	5733887.6	635294.3
2170	61.09	355.73	1632.68	1606.68	1018.67	-60.94	5733892.0	635294.0
2175	61.13	355.74	1635.09	1609.09	1023.03	-61.27	5733896.4	635293.7
2180	61.18	355.74	1637.51	1611.51	1027.40	-61.59	5733900.7	635293.4
2185	61.22	355.74	1639.91	1613.91	1031.77	-61.92	5733905.1	635293.0
2190	61.27	355.75	1642.32	1616.32	1036.14	-62.24	5733909.5	635292.7
2195	61.31	355.75	1644.72	1618.72	1040.52	-62.57	5733913.9	635292.4
2200	61.35	355.61	1647.12	1621.12	1044.89	-62.90	5733918.2	635292.0
2205	61.39	355.44	1649.52	1623.52	1049.27	-63.24	5733922.6	635291.7
2210	61.43	355.27	1651.91	1625.91	1053.64	-63.60	5733927.0	635291.4
2215	61.47	355.10	1654.30	1628.30	1058.02	-63.96	5733931.4	635291.0
2220	61.51	354.92	1656.68	1630.68	1062.39	-64.35	5733935.7	635290.6
2225	61.53	354.86	1659.07	1633.07	1066.77	-64.74	5733940.1	635290.2
2230	61.54	354.84	1661.45	1635.45	1071.15	-65.13	5733944.5	635289.8
2235	61.55	354.83	1663.83	1637.83	1075.53	-65.53	5733948.9	635289.4
2240	61.56	354.81	1666.22	1640.22	1079.91	-65.93	5733953.2	635289.0
2245	61.57	354.80	1668.60	1642.60	1084.29	-66.32	5733957.6	635288.6
2250	61.59	354.78	1670.98	1644.98	1088.66	-66.72	5733962.0	635288.2
2255	61.55	354.80	1673.36	1647.36	1093.04	-67.12	5733966.4	635287.8
2260	61.48	354.83	1675.74	1649.74	1097.42	-67.52	5733970.8	635287.4
2265	61.42	354.86	1678.13	1652.13	1101.79	-67.91	5733975.1	635287.0
2270	61.36	354.90	1680.52	1654.52	1106.17	-68.31	5733979.5	635286.6
2275	61.30	354.93	1682.92	1656.92	1110.54	-68.70	5733983.9	635286.3
2280	61.24	354.96	1685.33	1659.33	1114.90	-69.08	5733988.2	635285.9
2285	61.26	354.94	1687.73	1661.73	1119.27	-69.47	5733992.6	635285.5
2290	61.28	354.91	1690.14	1664.14	1123.64	-69.86	5733997.0	635285.1
2295	61.31	354.88	1692.54	1666.54	1128.01	-70.25	5734001.3	635284.7
2300	61.34	354.86	1694.94	1668.94	1132.37	-70.64	5734005.7	635284.3
2305	61.37	354.83	1697.33	1671.33	1136.74	-71.03	5734010.1	635283.9
2310	61.40	354.80	1699.73	1673.73	1141.12	-71.43	5734014.5	635283.5
2315	61.33	354.80	1702.12	1676.12	1145.49	-71.83	5734018.8	635283.1
2320	61.24	354.79	1704.53	1678.53	1149.85	-72.22	5734023.2	635282.7
2325	61.15	354.79	1706.94	1680.94	1154.22	-72.62	5734027.6	635282.3
2330	61.07	354.79	1709.35	1683.35	1158.58	-73.02	5734031.9	635281.9
2335	60.98	354.78	1711.77	1685.77	1162.93	-73.42	5734036.3	635281.5
2340	60.89	354.78	1714.20	1688.20	1167.28	-73.81	5734040.6	635281.1
2345	60.72	354.81	1716.64	1690.64	1171.63	-74.21	5734045.0	635280.7
2350	60.50	354.86	1719.09	1693.09	1175.97	-74.60	5734049.3	635280.3
2355	60.28	354.90	1721.56	1695.56	1180.30	-74.99	5734053.6	635280.0
2360	60.05	354.95	1724.05	1698.05	1184.62	-75.38	5734058.0	635279.6
2365	59.83	355.00	1726.56	1700.56	1188.93	-75.75	5734062.3	635279.2
2370	59.64	354.99	1729.08	1703.08	1193.23	-76.13	5734066.6	635278.8
2375	59.47	354.94	1731.61	1705.61	1197.53	-76.51	5734070.9	635278.4
2380	59.30	354.88	1734.16	1708.16	1201.81	-76.89	5734075.2	635278.1
2385	59.13	354.83	1736.72	1710.72	1206.09	-77.28	5734079.4	635277.7
2390	58.96	354.77	1739.29	1713.29	1210.36	-77.66	5734083.7	635277.3
2395	58.79	354.72	1741.87	1715.87	1214.62	-78.06	5734088.0	635276.9
2400	58.68	354.69	1744.47	1718.47	1218.88	-78.45	5734092.2	635276.5
2405	58.67	354.72	1747.07	1721.07	1223.13	-78.85	5734096.5	635276.1
2410	58.66	354.75	1749.67	1723.67	1227.38	-79.24	5734100.7	635275.7
2415	58.64	354.77	1752.27	1726.27	1231.64	-79.63	5734105.0	635275.3
2420	58.63	354.80	1754.87	1728.87	1235.89	-80.02	5734109.2	635274.9
2425	58.62	354.83	1757.47	1731.47	1240.14	-80.40	5734113.5	635274.5
2430	58.73	354.91	1760.08	1734.08	1244.39	-80.78	5734117.7	635274.2
2435	58.89	355.02	1762.67	1736.67	1248.65	-81.16	5734122.0	635273.8
2440	59.05	355.13	1765.24	1739.24	1252.92	-81.53	5734126.3	635273.4
2445	59.22	355.24	1767.81	1741.81	1257.20	-81.89	5734130.5	635273.1
2450	59.38	355.34	1770.36	1744.36	1261.48	-82.24	5734134.8	635272.7
2455	59.55	355.45	1772.90	1746.90	1265.78	-82.59	5734139.1	635272.4
2460	59.63	355.43	1775.43	1749.43	1270.08	-82.93	5734143.4	635272.0
2465	59.69	355.38	1777.96	1751.96	1274.38	-83.27	5734147.7	635271.7

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
2470	59.76	355.33	1780.48	1754.48	1278.68	-83.62	5734152.0	635271.3
2475	59.83	355.28	1782.99	1756.99	1282.99	-83.98	5734156.3	635271.0
2480	59.90	355.23	1785.50	1759.50	1287.30	-84.33	5734160.6	635270.6
2485	59.88	355.24	1788.01	1762.01	1291.61	-84.69	5734164.9	635270.3
2490	59.85	355.27	1790.52	1764.52	1295.92	-85.05	5734169.3	635269.9
2495	59.82	355.29	1793.03	1767.03	1300.22	-85.41	5734173.6	635269.5
2500	59.79	355.32	1795.55	1769.55	1304.53	-85.76	5734177.9	635269.2
2505	59.75	355.34	1798.07	1772.07	1308.84	-86.11	5734182.2	635268.8
2510	59.72	355.37	1800.59	1774.59	1313.14	-86.46	5734186.5	635268.5
2515	59.69	355.41	1803.11	1777.11	1317.45	-86.81	5734190.8	635268.1
2520	59.67	355.45	1805.63	1779.63	1321.75	-87.15	5734195.1	635267.8
2525	59.64	355.50	1808.16	1782.16	1326.05	-87.49	5734199.4	635267.5
2530	59.62	355.54	1810.69	1784.69	1330.35	-87.83	5734203.7	635267.1
2535	59.59	355.59	1813.22	1787.22	1334.65	-88.16	5734208.0	635266.8
2540	59.56	355.63	1815.75	1789.75	1338.95	-88.49	5734212.3	635266.5
2545	59.54	355.63	1818.28	1792.28	1343.25	-88.82	5734216.6	635266.1
2550	59.51	355.62	1820.82	1794.82	1347.54	-89.15	5734220.9	635265.8
2555	59.49	355.61	1823.36	1797.36	1351.84	-89.48	5734225.2	635265.5
2560	59.47	355.60	1825.89	1799.89	1356.13	-89.81	5734229.5	635265.1
2565	59.44	355.59	1828.44	1802.44	1360.43	-90.14	5734233.8	635264.8
2570	59.41	355.59	1830.98	1804.98	1364.72	-90.47	5734238.1	635264.5
2575	59.31	355.63	1833.53	1807.53	1369.01	-90.80	5734242.3	635264.1
2580	59.22	355.67	1836.08	1810.08	1373.29	-91.13	5734246.6	635263.8
2585	59.12	355.72	1838.65	1812.65	1377.57	-91.45	5734250.9	635263.5
2590	59.02	355.76	1841.22	1815.22	1381.85	-91.77	5734255.2	635263.2
2595	58.93	355.81	1843.79	1817.79	1386.12	-92.08	5734259.5	635262.9
2600	58.84	355.82	1846.38	1820.38	1390.39	-92.40	5734263.7	635262.6
2605	58.76	355.81	1848.97	1822.97	1394.66	-92.71	5734268.0	635262.2
2610	58.69	355.80	1851.56	1825.56	1398.92	-93.02	5734272.3	635261.9
2615	58.61	355.79	1854.16	1828.16	1403.18	-93.33	5734276.5	635261.6
2620	58.53	355.77	1856.77	1830.77	1407.43	-93.65	5734280.8	635261.3
2625	58.45	355.76	1859.38	1833.38	1411.69	-93.96	5734285.0	635261.0
2630	58.38	355.76	1862.00	1836.00	1415.93	-94.28	5734289.3	635260.7
2635	58.34	355.82	1864.63	1838.63	1420.18	-94.59	5734293.5	635260.4
2640	58.29	355.88	1867.25	1841.25	1424.42	-94.90	5734297.8	635260.1
2645	58.25	355.94	1869.88	1843.88	1428.66	-95.20	5734302.0	635259.7
2650	58.20	356.00	1872.51	1846.51	1432.90	-95.50	5734306.2	635259.4
2655	58.16	356.06	1875.15	1849.15	1437.14	-95.79	5734310.5	635259.2
2660	58.13	356.11	1877.79	1851.79	1441.38	-96.08	5734314.7	635258.9
2665	58.13	356.15	1880.43	1854.43	1445.62	-96.37	5734319.0	635258.6
2670	58.14	356.18	1883.07	1857.07	1449.85	-96.65	5734323.2	635258.3
2675	58.14	356.22	1885.71	1859.71	1454.09	-96.94	5734327.4	635258.0
2680	58.14	356.26	1888.35	1862.35	1458.33	-97.21	5734331.7	635257.7
2685	58.15	356.29	1890.99	1864.99	1462.57	-97.49	5734335.9	635257.5
2690	58.15	356.27	1893.62	1867.62	1466.81	-97.76	5734340.1	635257.2
2695	58.15	356.18	1896.26	1870.26	1471.04	-98.04	5734344.4	635256.9
2700	58.15	356.09	1898.90	1872.90	1475.28	-98.33	5734348.6	635256.6
2705	58.14	356.00	1901.54	1875.54	1479.52	-98.62	5734352.9	635256.3
2710	58.14	355.91	1904.18	1878.18	1483.75	-98.92	5734357.1	635256.0
2715	58.14	355.82	1906.82	1880.82	1487.99	-99.23	5734361.3	635255.7
2720	58.13	355.81	1909.46	1883.46	1492.22	-99.54	5734365.6	635255.4
2725	58.10	355.93	1912.10	1886.10	1496.46	-99.85	5734369.8	635255.1
2730	58.08	356.05	1914.74	1888.74	1500.69	-100.15	5734374.0	635254.8
2735	58.05	356.17	1917.39	1891.39	1504.93	-100.43	5734378.3	635254.5
2740	58.02	356.29	1920.03	1894.03	1509.16	-100.71	5734382.5	635254.2
2745	58.02	356.33	1922.68	1896.68	1513.39	-100.98	5734386.7	635254.0
2750	58.09	356.08	1925.33	1899.33	1517.62	-101.27	5734391.0	635253.7
2755	58.16	355.83	1927.97	1901.97	1521.86	-101.57	5734395.2	635253.4
2760	58.24	355.58	1930.60	1904.60	1526.10	-101.88	5734399.4	635253.1
2765	58.31	355.33	1933.23	1907.23	1530.34	-102.22	5734403.7	635252.7
2770	58.39	355.08	1935.86	1909.86	1534.58	-102.58	5734407.9	635252.4
2775	58.47	354.88	1938.47	1912.47	1538.82	-102.95	5734412.2	635252.0
2780	58.57	354.83	1941.09	1915.09	1543.07	-103.33	5734416.4	635251.6
2785	58.68	354.78	1943.69	1917.69	1547.32	-103.72	5734420.7	635251.2
2790	58.78	354.72	1946.28	1920.28	1551.58	-104.11	5734424.9	635250.8
2795	58.88	354.67	1948.87	1922.87	1555.84	-104.51	5734429.2	635250.4
2800	58.99	354.62	1951.45	1925.45	1560.10	-104.91	5734433.4	635250.0
2805	59.02	354.61	1954.03	1928.03	1564.37	-105.31	5734437.7	635249.6
2810	58.97	354.66	1956.60	1930.60	1568.63	-105.71	5734442.0	635249.2
2815	58.93	354.70	1959.18	1933.18	1572.90	-106.11	5734446.2	635248.8
2820	58.89	354.74	1961.76	1935.76	1577.16	-106.50	5734450.5	635248.4

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
2825	58.84	354.79	1964.35	1938.35	1581.42	-106.89	5734454.8	635248.1
2830	58.80	354.83	1966.94	1940.94	1585.68	-107.28	5734459.0	635247.7
2835	58.80	354.86	1969.53	1943.53	1589.94	-107.66	5734463.3	635247.3
2840	58.88	354.87	1972.11	1946.11	1594.21	-108.05	5734467.5	635246.9
2845	58.96	354.88	1974.70	1948.70	1598.47	-108.43	5734471.8	635246.5
2850	59.04	354.89	1977.27	1951.27	1602.74	-108.81	5734476.1	635246.1
2855	59.12	354.90	1979.84	1953.84	1607.01	-109.19	5734480.4	635245.8
2860	59.18	354.90	1982.40	1956.40	1611.29	-109.57	5734484.6	635245.4
2865	59.21	354.89	1984.96	1958.96	1615.56	-109.95	5734488.9	635245.0
2870	59.24	354.88	1987.52	1961.52	1619.84	-110.34	5734493.2	635244.6
2875	59.27	354.86	1990.08	1964.08	1624.12	-110.72	5734497.5	635244.2
2880	59.30	354.85	1992.63	1966.63	1628.40	-111.11	5734501.7	635243.8
2885	59.32	354.84	1995.18	1969.18	1632.69	-111.49	5734506.0	635243.5
2890	59.36	354.81	1997.73	1971.73	1636.97	-111.88	5734510.3	635243.1
2895	59.40	354.78	2000.28	1974.28	1641.26	-112.27	5734514.6	635242.7
2900	59.43	354.74	2002.83	1976.83	1645.54	-112.66	5734518.9	635242.3
2905	59.47	354.71	2005.37	1979.37	1649.83	-113.06	5734523.2	635241.9
2910	59.51	354.67	2007.90	1981.90	1654.12	-113.46	5734527.5	635241.5
2915	59.55	354.64	2010.44	1984.44	1658.41	-113.86	5734531.8	635241.1
2920	59.58	354.63	2012.97	1986.97	1662.70	-114.26	5734536.0	635240.7
2925	59.60	354.65	2015.50	1989.50	1667.00	-114.67	5734540.3	635240.3
2930	59.62	354.67	2018.03	1992.03	1671.29	-115.07	5734544.6	635239.9
2935	59.64	354.69	2020.56	1994.56	1675.58	-115.47	5734548.9	635239.5
2940	59.65	354.71	2023.09	1997.09	1679.88	-115.87	5734553.2	635239.1
2945	59.67	354.73	2025.61	1999.61	1684.18	-116.26	5734557.5	635238.7
2950	59.70	354.74	2028.14	2002.14	1688.48	-116.66	5734561.8	635238.3
2955	59.74	354.75	2030.66	2004.66	1692.78	-117.05	5734566.1	635237.9
2960	59.77	354.75	2033.18	2007.18	1697.08	-117.45	5734570.4	635237.5
2965	59.80	354.76	2035.69	2009.69	1701.38	-117.84	5734574.7	635237.1
2970	59.84	354.76	2038.21	2012.21	1705.68	-118.24	5734579.0	635236.7
2975	59.87	354.77	2040.72	2014.72	1709.99	-118.63	5734583.3	635236.3
2980	59.89	354.82	2043.23	2017.23	1714.30	-119.03	5734587.6	635235.9
2985	59.90	354.88	2045.73	2019.73	1718.60	-119.41	5734591.9	635235.5
2990	59.91	354.95	2048.24	2022.24	1722.91	-119.80	5734596.3	635235.1
2995	59.92	355.01	2050.75	2024.75	1727.22	-120.18	5734600.6	635234.8
3000	59.93	355.07	2053.25	2027.25	1731.53	-120.55	5734604.9	635234.4
3005	59.95	355.14	2055.76	2029.76	1735.85	-120.92	5734609.2	635234.0
3010	59.93	355.13	2058.26	2032.26	1740.16	-121.29	5734613.5	635233.7
3015	59.90	355.09	2060.77	2034.77	1744.47	-121.65	5734617.8	635233.3
3020	59.87	355.05	2063.28	2037.28	1748.78	-122.03	5734622.1	635232.9
3025	59.83	355.01	2065.79	2039.79	1753.09	-122.40	5734626.4	635232.5
3030	59.80	354.96	2068.30	2042.30	1757.39	-122.78	5734630.7	635232.2
3035	59.77	354.92	2070.82	2044.82	1761.69	-123.16	5734635.0	635231.8
3040	59.81	354.97	2073.33	2047.33	1766.00	-123.54	5734639.3	635231.4
3045	59.84	355.03	2075.85	2049.85	1770.30	-123.92	5734643.6	635231.0
3050	59.88	355.08	2078.36	2052.36	1774.61	-124.29	5734648.0	635230.7
3055	59.92	355.14	2080.87	2054.87	1778.92	-124.66	5734652.3	635230.3
3060	59.95	355.19	2083.37	2057.37	1783.23	-125.02	5734656.6	635229.9
3065	59.97	355.24	2085.87	2059.87	1787.55	-125.38	5734660.9	635229.6
3070	59.92	355.29	2088.38	2062.38	1791.86	-125.74	5734665.2	635229.2
3075	59.87	355.34	2090.89	2064.89	1796.17	-126.09	5734669.5	635228.9
3080	59.82	355.39	2093.40	2067.40	1800.48	-126.44	5734673.8	635228.5
3085	59.77	355.44	2095.91	2069.91	1804.79	-126.79	5734678.1	635228.2
3090	59.73	355.49	2098.43	2072.43	1809.09	-127.13	5734682.4	635227.8
3095	59.70	355.51	2100.95	2074.95	1813.40	-127.47	5734686.7	635227.5
3100	59.71	355.48	2103.48	2077.48	1817.70	-127.81	5734691.0	635227.1
3105	59.71	355.46	2106.00	2080.00	1822.01	-128.15	5734695.3	635226.8
3110	59.71	355.44	2108.52	2082.52	1826.31	-128.49	5734699.7	635226.5
3115	59.72	355.41	2111.04	2085.04	1830.61	-128.84	5734704.0	635226.1
3120	59.72	355.39	2113.56	2087.56	1834.92	-129.18	5734708.3	635225.8
3125	59.69	355.41	2116.08	2090.08	1839.22	-129.53	5734712.6	635225.4
3130	59.65	355.45	2118.61	2092.61	1843.52	-129.87	5734716.9	635225.1
3135	59.60	355.49	2121.14	2095.14	1847.82	-130.21	5734721.2	635224.7
3140	59.56	355.53	2123.67	2097.67	1852.12	-130.55	5734725.5	635224.4
3145	59.52	355.57	2126.20	2100.20	1856.42	-130.89	5734729.8	635224.1
3150	59.47	355.61	2128.74	2102.74	1860.71	-131.22	5734734.1	635223.7
3155	59.46	355.57	2131.28	2105.28	1865.01	-131.55	5734738.3	635223.4
3160	59.46	355.49	2133.82	2107.82	1869.30	-131.88	5734742.6	635223.1
3165	59.46	355.42	2136.36	2110.36	1873.59	-132.22	5734746.9	635222.7
3170	59.46	355.34	2138.91	2112.91	1877.89	-132.57	5734751.2	635222.4
3175	59.46	355.26	2141.45	2115.45	1882.18	-132.92	5734755.5	635222.0

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
3180	59.47	355.16	2143.99	2117.99	1886.47	-133.28	5734759.8	635221.7
3185	59.55	354.90	2146.52	2120.52	1890.76	-133.66	5734764.1	635221.3
3190	59.64	354.63	2149.05	2123.05	1895.06	-134.05	5734768.4	635220.9
3195	59.72	354.37	2151.58	2125.58	1899.35	-134.46	5734772.7	635220.5
3200	59.80	354.10	2154.10	2128.10	1903.65	-134.90	5734777.0	635220.0
3205	59.89	353.83	2156.61	2130.61	1907.95	-135.35	5734781.3	635219.6
3210	59.91	353.71	2159.12	2133.12	1912.25	-135.82	5734785.6	635219.1
3215	59.85	353.74	2161.62	2135.62	1916.55	-136.30	5734789.9	635218.6
3220	59.80	353.77	2164.14	2138.14	1920.85	-136.77	5734794.2	635218.2
3225	59.75	353.81	2166.65	2140.65	1925.14	-137.23	5734798.5	635217.7
3230	59.70	353.84	2169.18	2143.18	1929.43	-137.70	5734802.8	635217.2
3235	59.65	353.88	2171.70	2145.70	1933.72	-138.16	5734807.1	635216.8
3240	59.60	353.91	2174.23	2148.23	1938.01	-138.62	5734811.4	635216.3
3245	59.55	353.94	2176.76	2150.76	1942.30	-139.08	5734815.6	635215.9
3250	59.50	353.98	2179.30	2153.30	1946.59	-139.53	5734819.9	635215.4
3255	59.45	354.01	2181.84	2155.84	1950.87	-139.98	5734824.2	635215.0
3260	59.40	354.05	2184.38	2158.38	1955.15	-140.43	5734828.5	635214.5
3265	59.35	354.08	2186.93	2160.93	1959.43	-140.87	5734832.8	635214.1
3270	59.30	354.12	2189.48	2163.48	1963.71	-141.31	5734837.0	635213.6
3275	59.24	354.16	2192.03	2166.03	1967.98	-141.75	5734841.3	635213.2
3280	59.19	354.20	2194.59	2168.59	1972.26	-142.19	5734845.6	635212.8
3285	59.13	354.24	2197.15	2171.15	1976.53	-142.62	5734849.9	635212.3
3290	59.08	354.28	2199.72	2173.72	1980.80	-143.05	5734854.1	635211.9
3295	59.02	354.33	2202.29	2176.29	1985.06	-143.48	5734858.4	635211.5
3300	59.01	354.36	2204.87	2178.87	1989.33	-143.90	5734862.7	635211.0
3305	59.01	354.40	2207.44	2181.44	1993.60	-144.32	5734866.9	635210.6
3310	59.02	354.44	2210.02	2184.02	1997.86	-144.73	5734871.2	635210.2
3315	59.03	354.48	2212.59	2186.59	2002.13	-145.15	5734875.5	635209.8
3320	59.04	354.52	2215.16	2189.16	2006.40	-145.56	5734879.7	635209.4
3325	59.05	354.55	2217.73	2191.73	2010.66	-145.97	5734884.0	635209.0
3330	59.01	354.50	2220.31	2194.31	2014.93	-146.38	5734888.3	635208.6
3335	58.96	354.43	2222.88	2196.88	2019.20	-146.79	5734892.5	635208.2
3340	58.92	354.37	2225.46	2199.46	2023.46	-147.21	5734896.8	635207.7
3345	58.87	354.30	2228.05	2202.05	2027.72	-147.63	5734901.1	635207.3
3350	58.82	354.23	2230.63	2204.63	2031.98	-148.06	5734905.3	635206.9
3355	58.78	354.17	2233.22	2207.22	2036.23	-148.49	5734909.6	635206.5
3360	58.76	354.23	2235.81	2209.81	2040.49	-148.92	5734913.8	635206.0
3365	58.73	354.28	2238.41	2212.41	2044.74	-149.35	5734918.1	635205.6
3370	58.71	354.33	2241.00	2215.00	2048.99	-149.77	5734922.3	635205.2
3375	58.69	354.38	2243.60	2217.60	2053.24	-150.19	5734926.6	635204.8
3380	58.66	354.43	2246.20	2220.20	2057.49	-150.61	5734930.8	635204.3
3385	58.57	354.46	2248.81	2222.81	2061.74	-151.02	5734935.1	635203.9
3390	58.47	354.48	2251.42	2225.42	2065.99	-151.43	5734939.3	635203.5
3395	58.36	354.51	2254.04	2228.04	2070.23	-151.84	5734943.6	635203.1
3400	58.26	354.53	2256.66	2230.66	2074.46	-152.25	5734947.8	635202.7
3405	58.15	354.55	2259.30	2233.30	2078.69	-152.65	5734952.0	635202.3
3410	58.04	354.58	2261.94	2235.94	2082.92	-153.06	5734956.3	635201.9
3415	57.96	354.62	2264.59	2238.59	2087.14	-153.46	5734960.5	635201.5
3420	57.90	354.71	2267.24	2241.24	2091.36	-153.85	5734964.7	635201.1
3425	57.90	354.76	2269.90	2243.90	2095.57	-154.24	5734968.9	635200.7
3430	57.97	354.76	2272.56	2246.56	2099.79	-154.62	5734973.1	635200.3
3435	58.05	354.77	2275.20	2249.20	2104.02	-155.01	5734977.4	635199.9
3440	58.12	354.77	2277.85	2251.85	2108.24	-155.40	5734981.6	635199.5
3445	58.19	354.72	2280.49	2254.49	2112.47	-155.79	5734985.8	635199.2
3450	58.26	354.66	2283.12	2257.12	2116.71	-156.18	5734990.0	635198.8
3455	58.33	354.60	2285.75	2259.75	2120.94	-156.58	5734994.3	635198.4
3460	58.40	354.54	2288.37	2262.37	2125.18	-156.98	5734998.5	635198.0
3465	58.47	354.48	2290.99	2264.99	2129.42	-157.39	5735002.8	635197.6
3470	58.54	354.42	2293.60	2267.60	2133.66	-157.80	5735007.0	635197.1
3475	58.62	354.33	2296.20	2270.20	2137.91	-158.22	5735011.3	635196.7
3480	58.70	354.24	2298.80	2272.80	2142.16	-158.65	5735015.5	635196.3
3485	58.78	354.15	2301.40	2275.40	2146.41	-159.08	5735019.8	635195.9
3490	58.85	354.06	2303.99	2277.99	2150.67	-159.52	5735024.0	635195.4
3495	58.93	353.97	2306.57	2280.57	2154.92	-159.96	5735028.3	635195.0
3500	59.01	353.91	2309.15	2283.15	2159.18	-160.42	5735032.5	635194.5
3505	59.09	353.90	2311.72	2285.72	2163.45	-160.87	5735036.8	635194.1
3510	59.17	353.88	2314.29	2288.29	2167.72	-161.33	5735041.1	635193.6
3515	59.25	353.86	2316.84	2290.84	2171.99	-161.79	5735045.3	635193.2
3520	59.33	353.84	2319.40	2293.40	2176.26	-162.25	5735049.6	635192.7
3525	59.41	353.83	2321.95	2295.95	2180.54	-162.71	5735053.9	635192.2
3530	59.49	353.77	2324.49	2298.49	2184.82	-163.17	5735058.2	635191.8

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
3535	59.55	353.71	2327.02	2301.02	2189.10	-163.64	5735062.4	635191.3
3540	59.62	353.64	2329.55	2303.55	2193.39	-164.12	5735066.7	635190.8
3545	59.69	353.57	2332.08	2306.08	2197.68	-164.60	5735071.0	635190.3
3550	59.76	353.50	2334.60	2308.60	2201.97	-165.09	5735075.3	635189.9
3555	59.82	353.44	2337.12	2311.12	2206.26	-165.58	5735079.6	635189.4
3560	59.91	353.39	2339.63	2313.63	2210.55	-166.07	5735083.9	635188.9
3565	60.01	353.38	2342.13	2316.13	2214.85	-166.57	5735088.2	635188.4
3570	60.10	353.36	2344.63	2318.63	2219.16	-167.07	5735092.5	635187.9
3575	60.20	353.35	2347.11	2321.11	2223.47	-167.58	5735096.8	635187.4
3580	60.30	353.33	2349.60	2323.60	2227.78	-168.08	5735101.1	635186.9
3585	60.40	353.31	2352.07	2326.07	2232.09	-168.58	5735105.4	635186.4
3590	60.45	353.39	2354.54	2328.54	2236.41	-169.09	5735109.8	635185.9
3595	60.48	353.51	2357.00	2331.00	2240.73	-169.58	5735114.1	635185.4
3600	60.51	353.63	2359.46	2333.46	2245.06	-170.07	5735118.4	635184.9
3605	60.54	353.75	2361.92	2335.92	2249.39	-170.55	5735122.7	635184.4
3610	60.56	353.87	2364.38	2338.38	2253.71	-171.02	5735127.1	635183.9
3615	60.58	353.98	2366.84	2340.84	2258.04	-171.48	5735131.4	635183.5
3620	60.45	353.98	2369.30	2343.30	2262.37	-171.94	5735135.7	635183.0
3625	60.33	353.98	2371.77	2345.77	2266.70	-172.39	5735140.0	635182.6
3630	60.21	353.97	2374.25	2348.25	2271.01	-172.85	5735144.4	635182.1
3635	60.08	353.97	2376.74	2350.74	2275.33	-173.30	5735148.7	635181.6
3640	59.96	353.97	2379.24	2353.24	2279.63	-173.76	5735153.0	635181.2
3645	59.91	353.99	2381.74	2355.74	2283.94	-174.21	5735157.3	635180.7
3650	60.06	354.04	2384.25	2358.25	2288.24	-174.66	5735161.6	635180.3
3655	60.21	354.10	2386.73	2360.73	2292.55	-175.11	5735165.9	635179.8
3660	60.36	354.16	2389.21	2363.21	2296.87	-175.56	5735170.2	635179.4
3665	60.51	354.21	2391.68	2365.68	2301.20	-176.00	5735174.5	635179.0
3670	60.66	354.27	2394.14	2368.14	2305.53	-176.43	5735178.9	635178.5
3675	60.73	354.32	2396.58	2370.58	2309.87	-176.87	5735183.2	635178.1
3680	60.71	354.35	2399.03	2373.03	2314.21	-177.30	5735187.6	635177.7
3685	60.69	354.39	2401.47	2375.47	2318.55	-177.72	5735191.9	635177.2
3690	60.67	354.42	2403.92	2377.92	2322.89	-178.15	5735196.2	635176.8
3695	60.65	354.46	2406.37	2380.37	2327.23	-178.57	5735200.6	635176.4
3700	60.63	354.49	2408.82	2382.82	2331.57	-178.99	5735204.9	635176.0
3705	60.67	354.44	2411.27	2385.27	2335.91	-179.41	5735209.2	635175.5
3710	60.72	354.39	2413.72	2387.72	2340.24	-179.84	5735213.6	635175.1
3715	60.76	354.35	2416.16	2390.16	2344.59	-180.26	5735217.9	635174.7
3720	60.80	354.30	2418.61	2392.61	2348.93	-180.70	5735222.3	635174.3
3725	60.85	354.25	2421.04	2395.04	2353.27	-181.13	5735226.6	635173.8
3730	60.89	354.20	2423.48	2397.48	2357.62	-181.57	5735231.0	635173.4
3735	60.78	354.24	2425.91	2399.91	2361.96	-182.01	5735235.3	635172.9
3740	60.62	354.30	2428.36	2402.36	2366.30	-182.45	5735239.6	635172.5
3745	60.47	354.36	2430.82	2404.82	2370.63	-182.88	5735244.0	635172.1
3750	60.31	354.42	2433.29	2407.29	2374.96	-183.30	5735248.3	635171.6
3755	60.15	354.48	2435.77	2409.77	2379.28	-183.72	5735252.6	635171.2
3760	60.00	354.54	2438.27	2412.27	2383.59	-184.14	5735256.9	635170.8
3765	60.12	354.48	2440.76	2414.76	2387.90	-184.55	5735261.2	635170.4
3770	60.28	354.39	2443.25	2417.25	2392.22	-184.97	5735265.6	635170.0
3775	60.43	354.31	2445.72	2419.72	2396.55	-185.40	5735269.9	635169.5
3780	60.59	354.23	2448.18	2422.18	2400.88	-185.83	5735274.2	635169.1
3785	60.75	354.15	2450.63	2424.63	2405.21	-186.27	5735278.6	635168.7
3790	60.85	354.07	2453.07	2427.07	2409.56	-186.72	5735282.9	635168.2
3795	60.66	354.00	2455.51	2429.51	2413.90	-187.18	5735287.2	635167.8
3800	60.47	353.93	2457.97	2431.97	2418.23	-187.63	5735291.6	635167.3
3805	60.27	353.86	2460.44	2434.44	2422.55	-188.10	5735295.9	635166.9
3810	60.08	353.79	2462.93	2436.93	2426.86	-188.56	5735300.2	635166.4
3815	59.89	353.72	2465.43	2439.43	2431.16	-189.03	5735304.5	635165.9
3820	59.73	353.66	2467.94	2441.94	2435.46	-189.51	5735308.8	635165.4
3825	59.85	353.69	2470.46	2444.46	2439.75	-189.98	5735313.1	635165.0
3830	59.97	353.71	2472.97	2446.97	2444.05	-190.46	5735317.4	635164.5
3835	60.08	353.74	2475.46	2449.46	2448.36	-190.93	5735321.7	635164.0
3840	60.20	353.76	2477.95	2451.95	2452.67	-191.41	5735326.0	635163.5
3845	60.32	353.79	2480.43	2454.43	2456.99	-191.88	5735330.3	635163.1
3850	60.42	353.85	2482.91	2456.91	2461.31	-192.34	5735334.6	635162.6
3855	60.52	353.93	2485.37	2459.37	2465.63	-192.81	5735339.0	635162.1
3860	60.61	354.00	2487.83	2461.83	2469.96	-193.27	5735343.3	635161.7
3865	60.71	354.07	2490.28	2464.28	2474.30	-193.72	5735347.6	635161.2
3870	60.80	354.15	2492.72	2466.72	2478.64	-194.17	5735352.0	635160.8
3875	60.86	354.22	2495.16	2469.16	2482.98	-194.61	5735356.3	635160.3
3880	60.85	354.27	2497.59	2471.59	2487.33	-195.05	5735360.7	635159.9
3885	60.83	354.32	2500.03	2474.03	2491.67	-195.48	5735365.0	635159.5

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
3890	60.81	354.37	2502.47	2476.47	2496.02	-195.91	5735369.4	635159.0
3895	60.79	354.42	2504.90	2478.90	2500.36	-196.34	5735373.7	635158.6
3900	60.78	354.47	2507.34	2481.34	2504.70	-196.76	5735378.0	635158.2
3905	60.77	354.50	2509.79	2483.79	2509.05	-197.18	5735382.4	635157.8
3910	60.85	354.46	2512.23	2486.23	2513.39	-197.60	5735386.7	635157.3
3915	60.92	354.41	2514.66	2488.66	2517.74	-198.02	5735391.1	635156.9
3920	60.99	354.37	2517.09	2491.09	2522.09	-198.45	5735395.4	635156.5
3925	61.07	354.32	2519.51	2493.51	2526.44	-198.88	5735399.8	635156.1
3930	61.14	354.28	2521.92	2495.92	2530.80	-199.32	5735404.1	635155.6
3935	61.16	354.25	2524.33	2498.33	2535.16	-199.75	5735408.5	635155.2
3940	61.08	354.25	2526.75	2500.75	2539.51	-200.19	5735412.9	635154.8
3945	61.00	354.25	2529.17	2503.17	2543.86	-200.63	5735417.2	635154.3
3950	60.92	354.25	2531.60	2505.60	2548.21	-201.07	5735421.6	635153.9
3955	60.84	354.25	2534.03	2508.03	2552.56	-201.51	5735425.9	635153.4
3960	60.76	354.25	2536.47	2510.47	2556.90	-201.94	5735430.2	635153.0
3965	60.65	354.30	2538.91	2512.91	2561.24	-202.38	5735434.6	635152.6
3970	60.49	354.42	2541.37	2515.37	2565.58	-202.81	5735438.9	635152.1
3975	60.33	354.54	2543.84	2517.84	2569.90	-203.23	5735443.2	635151.7
3980	60.18	354.66	2546.32	2520.32	2574.23	-203.64	5735447.6	635151.3
3985	60.02	354.77	2548.81	2522.81	2578.54	-204.03	5735451.9	635150.9
3990	59.86	354.89	2551.32	2525.32	2582.85	-204.42	5735456.2	635150.5
3995	59.87	354.92	2553.83	2527.83	2587.16	-204.81	5735460.5	635150.1
4000	59.95	354.89	2556.34	2530.34	2591.47	-205.19	5735464.8	635149.8
4005	60.03	354.87	2558.84	2532.84	2595.78	-205.58	5735469.1	635149.4
4010	60.12	354.85	2561.33	2535.33	2600.10	-205.97	5735473.4	635149.0
4015	60.20	354.83	2563.82	2537.82	2604.41	-206.36	5735477.8	635148.6
4020	60.28	354.80	2566.30	2540.30	2608.74	-206.75	5735482.1	635148.2
4025	60.08	354.87	2568.79	2542.79	2613.06	-207.14	5735486.4	635147.8
4030	59.81	354.97	2571.29	2545.29	2617.37	-207.52	5735490.7	635147.4
4035	59.54	355.06	2573.81	2547.81	2621.67	-207.90	5735495.0	635147.0
4040	59.27	355.16	2576.36	2550.36	2625.96	-208.26	5735499.3	635146.7
4045	59.00	355.25	2578.92	2552.92	2630.23	-208.62	5735503.6	635146.3
4050	58.78	355.34	2581.51	2555.51	2634.50	-208.97	5735507.8	635146.0
4055	58.81	355.37	2584.10	2558.10	2638.76	-209.32	5735512.1	635145.6
4060	58.84	355.41	2586.69	2560.69	2643.03	-209.67	5735516.4	635145.3
4065	58.87	355.44	2589.27	2563.27	2647.29	-210.01	5735520.6	635144.9
4070	58.90	355.48	2591.86	2565.86	2651.56	-210.35	5735524.9	635144.6
4075	58.93	355.51	2594.44	2568.44	2655.83	-210.68	5735529.2	635144.3
4080	58.97	355.48	2597.02	2571.02	2660.10	-211.02	5735533.4	635143.9
4085	58.99	355.39	2599.60	2573.60	2664.37	-211.36	5735537.7	635143.6
4090	59.02	355.30	2602.17	2576.17	2668.64	-211.71	5735542.0	635143.2
4095	59.05	355.21	2604.74	2578.74	2672.91	-212.06	5735546.3	635142.9
4100	59.08	355.11	2607.31	2581.31	2677.19	-212.42	5735550.5	635142.5
4105	59.11	355.02	2609.88	2583.88	2681.46	-212.79	5735554.8	635142.2
4110	59.10	355.00	2612.45	2586.45	2685.74	-213.17	5735559.1	635141.8
4115	59.08	355.01	2615.02	2589.02	2690.01	-213.54	5735563.4	635141.4
4120	59.06	355.02	2617.59	2591.59	2694.28	-213.91	5735567.6	635141.0
4125	59.03	355.03	2620.16	2594.16	2698.56	-214.28	5735571.9	635140.7
4130	59.01	355.04	2622.73	2596.73	2702.83	-214.66	5735576.2	635140.3
4135	58.99	355.05	2625.31	2599.31	2707.10	-215.03	5735580.4	635139.9
4140	59.01	355.05	2627.88	2601.88	2711.37	-215.40	5735584.7	635139.6
4145	59.05	355.05	2630.45	2604.45	2715.64	-215.77	5735589.0	635139.2
4150	59.09	355.05	2633.02	2607.02	2719.91	-216.14	5735593.3	635138.8
4155	59.13	355.06	2635.59	2609.59	2724.18	-216.51	5735597.5	635138.4
4160	59.17	355.06	2638.16	2612.16	2728.46	-216.87	5735601.8	635138.1
4165	59.21	355.06	2640.72	2614.72	2732.74	-217.24	5735606.1	635137.7
4170	59.26	355.02	2643.27	2617.27	2737.02	-217.62	5735610.4	635137.3
4175	59.32	354.96	2645.83	2619.83	2741.30	-217.99	5735614.6	635137.0
4180	59.38	354.90	2648.38	2622.38	2745.59	-218.37	5735618.9	635136.6
4185	59.44	354.84	2650.92	2624.92	2749.87	-218.76	5735623.2	635136.2
4190	59.49	354.79	2653.46	2627.46	2754.16	-219.15	5735627.5	635135.8
4195	59.55	354.73	2656.00	2630.00	2758.45	-219.54	5735631.8	635135.4
4200	59.60	354.75	2658.53	2632.53	2762.75	-219.93	5735636.1	635135.0
4205	59.64	354.77	2661.06	2635.06	2767.04	-220.33	5735640.4	635134.6
4210	59.69	354.79	2663.58	2637.58	2771.34	-220.72	5735644.7	635134.2
4215	59.74	354.81	2666.10	2640.10	2775.64	-221.11	5735649.0	635133.8
4220	59.78	354.82	2668.62	2642.62	2779.94	-221.50	5735653.3	635133.4
4225	59.83	354.84	2671.14	2645.14	2784.25	-221.89	5735657.6	635133.1
4230	59.91	354.84	2673.65	2647.65	2788.55	-222.28	5735661.9	635132.7
4235	59.98	354.84	2676.15	2650.15	2792.86	-222.67	5735666.2	635132.3
4240	60.05	354.83	2678.65	2652.65	2797.18	-223.06	5735670.5	635131.9

907469 040

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
4245	60.13	354.83	2681.14	2655.14	2801.49	-223.45	5735674.8	635131.5
4250	60.20	354.83	2683.63	2657.63	2805.81	-223.84	5735679.2	635131.1
4255	60.21	354.83	2686.12	2660.12	2810.13	-224.23	5735683.5	635130.7
4260	60.21	354.83	2688.60	2662.60	2814.46	-224.62	5735687.8	635130.3
4265	60.21	354.83	2691.08	2665.08	2818.78	-225.02	5735692.1	635129.9
4270	60.21	354.83	2693.57	2667.57	2823.10	-225.41	5735696.4	635129.5
4275	60.21	354.83	2696.05	2670.05	2827.42	-225.80	5735700.8	635129.1

907469 041

APPENDIX 1d

BLACKBACK A-1ST1

MD-TVD Survey Data Listing

BLACKBACK A-1ST1 MD-TVD Survey Data Listing

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
0	0.0	0.00	0.00	-26.00	0.00	0.00	5732873.3	635354.9
5	0.00	1.41	5.00	-21.00	0.00	0.00	5732873.3	635354.9
10	0.00	2.82	10.00	-16.00	0.00	0.00	5732873.3	635354.9
15	0.00	4.23	15.00	-11.00	0.00	0.00	5732873.3	635354.9
20	0.00	5.64	20.00	-6.00	0.00	0.00	5732873.3	635354.9
25	0.00	7.05	25.00	-1.00	0.00	0.00	5732873.3	635354.9
30	0.00	8.46	30.00	4.00	0.00	0.00	5732873.3	635354.9
35	0.00	9.87	35.00	9.00	0.00	0.00	5732873.3	635354.9
40	0.00	11.28	40.00	14.00	0.00	0.00	5732873.3	635354.9
45	0.00	12.68	45.00	19.00	0.00	0.00	5732873.3	635354.9
50	0.00	14.09	50.00	24.00	0.00	0.00	5732873.3	635354.9
55	0.00	15.50	55.00	29.00	0.00	0.00	5732873.3	635354.9
60	0.00	16.91	60.00	34.00	0.00	0.00	5732873.3	635354.9
65	0.00	18.32	65.00	39.00	0.00	0.00	5732873.3	635354.9
70	0.00	19.73	70.00	44.00	0.00	0.00	5732873.3	635354.9
75	0.00	21.14	75.00	49.00	0.00	0.00	5732873.3	635354.9
80	0.00	22.55	80.00	54.00	0.00	0.00	5732873.3	635354.9
85	0.00	23.96	85.00	59.00	0.00	0.00	5732873.3	635354.9
90	0.00	25.37	90.00	64.00	0.00	0.00	5732873.3	635354.9
95	0.00	26.78	95.00	69.00	0.00	0.00	5732873.3	635354.9
100	0.00	28.19	100.00	74.00	0.00	0.00	5732873.3	635354.9
105	0.00	29.60	105.00	79.00	0.00	0.00	5732873.3	635354.9
110	0.00	31.01	110.00	84.00	0.00	0.00	5732873.3	635354.9
115	0.00	32.42	115.00	89.00	0.00	0.00	5732873.3	635354.9
120	0.00	33.83	120.00	94.00	0.00	0.00	5732873.3	635354.9
125	0.00	35.23	125.00	99.00	0.00	0.00	5732873.3	635354.9
130	0.00	36.64	130.00	104.00	0.00	0.00	5732873.3	635354.9
135	0.00	38.05	135.00	109.00	0.00	0.00	5732873.3	635354.9
140	0.00	39.46	140.00	114.00	0.00	0.00	5732873.3	635354.9
145	0.00	40.87	145.00	119.00	0.00	0.00	5732873.3	635354.9
150	0.00	42.28	150.00	124.00	0.00	0.00	5732873.3	635354.9
155	0.00	43.69	155.00	129.00	0.00	0.00	5732873.3	635354.9
160	0.00	45.10	160.00	134.00	0.00	0.00	5732873.3	635354.9
165	0.00	46.51	165.00	139.00	0.00	0.00	5732873.3	635354.9
170	0.00	47.92	170.00	144.00	0.00	0.00	5732873.3	635354.9
175	0.00	49.33	175.00	149.00	0.00	0.00	5732873.3	635354.9
180	0.00	50.74	180.00	154.00	0.00	0.00	5732873.3	635354.9
185	0.00	52.15	185.00	159.00	0.00	0.00	5732873.3	635354.9
190	0.00	53.56	190.00	164.00	0.00	0.00	5732873.3	635354.9
195	0.00	54.97	195.00	169.00	0.00	0.00	5732873.3	635354.9
200	0.00	56.38	200.00	174.00	0.00	0.00	5732873.3	635354.9
205	0.00	57.78	205.00	179.00	0.00	0.00	5732873.3	635354.9
210	0.00	59.19	210.00	184.00	0.00	0.00	5732873.3	635354.9
215	0.00	60.60	215.00	189.00	0.00	0.00	5732873.3	635354.9
220	0.00	62.01	220.00	194.00	0.00	0.00	5732873.3	635354.9
225	0.00	63.42	225.00	199.00	0.00	0.00	5732873.3	635354.9
230	0.00	64.83	230.00	204.00	0.00	0.00	5732873.3	635354.9
235	0.00	66.24	235.00	209.00	0.00	0.00	5732873.3	635354.9
240	0.00	67.65	240.00	214.00	0.00	0.00	5732873.3	635354.9
245	0.00	69.06	245.00	219.00	0.00	0.00	5732873.3	635354.9
250	0.00	70.47	250.00	224.00	0.00	0.00	5732873.3	635354.9
255	0.00	71.88	255.00	229.00	0.00	0.00	5732873.3	635354.9
260	0.00	73.29	260.00	234.00	0.00	0.00	5732873.3	635354.9
265	0.00	74.70	265.00	239.00	0.00	0.00	5732873.3	635354.9
270	0.00	76.11	270.00	244.00	0.00	0.00	5732873.3	635354.9
275	0.00	77.52	275.00	249.00	0.00	0.00	5732873.3	635354.9
280	0.00	78.93	280.00	254.00	0.00	0.00	5732873.3	635354.9
285	0.00	80.33	285.00	259.00	0.00	0.00	5732873.3	635354.9
290	0.00	81.74	290.00	264.00	0.00	0.00	5732873.3	635354.9
295	0.00	83.15	295.00	269.00	0.00	0.00	5732873.3	635354.9
300	0.00	84.56	300.00	274.00	0.00	0.00	5732873.3	635354.9
305	0.00	85.97	305.00	279.00	0.00	0.00	5732873.3	635354.9
310	0.00	87.38	310.00	284.00	0.00	0.00	5732873.3	635354.9
315	0.00	88.79	315.00	289.00	0.00	0.00	5732873.3	635354.9
320	0.00	90.20	320.00	294.00	0.00	0.00	5732873.3	635354.9
325	0.00	91.61	325.00	299.00	0.00	0.00	5732873.3	635354.9
330	0.00	93.02	330.00	304.00	0.00	0.00	5732873.3	635354.9
335	0.00	94.43	335.00	309.00	0.00	0.00	5732873.3	635354.9

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
340	0.00	95.84	340.00	314.00	0.00	0.00	5732873.3	635354.9
345	0.00	97.25	345.00	319.00	0.00	0.00	5732873.3	635354.9
350	0.00	98.66	350.00	324.00	0.00	0.00	5732873.3	635354.9
355	0.00	100.07	355.00	329.00	0.00	0.00	5732873.3	635354.9
360	0.00	101.48	360.00	334.00	0.00	0.00	5732873.3	635354.9
365	0.00	102.88	365.00	339.00	0.00	0.00	5732873.3	635354.9
370	0.00	104.29	370.00	344.00	0.00	0.00	5732873.3	635354.9
375	0.00	105.70	375.00	349.00	0.00	0.00	5732873.3	635354.9
380	0.00	107.11	380.00	354.00	0.00	0.00	5732873.3	635354.9
385	0.00	108.52	385.00	359.00	0.00	0.00	5732873.3	635354.9
390	0.00	109.93	390.00	364.00	0.00	0.00	5732873.3	635354.9
395	0.00	111.34	395.00	369.00	0.00	0.00	5732873.3	635354.9
400	0.00	112.75	400.00	374.00	0.00	0.00	5732873.3	635354.9
405	0.00	114.16	405.00	379.00	0.00	0.00	5732873.3	635354.9
410	0.00	115.57	410.00	384.00	0.00	0.00	5732873.3	635354.9
415	0.00	116.98	415.00	389.00	0.00	0.00	5732873.3	635354.9
420	0.00	118.39	420.00	394.00	0.00	0.00	5732873.3	635354.9
425	0.45	118.67	425.00	399.00	-0.01	0.02	5732873.3	635355.0
430	0.58	118.67	430.00	404.00	-0.03	0.06	5732873.3	635355.0
435	0.73	118.67	435.00	409.00	-0.06	0.10	5732873.3	635355.1
440	1.02	118.67	440.00	414.00	-0.09	0.17	5732873.2	635355.1
445	1.25	118.67	445.00	419.00	-0.14	0.26	5732873.2	635355.2
450	1.34	118.67	450.00	424.00	-0.20	0.36	5732873.1	635355.3
455	1.39	118.67	455.00	429.00	-0.25	0.46	5732873.1	635355.4
460	1.37	118.67	459.99	433.99	-0.31	0.57	5732873.0	635355.5
465	1.47	118.67	464.99	438.99	-0.37	0.67	5732873.0	635355.6
470	1.78	118.67	469.99	443.99	-0.44	0.80	5732872.9	635355.7
475	1.87	118.67	474.99	448.99	-0.52	0.94	5732872.8	635355.9
480	1.73	118.67	479.99	453.99	-0.59	1.08	5732872.7	635356.0
485	1.49	118.67	484.98	458.98	-0.66	1.21	5732872.7	635356.2
490	1.14	118.67	489.98	463.98	-0.71	1.31	5732872.6	635356.3
495	1.03	118.67	494.98	468.98	-0.76	1.39	5732872.6	635356.3
500	0.99	118.67	499.98	473.98	-0.80	1.47	5732872.5	635356.4
505	0.95	118.67	504.98	478.98	-0.84	1.54	5732872.5	635356.5
510	0.91	118.67	509.98	483.98	-0.88	1.61	5732872.5	635356.6
515	0.87	118.67	514.98	488.98	-0.92	1.68	5732872.4	635356.6
520	0.83	118.65	519.98	493.98	-0.95	1.74	5732872.4	635356.7
525	0.83	117.51	524.98	498.98	-0.99	1.81	5732872.4	635356.8
530	0.84	116.38	529.98	503.98	-1.02	1.87	5732872.3	635356.8
535	0.84	115.25	534.98	508.98	-1.05	1.94	5732872.3	635356.9
540	0.84	114.12	539.98	513.98	-1.08	2.01	5732872.3	635357.0
545	0.85	112.98	544.97	518.97	-1.11	2.07	5732872.2	635357.0
550	0.85	112.30	549.97	523.97	-1.14	2.14	5732872.2	635357.1
555	0.83	113.24	554.97	528.97	-1.17	2.21	5732872.2	635357.2
560	0.82	114.17	559.97	533.97	-1.20	2.27	5732872.1	635357.2
565	0.80	115.10	564.97	538.97	-1.23	2.34	5732872.1	635357.3
570	0.78	116.03	569.97	543.97	-1.26	2.40	5732872.1	635357.3
575	0.77	116.96	574.97	548.97	-1.29	2.46	5732872.1	635357.4
580	0.74	117.75	579.97	553.97	-1.32	2.52	5732872.0	635357.5
585	0.68	118.33	584.97	558.97	-1.35	2.57	5732872.0	635357.5
590	0.63	118.91	589.97	563.97	-1.37	2.63	5732872.0	635357.6
595	0.57	119.48	594.97	568.97	-1.40	2.67	5732871.9	635357.6
600	0.52	120.06	599.97	573.97	-1.42	2.71	5732871.9	635357.7
605	0.46	120.64	604.97	578.97	-1.44	2.75	5732871.9	635357.7
610	0.46	121.04	609.97	583.97	-1.46	2.78	5732871.9	635357.7
615	0.50	121.33	614.97	588.97	-1.48	2.82	5732871.9	635357.8
620	0.54	121.62	619.97	593.97	-1.51	2.86	5732871.8	635357.8
625	0.58	121.92	624.97	598.97	-1.53	2.90	5732871.8	635357.8
630	0.61	122.21	629.97	603.97	-1.56	2.94	5732871.8	635357.9
635	0.65	122.50	634.97	608.97	-1.59	2.99	5732871.7	635357.9
640	0.63	121.39	639.97	613.97	-1.62	3.04	5732871.7	635358.0
645	0.60	119.90	644.97	618.97	-1.65	3.08	5732871.7	635358.0
650	0.56	118.40	649.97	623.97	-1.67	3.13	5732871.7	635358.1
655	0.65	118.63	654.97	628.97	-1.70	3.17	5732871.6	635358.1
660	0.74	118.86	659.97	633.97	-1.73	3.23	5732871.6	635358.2
665	0.83	119.08	664.97	638.97	-1.76	3.29	5732871.6	635358.2
670	0.92	119.31	669.97	643.97	-1.80	3.35	5732871.5	635358.3
675	1.01	119.54	674.97	648.97	-1.84	3.43	5732871.5	635358.4
680	1.10	119.77	679.96	653.96	-1.89	3.51	5732871.5	635358.5
685	1.19	119.99	684.96	658.96	-1.94	3.59	5732871.4	635358.5
690	1.27	118.57	689.96	663.96	-1.99	3.68	5732871.4	635358.6

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
695	1.31	109.41	694.96	668.96	-2.04	3.79	5732871.3	635358.7
700	1.35	100.25	699.96	673.96	-2.06	3.90	5732871.3	635358.8
705	1.39	91.09	704.96	678.96	-2.07	4.01	5732871.3	635359.0
710	1.43	81.93	709.96	683.96	-2.06	4.12	5732871.3	635359.1
715	1.47	72.77	714.96	688.96	-2.03	4.23	5732871.3	635359.2
720	1.56	63.96	719.95	693.95	-1.97	4.33	5732871.4	635359.3
725	1.90	56.92	724.95	698.95	-1.90	4.46	5732871.4	635359.4
730	2.24	49.89	729.95	703.95	-1.79	4.60	5732871.6	635359.5
735	2.58	42.85	734.95	708.95	-1.63	4.74	5732871.7	635359.7
740	2.93	35.81	739.94	713.94	-1.44	4.87	5732871.9	635359.8
745	3.27	28.77	744.93	718.93	-1.19	4.97	5732872.1	635359.9
750	3.62	23.20	749.92	723.92	-0.91	5.05	5732872.4	635360.0
755	4.00	22.21	754.91	728.91	-0.61	5.18	5732872.7	635360.1
760	4.37	21.22	759.90	733.90	-0.27	5.32	5732873.1	635360.3
765	4.75	20.22	764.88	738.88	0.11	5.45	5732873.4	635360.4
770	5.13	19.23	769.87	743.87	0.51	5.60	5732873.9	635360.5
775	5.50	18.24	774.84	748.84	0.95	5.74	5732874.3	635360.7
780	5.87	17.25	779.82	753.82	1.43	5.88	5732874.8	635360.8
785	6.00	16.54	784.79	758.79	1.92	6.03	5732875.3	635361.0
790	6.12	15.83	789.77	763.77	2.43	6.18	5732875.8	635361.1
795	6.25	15.12	794.74	768.74	2.95	6.32	5732876.3	635361.3
800	6.37	14.41	799.71	773.71	3.48	6.46	5732876.8	635361.4
805	6.50	13.70	804.67	778.67	4.02	6.60	5732877.4	635361.5
810	6.77	13.14	809.64	783.64	4.58	6.73	5732877.9	635361.7
815	7.26	12.79	814.60	788.60	5.18	6.86	5732878.5	635361.8
820	7.74	12.44	819.56	793.56	5.81	7.01	5732879.2	635362.0
825	8.23	12.09	824.51	798.51	6.49	7.15	5732879.8	635362.1
830	8.71	11.74	829.46	803.46	7.21	7.30	5732880.6	635362.2
835	9.20	11.39	834.40	808.40	7.98	7.46	5732881.3	635362.4
840	9.74	10.98	839.33	813.33	8.78	7.61	5732882.1	635362.6
845	10.37	10.47	844.25	818.25	9.64	7.77	5732883.0	635362.7
850	11.00	9.96	849.17	823.17	10.55	7.94	5732883.9	635362.9
855	11.63	9.46	854.07	828.07	11.52	8.10	5732884.9	635363.0
860	12.26	8.95	858.96	832.96	12.54	8.26	5732885.9	635363.2
865	12.89	8.44	863.84	837.84	13.62	8.42	5732887.0	635363.4
870	13.49	7.63	868.71	842.71	14.75	8.58	5732888.1	635363.5
875	14.10	6.79	873.56	847.56	15.93	8.73	5732889.3	635363.7
880	14.70	5.95	878.41	852.41	17.16	8.87	5732890.5	635363.8
885	15.31	5.11	883.24	857.24	18.45	8.99	5732891.8	635363.9
890	15.91	4.27	888.05	862.05	19.79	9.09	5732893.1	635364.0
895	16.52	3.43	892.85	866.85	21.19	9.17	5732894.5	635364.1
900	17.11	2.83	897.64	871.64	22.63	9.25	5732896.0	635364.2
905	17.70	2.31	902.41	876.41	24.12	9.31	5732897.5	635364.3
910	18.28	1.79	907.17	881.17	25.67	9.37	5732899.0	635364.3
915	18.87	1.27	911.91	885.91	27.26	9.41	5732900.6	635364.4
920	19.46	0.76	916.63	890.63	28.90	9.43	5732902.2	635364.4
925	20.04	1.85	921.34	895.34	30.59	9.44	5732903.9	635364.4
930	20.63	68.46	926.09	900.09	31.77	10.29	5732905.1	635365.2
935	21.21	135.07	931.06	905.06	31.00	10.79	5732904.3	635365.7
940	21.79	201.68	935.98	909.98	30.53	8.37	5732903.9	635363.3
945	22.38	268.29	940.42	914.42	33.96	5.54	5732907.3	635360.5
950	22.96	334.90	944.64	918.64	39.31	7.38	5732912.6	635362.3
955	23.38	359.07	949.19	923.19	41.72	9.36	5732915.1	635364.3
960	23.72	358.95	953.77	927.77	43.72	9.33	5732917.1	635364.3
965	24.05	358.83	958.35	932.35	45.74	9.29	5732919.1	635364.2
970	24.39	358.70	962.91	936.91	47.79	9.24	5732921.1	635364.2
975	24.72	358.58	967.45	941.45	49.87	9.19	5732923.2	635364.1
980	25.06	358.46	971.99	945.99	51.97	9.14	5732925.3	635364.1
985	25.54	358.54	976.51	950.51	54.11	9.08	5732927.4	635364.0
990	26.10	358.72	981.01	955.01	56.28	9.03	5732929.6	635364.0
995	26.65	358.90	985.49	959.49	58.50	8.98	5732931.8	635363.9
1000	27.21	359.08	989.95	963.95	60.77	8.94	5732934.1	635363.9
1005	27.76	359.26	994.38	968.38	63.08	8.91	5732936.4	635363.9
1010	28.31	356.71	998.80	972.80	65.42	8.88	5732938.8	635363.8
1015	28.78	294.95	1003.29	977.29	67.13	7.71	5732940.5	635362.7
1020	29.26	233.18	1008.20	982.20	66.31	6.72	5732939.7	635361.7
1025	29.73	171.42	1013.17	987.17	65.18	9.47	5732938.5	635364.4
1030	30.20	109.65	1017.32	991.32	68.59	13.92	5732941.9	635368.9
1035	30.67	47.89	1020.86	994.86	75.76	13.67	5732949.1	635368.6
1040	31.16	14.69	1024.85	998.85	80.29	8.92	5732953.6	635363.9
1045	31.67	78.21	1029.32	1003.32	81.70	10.49	5732955.0	635365.4

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
1050	32.18	141.73	1034.31	1008.31	80.31	10.88	5732953.7	635365.8
1055	32.69	205.24	1039.09	1013.09	79.95	6.80	5732953.3	635361.7
1060	33.20	268.76	1042.74	1016.74	85.32	2.77	5732958.7	635357.7
1065	33.71	332.27	1046.07	1020.07	92.95	5.48	5732966.3	635360.4
1070	34.21	359.23	1050.09	1024.09	96.50	8.76	5732969.8	635363.7
1075	34.69	359.05	1054.21	1028.21	99.33	8.72	5732972.7	635363.7
1080	35.18	358.88	1058.31	1032.31	102.19	8.67	5732975.5	635363.6
1085	35.67	358.70	1062.39	1036.39	105.09	8.61	5732978.4	635363.6
1090	36.15	358.53	1066.44	1040.44	108.02	8.53	5732981.4	635363.5
1095	36.64	358.35	1070.46	1044.46	110.99	8.45	5732984.3	635363.4
1100	37.12	358.23	1074.46	1048.46	113.98	8.36	5732987.3	635363.3
1105	37.59	358.14	1078.44	1052.44	117.02	8.26	5732990.4	635363.2
1110	38.07	358.04	1082.39	1056.39	120.08	8.16	5732993.4	635363.1
1115	38.54	357.94	1086.31	1060.31	123.18	8.05	5732996.5	635363.0
1120	39.02	357.84	1090.21	1064.21	126.31	7.94	5732999.6	635362.9
1125	39.49	357.74	1094.08	1068.08	129.47	7.81	5733002.8	635362.8
1130	40.12	357.35	1097.92	1071.92	132.67	7.68	5733006.0	635362.6
1135	40.84	356.75	1101.72	1075.72	135.91	7.51	5733009.2	635362.5
1140	41.57	356.15	1105.49	1079.49	139.19	7.31	5733012.5	635362.3
1145	42.29	355.55	1109.21	1083.21	142.53	7.06	5733015.9	635362.0
1150	43.02	354.95	1112.88	1086.88	145.90	6.78	5733019.2	635361.7
1155	43.74	354.36	1116.52	1090.52	149.32	6.45	5733022.7	635361.4
1160	44.44	353.97	1120.11	1094.11	152.78	6.10	5733026.1	635361.0
1165	45.12	353.63	1123.66	1097.66	156.28	5.72	5733029.6	635360.7
1170	45.81	353.28	1127.17	1101.17	159.82	5.31	5733033.2	635360.3
1175	46.49	352.94	1130.63	1104.63	163.40	4.87	5733036.7	635359.8
1180	47.18	352.60	1134.05	1108.05	167.02	4.41	5733040.4	635359.4
1185	47.86	352.45	1137.43	1111.43	170.67	3.93	5733044.0	635358.9
1190	48.50	352.75	1140.76	1114.76	174.37	3.45	5733047.7	635358.4
1195	49.15	353.05	1144.05	1118.05	178.10	2.98	5733051.4	635357.9
1200	49.80	353.35	1147.30	1121.30	181.88	2.53	5733055.2	635357.5
1205	50.45	353.65	1150.51	1124.51	185.69	2.10	5733059.0	635357.0
1210	51.10	353.95	1153.67	1127.67	189.54	1.69	5733062.9	635356.6
1215	51.68	354.16	1156.79	1130.79	193.43	1.28	5733066.8	635356.2
1220	52.22	354.31	1159.87	1133.87	197.35	0.89	5733070.7	635355.8
1225	52.76	354.45	1162.92	1136.92	201.29	0.50	5733074.6	635355.4
1230	53.30	354.59	1165.92	1139.92	205.27	0.12	5733078.6	635355.1
1235	53.84	354.74	1168.89	1142.89	209.27	-0.26	5733082.6	635354.7
1240	54.38	354.88	1171.82	1145.82	213.31	-0.62	5733086.6	635354.3
1245	54.92	355.00	1174.72	1148.72	217.37	-0.98	5733090.7	635354.0
1250	55.45	355.10	1177.57	1151.57	221.46	-1.33	5733094.8	635353.6
1255	55.99	355.21	1180.39	1154.39	225.58	-1.68	5733098.9	635353.3
1260	56.53	355.31	1183.16	1157.16	229.72	-2.03	5733103.1	635352.9
1265	57.07	355.41	1185.90	1159.90	233.89	-2.36	5733107.2	635352.6
1270	57.61	355.51	1188.60	1162.60	238.09	-2.70	5733111.4	635352.3
1275	58.25	355.61	1191.26	1165.26	242.31	-3.02	5733115.7	635351.9
1280	58.96	355.70	1193.86	1167.86	246.57	-3.35	5733119.9	635351.6
1285	59.67	355.79	1196.41	1170.41	250.85	-3.67	5733124.2	635351.3
1290	60.27	355.87	1198.91	1172.91	255.17	-3.98	5733128.5	635351.0
1295	60.33	355.89	1201.39	1175.39	259.51	-4.29	5733132.8	635350.7
1300	60.38	355.91	1203.86	1177.86	263.84	-4.60	5733137.2	635350.3
1305	60.44	355.92	1206.33	1180.33	268.18	-4.91	5733141.5	635350.0
1310	60.50	355.94	1208.80	1182.80	272.52	-5.22	5733145.9	635349.7
1315	60.56	355.96	1211.26	1185.26	276.86	-5.53	5733150.2	635349.4
1320	60.61	355.98	1213.71	1187.71	281.20	-5.83	5733154.5	635349.1
1325	60.67	355.99	1216.16	1190.16	285.55	-6.14	5733158.9	635348.8
1330	60.78	355.99	1218.61	1192.61	289.90	-6.44	5733163.2	635348.5
1335	60.93	355.98	1221.04	1195.04	294.26	-6.75	5733167.6	635348.2
1340	61.07	355.97	1223.47	1197.47	298.62	-7.06	5733172.0	635347.9
1345	61.22	355.95	1225.88	1199.88	302.99	-7.37	5733176.3	635347.6
1350	61.37	355.94	1228.28	1202.28	307.36	-7.68	5733180.7	635347.3
1355	61.51	355.93	1230.67	1204.67	311.74	-7.99	5733185.1	635347.0
1360	61.50	355.93	1233.06	1207.06	316.13	-8.30	5733189.5	635346.6
1365	61.49	355.94	1235.44	1209.44	320.51	-8.61	5733193.8	635346.3
1370	61.48	355.94	1237.83	1211.83	324.89	-8.92	5733198.2	635346.0
1375	61.47	355.94	1240.22	1214.22	329.27	-9.23	5733202.6	635345.7
1380	61.46	355.95	1242.61	1216.61	333.66	-9.54	5733207.0	635345.4
1385	61.45	355.94	1245.00	1219.00	338.04	-9.85	5733211.4	635345.1
1390	61.44	355.90	1247.39	1221.39	342.42	-10.17	5733215.8	635344.8
1395	61.43	355.85	1249.78	1223.78	346.80	-10.48	5733220.1	635344.5
1400	61.42	355.80	1252.17	1226.17	351.18	-10.80	5733224.5	635344.1

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
1405	61.41	355.76	1254.56	1228.56	355.55	-11.12	5733228.9	635343.8
1410	61.40	355.71	1256.95	1230.95	359.93	-11.45	5733233.3	635343.5
1415	61.39	355.68	1259.35	1233.35	364.31	-11.78	5733237.7	635343.2
1420	61.38	355.72	1261.74	1235.74	368.69	-12.11	5733242.0	635342.8
1425	61.37	355.77	1264.14	1238.14	373.06	-12.44	5733246.4	635342.5
1430	61.37	355.81	1266.53	1240.53	377.44	-12.76	5733250.8	635342.2
1435	61.36	355.86	1268.93	1242.93	381.82	-13.08	5733255.2	635341.9
1440	61.35	355.90	1271.33	1245.33	386.19	-13.39	5733259.5	635341.6
1445	61.27	355.89	1273.73	1247.73	390.57	-13.70	5733263.9	635341.2
1450	61.13	355.84	1276.13	1250.13	394.94	-14.02	5733268.3	635340.9
1455	60.99	355.79	1278.55	1252.55	399.30	-14.34	5733272.6	635340.6
1460	60.85	355.74	1280.98	1254.98	403.66	-14.66	5733277.0	635340.3
1465	60.71	355.70	1283.42	1257.42	408.01	-14.99	5733281.4	635340.0
1470	60.58	355.65	1285.88	1259.88	412.36	-15.32	5733285.7	635339.6
1475	60.57	355.64	1288.33	1262.33	416.70	-15.65	5733290.0	635339.3
1480	60.63	355.64	1290.79	1264.79	421.04	-15.98	5733294.4	635339.0
1485	60.69	355.65	1293.24	1267.24	425.39	-16.31	5733298.7	635338.6
1490	60.75	355.66	1295.68	1269.68	429.74	-16.64	5733303.1	635338.3
1495	60.81	355.67	1298.12	1272.12	434.09	-16.97	5733307.4	635338.0
1500	60.87	355.68	1300.56	1274.56	438.44	-17.30	5733311.8	635337.6
1505	60.85	355.61	1302.99	1276.99	442.80	-17.63	5733316.1	635337.3
1510	60.78	355.51	1305.43	1279.43	447.15	-17.97	5733320.5	635337.0
1515	60.72	355.40	1307.88	1281.88	451.50	-18.31	5733324.8	635336.6
1520	60.66	355.30	1310.32	1284.32	455.85	-18.67	5733329.2	635336.3
1525	60.60	355.20	1312.78	1286.78	460.19	-19.03	5733333.5	635335.9
1530	60.53	355.09	1315.23	1289.23	464.53	-19.40	5733337.9	635335.6
1535	60.56	355.15	1317.69	1291.69	468.86	-19.77	5733342.2	635335.2
1540	60.59	355.22	1320.15	1294.15	473.20	-20.13	5733346.5	635334.8
1545	60.62	355.29	1322.60	1296.60	477.55	-20.49	5733350.9	635334.5
1550	60.66	355.36	1325.05	1299.05	481.89	-20.85	5733355.2	635334.1
1555	60.69	355.42	1327.50	1301.50	486.23	-21.20	5733359.6	635333.7
1560	60.68	355.45	1329.95	1303.95	490.58	-21.54	5733363.9	635333.4
1565	60.60	355.39	1332.40	1306.40	494.93	-21.89	5733368.3	635333.1
1570	60.52	355.33	1334.86	1308.86	499.27	-22.24	5733372.6	635332.7
1575	60.44	355.27	1337.32	1311.32	503.60	-22.60	5733376.9	635332.3
1580	60.35	355.21	1339.79	1313.79	507.93	-22.96	5733381.3	635332.0
1585	60.27	355.16	1342.27	1316.27	512.26	-23.33	5733385.6	635331.6
1590	60.23	355.15	1344.75	1318.75	516.59	-23.69	5733389.9	635331.3
1595	60.20	355.16	1347.23	1321.23	520.91	-24.06	5733394.3	635330.9
1600	60.17	355.17	1349.72	1323.72	525.23	-24.43	5733398.6	635330.5
1605	60.14	355.18	1352.21	1326.21	529.56	-24.79	5733402.9	635330.2
1610	60.11	355.19	1354.70	1328.70	533.88	-25.15	5733407.2	635329.8
1615	60.08	355.19	1357.19	1331.19	538.19	-25.52	5733411.5	635329.4
1620	60.07	355.20	1359.69	1333.69	542.51	-25.88	5733415.9	635329.1
1625	60.09	355.20	1362.18	1336.18	546.83	-26.24	5733420.2	635328.7
1630	60.11	355.20	1364.67	1338.67	551.15	-26.61	5733424.5	635328.3
1635	60.13	355.19	1367.16	1341.16	555.47	-26.97	5733428.8	635328.0
1640	60.15	355.19	1369.65	1343.65	559.79	-27.33	5733433.1	635327.6
1645	60.18	355.19	1372.14	1346.14	564.11	-27.70	5733437.5	635327.3
1650	60.24	355.17	1374.62	1348.62	568.44	-28.06	5733441.8	635326.9
1655	60.30	355.15	1377.10	1351.10	572.76	-28.43	5733446.1	635326.5
1660	60.36	355.13	1379.58	1353.58	577.09	-28.80	5733450.4	635326.2
1665	60.42	355.11	1382.05	1356.05	581.42	-29.17	5733454.8	635325.8
1670	60.48	355.10	1384.52	1358.52	585.76	-29.54	5733459.1	635325.4
1675	60.53	355.08	1386.98	1360.98	590.09	-29.91	5733463.4	635325.0
1680	60.49	355.13	1389.44	1363.44	594.43	-30.28	5733467.8	635324.7
1685	60.46	355.17	1391.90	1365.90	598.76	-30.65	5733472.1	635324.3
1690	60.42	355.21	1394.37	1368.37	603.10	-31.01	5733476.4	635323.9
1695	60.39	355.25	1396.84	1370.84	607.43	-31.38	5733480.8	635323.6
1700	60.36	355.29	1399.31	1373.31	611.76	-31.73	5733485.1	635323.2
1705	60.32	355.33	1401.78	1375.78	616.09	-32.09	5733489.4	635322.9
1710	60.25	355.32	1404.26	1378.26	620.42	-32.44	5733493.8	635322.5
1715	60.17	355.32	1406.75	1380.75	624.75	-32.80	5733498.1	635322.1
1720	60.10	355.31	1409.24	1383.24	629.07	-33.15	5733502.4	635321.8
1725	60.02	355.31	1411.73	1385.73	633.39	-33.51	5733506.7	635321.4
1730	59.95	355.30	1414.23	1388.23	637.70	-33.86	5733511.0	635321.1
1735	59.92	355.29	1416.74	1390.74	642.01	-34.22	5733515.4	635320.7
1740	59.94	355.26	1419.24	1393.24	646.33	-34.57	5733519.7	635320.4
1745	59.96	355.23	1421.75	1395.75	650.64	-34.93	5733524.0	635320.0
1750	59.97	355.20	1424.25	1398.25	654.95	-35.29	5733528.3	635319.7
1755	59.99	355.17	1426.75	1400.75	659.27	-35.65	5733532.6	635319.3

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
1760	60.01	355.15	1429.25	1403.25	663.58	-36.02	5733536.9	635318.9
1765	60.04	355.16	1431.75	1405.75	667.90	-36.39	5733541.2	635318.6
1770	60.07	355.24	1434.25	1408.25	672.21	-36.75	5733545.6	635318.2
1775	60.10	355.31	1436.74	1410.74	676.53	-37.11	5733549.9	635317.8
1780	60.14	355.38	1439.23	1413.23	680.85	-37.46	5733554.2	635317.5
1785	60.17	355.46	1441.72	1415.72	685.18	-37.80	5733558.5	635317.1
1790	60.21	355.53	1444.20	1418.20	689.50	-38.15	5733562.8	635316.8
1795	60.21	355.59	1446.69	1420.69	693.83	-38.48	5733567.2	635316.5
1800	60.18	355.64	1449.17	1423.17	698.15	-38.81	5733571.5	635316.1
1805	60.16	355.70	1451.66	1425.66	702.48	-39.14	5733575.8	635315.8
1810	60.13	355.75	1454.15	1428.15	706.80	-39.46	5733580.1	635315.5
1815	60.11	355.80	1456.64	1430.64	711.13	-39.78	5733584.5	635315.2
1820	60.09	355.85	1459.13	1433.13	715.45	-40.10	5733588.8	635314.8
1825	60.05	355.85	1461.63	1435.63	719.77	-40.41	5733593.1	635314.5
1830	60.01	355.86	1464.13	1438.13	724.09	-40.72	5733597.4	635314.2
1835	59.98	355.86	1466.63	1440.63	728.41	-41.04	5733601.8	635313.9
1840	59.94	355.86	1469.13	1443.13	732.73	-41.35	5733606.1	635313.6
1845	59.90	355.87	1471.64	1445.64	737.04	-41.66	5733610.4	635313.3
1850	59.87	355.87	1474.14	1448.14	741.36	-41.97	5733614.7	635313.0
1855	59.87	355.87	1476.65	1450.65	745.67	-42.28	5733619.0	635312.7
1860	59.87	355.87	1479.16	1453.16	749.98	-42.60	5733623.3	635312.4
1865	59.87	355.87	1481.67	1455.67	754.30	-42.91	5733627.6	635312.0
1870	59.87	355.87	1484.18	1458.18	758.61	-43.22	5733632.0	635311.7
1875	59.87	355.87	1486.69	1460.69	762.92	-43.53	5733636.3	635311.4
1880	59.87	355.87	1489.20	1463.20	767.24	-43.84	5733640.6	635311.1
1885	59.86	355.89	1491.71	1465.71	771.55	-44.15	5733644.9	635310.8
1890	59.85	355.90	1494.22	1468.22	775.86	-44.46	5733649.2	635310.5
1895	59.84	355.92	1496.74	1470.74	780.17	-44.77	5733653.5	635310.2
1900	59.83	355.93	1499.25	1473.25	784.49	-45.08	5733657.8	635309.9
1905	59.82	355.95	1501.76	1475.76	788.80	-45.38	5733662.1	635309.6
1910	59.81	355.98	1504.28	1478.28	793.11	-45.69	5733666.4	635309.3
1915	59.82	356.03	1506.79	1480.79	797.42	-45.99	5733670.8	635309.0
1920	59.83	356.08	1509.30	1483.30	801.73	-46.29	5733675.1	635308.7
1925	59.84	356.13	1511.82	1485.82	806.05	-46.58	5733679.4	635308.4
1930	59.85	356.18	1514.33	1488.33	810.36	-46.87	5733683.7	635308.1
1935	59.86	356.19	1516.84	1490.84	814.67	-47.16	5733688.0	635307.8
1940	59.88	356.17	1519.35	1493.35	818.99	-47.45	5733692.3	635307.5
1945	59.91	356.15	1521.86	1495.86	823.30	-47.73	5733696.6	635307.2
1950	59.93	356.13	1524.36	1498.36	827.62	-48.03	5733701.0	635306.9
1955	59.95	356.12	1526.87	1500.87	831.94	-48.32	5733705.3	635306.6
1960	59.97	356.10	1529.37	1503.37	836.26	-48.61	5733709.6	635306.3
1965	60.00	356.10	1531.87	1505.87	840.58	-48.91	5733713.9	635306.0
1970	60.02	356.10	1534.37	1508.37	844.90	-49.20	5733718.2	635305.7
1975	60.05	356.11	1536.87	1510.87	849.22	-49.50	5733722.6	635305.5
1980	60.07	356.12	1539.36	1513.36	853.54	-49.79	5733726.9	635305.2
1985	60.10	356.13	1541.86	1515.86	857.86	-50.08	5733731.2	635304.9
1990	60.12	356.14	1544.35	1518.35	862.19	-50.37	5733735.5	635304.6
1995	60.16	356.16	1546.84	1520.84	866.52	-50.67	5733739.9	635304.3
2000	60.20	356.18	1549.32	1523.32	870.84	-50.96	5733744.2	635304.0
2005	60.23	356.21	1551.81	1525.81	875.17	-51.24	5733748.5	635303.7
2010	60.27	356.23	1554.29	1528.29	879.51	-51.53	5733752.8	635303.4
2015	60.31	356.26	1556.77	1530.77	883.84	-51.81	5733757.2	635303.1
2020	60.35	356.28	1559.24	1533.24	888.17	-52.10	5733761.5	635302.9
2025	60.38	356.31	1561.71	1535.71	892.51	-52.38	5733765.9	635302.6
2030	60.41	356.35	1564.19	1538.19	896.85	-52.66	5733770.2	635302.3
2035	60.44	356.38	1566.65	1540.65	901.19	-52.93	5733774.5	635302.0
2040	60.46	356.42	1569.12	1543.12	905.53	-53.20	5733778.9	635301.7
2045	60.49	356.45	1571.58	1545.58	909.87	-53.47	5733783.2	635301.5
2050	60.52	356.48	1574.04	1548.04	914.22	-53.74	5733787.6	635301.2
2055	60.54	356.48	1576.50	1550.50	918.56	-54.01	5733791.9	635300.9
2060	60.54	356.35	1578.96	1552.96	922.91	-54.28	5733796.2	635300.7
2065	60.55	356.22	1581.42	1555.42	927.25	-54.56	5733800.6	635300.4
2070	60.55	356.09	1583.88	1557.88	931.60	-54.86	5733804.9	635300.1
2075	60.55	355.96	1586.34	1560.34	935.94	-55.16	5733809.3	635299.8
2080	60.56	355.82	1588.80	1562.80	940.28	-55.47	5733813.6	635299.5
2085	60.57	355.78	1591.25	1565.25	944.62	-55.79	5733818.0	635299.2
2090	60.60	355.85	1593.71	1567.71	948.97	-56.11	5733822.3	635298.8
2095	60.63	355.91	1596.16	1570.16	953.31	-56.42	5733826.7	635298.5
2100	60.65	355.98	1598.61	1572.61	957.66	-56.73	5733831.0	635298.2
2105	60.68	356.05	1601.06	1575.06	962.01	-57.03	5733835.3	635297.9
2110	60.71	356.10	1603.51	1577.51	966.36	-57.33	5733839.7	635297.6

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
2115	60.76	356.12	1605.96	1579.96	970.71	-57.63	5733844.1	635297.3
2120	60.81	356.14	1608.40	1582.40	975.06	-57.92	5733848.4	635297.0
2125	60.85	356.15	1610.83	1584.83	979.42	-58.22	5733852.8	635296.7
2130	60.90	356.17	1613.27	1587.27	983.78	-58.51	5733857.1	635296.4
2135	60.89	356.22	1615.70	1589.70	988.14	-58.80	5733861.5	635296.1
2140	60.91	356.19	1618.13	1592.13	992.50	-59.09	5733865.8	635295.9
2145	60.94	356.11	1620.56	1594.56	996.86	-59.38	5733870.2	635295.6
2150	60.97	356.03	1622.99	1596.99	1001.22	-59.68	5733874.6	635295.3
2155	60.99	355.94	1625.41	1599.41	1005.58	-59.98	5733878.9	635295.0
2160	61.02	355.86	1627.84	1601.84	1009.94	-60.30	5733883.3	635294.7
2165	61.05	355.78	1630.26	1604.26	1014.30	-60.62	5733887.6	635294.3
2170	61.09	355.73	1632.68	1606.68	1018.67	-60.94	5733892.0	635294.0
2175	61.13	355.74	1635.09	1609.09	1023.03	-61.27	5733896.4	635293.7
2180	61.18	355.74	1637.51	1611.51	1027.40	-61.59	5733900.7	635293.4
2185	61.22	355.74	1639.91	1613.91	1031.77	-61.92	5733905.1	635293.0
2190	61.27	355.75	1642.32	1616.32	1036.14	-62.24	5733909.5	635292.7
2195	61.31	355.75	1644.72	1618.72	1040.52	-62.57	5733913.9	635292.4
2200	61.35	355.61	1647.12	1621.12	1044.89	-62.90	5733918.2	635292.0
2205	61.39	355.44	1649.52	1623.52	1049.27	-63.24	5733922.6	635291.7
2210	61.43	355.27	1651.91	1625.91	1053.64	-63.60	5733927.0	635291.4
2215	61.47	355.10	1654.30	1628.30	1058.02	-63.96	5733931.4	635291.0
2220	61.51	354.92	1656.68	1630.68	1062.39	-64.35	5733935.7	635290.6
2225	61.53	354.86	1659.07	1633.07	1066.77	-64.74	5733940.1	635290.2
2230	61.54	354.84	1661.45	1635.45	1071.15	-65.13	5733944.5	635289.8
2235	61.55	354.83	1663.83	1637.83	1075.53	-65.53	5733948.9	635289.4
2240	61.56	354.81	1666.22	1640.22	1079.91	-65.93	5733953.2	635289.0
2245	61.57	354.80	1668.60	1642.60	1084.29	-66.32	5733957.6	635288.6
2250	61.59	354.78	1670.98	1644.98	1088.66	-66.72	5733962.0	635288.2
2255	61.55	354.80	1673.36	1647.36	1093.04	-67.12	5733966.4	635287.8
2260	61.48	354.83	1675.74	1649.74	1097.42	-67.52	5733970.8	635287.4
2265	61.42	354.86	1678.13	1652.13	1101.79	-67.91	5733975.1	635287.0
2270	61.36	354.90	1680.52	1654.52	1106.17	-68.31	5733979.5	635286.6
2275	61.30	354.93	1682.92	1656.92	1110.54	-68.70	5733983.9	635286.3
2280	61.24	354.96	1685.33	1659.33	1114.90	-69.08	5733988.2	635285.9
2285	61.26	354.94	1687.73	1661.73	1119.27	-69.47	5733992.6	635285.5
2290	61.28	354.91	1690.14	1664.14	1123.64	-69.86	5733997.0	635285.1
2295	61.31	354.88	1692.54	1666.54	1128.01	-70.25	5734001.3	635284.7
2300	61.34	354.86	1694.94	1668.94	1132.37	-70.64	5734005.7	635284.3
2305	61.37	354.83	1697.33	1671.33	1136.74	-71.03	5734010.1	635283.9
2310	61.40	354.80	1699.73	1673.73	1141.12	-71.43	5734014.5	635283.5
2315	61.33	354.79	1702.12	1676.12	1145.49	-71.83	5734018.8	635283.1
2320	61.24	354.79	1704.53	1678.53	1149.85	-72.22	5734023.2	635282.7
2325	61.15	354.78	1706.94	1680.94	1154.22	-72.62	5734027.6	635282.3
2330	61.07	354.77	1709.35	1683.35	1158.58	-73.02	5734031.9	635281.9
2335	60.98	354.76	1711.77	1685.77	1162.93	-73.42	5734036.3	635281.5
2340	60.89	354.75	1714.20	1688.20	1167.28	-73.82	5734040.6	635281.1
2345	60.72	354.78	1716.64	1690.64	1171.63	-74.22	5734045.0	635280.7
2350	60.50	354.84	1719.09	1693.09	1175.97	-74.61	5734049.3	635280.3
2355	60.28	354.89	1721.56	1695.56	1180.30	-75.00	5734053.6	635279.9
2360	60.05	354.94	1724.05	1698.05	1184.62	-75.39	5734058.0	635279.6
2365	59.83	354.99	1726.56	1700.56	1188.93	-75.77	5734062.3	635279.2
2370	59.64	354.99	1729.08	1703.08	1193.23	-76.14	5734066.6	635278.8
2375	59.47	354.94	1731.61	1705.61	1197.53	-76.52	5734070.9	635278.4
2380	59.30	354.88	1734.16	1708.16	1201.81	-76.90	5734075.2	635278.0
2385	59.13	354.83	1736.72	1710.72	1206.09	-77.29	5734079.4	635277.7
2390	58.96	354.77	1739.29	1713.29	1210.36	-77.68	5734083.7	635277.3
2395	58.79	354.72	1741.87	1715.87	1214.62	-78.07	5734088.0	635276.9
2400	58.68	354.69	1744.47	1718.47	1218.88	-78.46	5734092.2	635276.5
2405	58.67	354.72	1747.07	1721.07	1223.13	-78.86	5734096.5	635276.1
2410	58.66	354.75	1749.67	1723.67	1227.38	-79.25	5734100.7	635275.7
2415	58.64	354.77	1752.27	1726.27	1231.64	-79.64	5734105.0	635275.3
2420	58.63	354.80	1754.87	1728.87	1235.89	-80.03	5734109.2	635274.9
2425	58.62	354.83	1757.47	1731.47	1240.14	-80.41	5734113.5	635274.5
2430	58.73	354.91	1760.08	1734.08	1244.39	-80.80	5734117.7	635274.2
2435	58.89	355.02	1762.67	1736.67	1248.65	-81.17	5734122.0	635273.8
2440	59.05	355.13	1765.24	1739.24	1252.92	-81.54	5734126.3	635273.4
2445	59.22	355.24	1767.81	1741.81	1257.20	-81.90	5734130.5	635273.0
2450	59.38	355.34	1770.36	1744.36	1261.48	-82.25	5734134.8	635272.7
2455	59.55	355.45	1772.90	1746.90	1265.78	-82.60	5734139.1	635272.3
2460	59.63	355.43	1775.43	1749.43	1270.07	-82.94	5734143.4	635272.0
2465	59.69	355.38	1777.96	1751.96	1274.38	-83.29	5734147.7	635271.7

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
2470	59.76	355.33	1780.48	1754.48	1278.68	-83.64	5734152.0	635271.3
2475	59.83	355.28	1782.99	1756.99	1282.99	-83.99	5734156.3	635271.0
2480	59.90	355.23	1785.50	1759.50	1287.30	-84.35	5734160.6	635270.6
2485	59.88	355.24	1788.01	1762.01	1291.61	-84.71	5734164.9	635270.2
2490	59.85	355.27	1790.52	1764.52	1295.92	-85.06	5734169.3	635269.9
2495	59.82	355.29	1793.03	1767.03	1300.22	-85.42	5734173.6	635269.5
2500	59.79	355.32	1795.55	1769.55	1304.53	-85.77	5734177.9	635269.2
2505	59.75	355.34	1798.07	1772.07	1308.84	-86.13	5734182.2	635268.8
2510	59.72	355.37	1800.59	1774.59	1313.14	-86.48	5734186.5	635268.5
2515	59.69	355.41	1803.11	1777.11	1317.44	-86.82	5734190.8	635268.1
2520	59.67	355.45	1805.63	1779.63	1321.75	-87.17	5734195.1	635267.8
2525	59.64	355.50	1808.16	1782.16	1326.05	-87.51	5734199.4	635267.4
2530	59.62	355.54	1810.69	1784.69	1330.35	-87.84	5734203.7	635267.1
2535	59.59	355.59	1813.22	1787.22	1334.65	-88.18	5734208.0	635266.8
2540	59.56	355.63	1815.75	1789.75	1338.95	-88.51	5734212.3	635266.4
2545	59.54	355.63	1818.28	1792.28	1343.25	-88.83	5734216.6	635266.1
2550	59.51	355.62	1820.82	1794.82	1347.54	-89.16	5734220.9	635265.8
2555	59.49	355.61	1823.36	1797.36	1351.84	-89.49	5734225.2	635265.5
2560	59.47	355.60	1825.89	1799.89	1356.13	-89.82	5734229.5	635265.1
2565	59.44	355.59	1828.44	1802.44	1360.43	-90.15	5734233.8	635264.8
2570	59.41	355.59	1830.98	1804.98	1364.72	-90.49	5734238.1	635264.5
2575	59.31	355.63	1833.53	1807.53	1369.01	-90.81	5734242.3	635264.1
2580	59.22	355.67	1836.08	1810.08	1373.29	-91.14	5734246.6	635263.8
2585	59.12	355.72	1838.65	1812.65	1377.57	-91.46	5734250.9	635263.5
2590	59.02	355.76	1841.22	1815.22	1381.85	-91.78	5734255.2	635263.2
2595	58.93	355.81	1843.79	1817.79	1386.12	-92.10	5734259.5	635262.9
2600	58.84	355.82	1846.38	1820.38	1390.39	-92.41	5734263.7	635262.5
2605	58.76	355.81	1848.97	1822.97	1394.66	-92.72	5734268.0	635262.2
2610	58.69	355.80	1851.56	1825.56	1398.92	-93.03	5734272.3	635261.9
2615	58.61	355.79	1854.16	1828.16	1403.18	-93.35	5734276.5	635261.6
2620	58.53	355.77	1856.77	1830.77	1407.43	-93.66	5734280.8	635261.3
2625	58.45	355.76	1859.38	1833.38	1411.69	-93.97	5734285.0	635261.0
2630	58.38	355.76	1862.00	1836.00	1415.93	-94.29	5734289.3	635260.7
2635	58.34	355.82	1864.63	1838.63	1420.18	-94.60	5734293.5	635260.3
2640	58.29	355.88	1867.25	1841.25	1424.42	-94.91	5734297.8	635260.0
2645	58.25	355.94	1869.88	1843.88	1428.66	-95.21	5734302.0	635259.7
2650	58.20	356.00	1872.51	1846.51	1432.90	-95.51	5734306.2	635259.4
2655	58.16	356.06	1875.15	1849.15	1437.14	-95.81	5734310.5	635259.1
2660	58.13	356.11	1877.79	1851.79	1441.38	-96.10	5734314.7	635258.9
2665	58.13	356.15	1880.43	1854.43	1445.62	-96.38	5734319.0	635258.6
2670	58.14	356.18	1883.07	1857.07	1449.85	-96.67	5734323.2	635258.3
2675	58.14	356.22	1885.71	1859.71	1454.09	-96.95	5734327.4	635258.0
2680	58.14	356.26	1888.35	1862.35	1458.33	-97.23	5734331.7	635257.7
2685	58.15	356.29	1890.99	1864.99	1462.57	-97.50	5734335.9	635257.4
2690	58.15	356.27	1893.62	1867.62	1466.80	-97.78	5734340.1	635257.2
2695	58.15	356.18	1896.26	1870.26	1471.04	-98.06	5734344.4	635256.9
2700	58.15	356.09	1898.90	1872.90	1475.28	-98.34	5734348.6	635256.6
2705	58.14	356.00	1901.54	1875.54	1479.52	-98.64	5734352.9	635256.3
2710	58.14	355.91	1904.18	1878.18	1483.75	-98.94	5734357.1	635256.0
2715	58.14	355.82	1906.82	1880.82	1487.99	-99.24	5734361.3	635255.7
2720	58.13	355.81	1909.46	1883.46	1492.22	-99.56	5734365.6	635255.4
2725	58.10	355.93	1912.10	1886.10	1496.46	-99.86	5734369.8	635255.1
2730	58.08	356.05	1914.74	1888.74	1500.69	-100.16	5734374.0	635254.8
2735	58.05	356.17	1917.39	1891.39	1504.92	-100.45	5734378.3	635254.5
2740	58.02	356.29	1920.03	1894.03	1509.16	-100.73	5734382.5	635254.2
2745	58.02	356.33	1922.68	1896.68	1513.39	-101.00	5734386.7	635254.0
2750	58.09	356.08	1925.33	1899.33	1517.62	-101.28	5734391.0	635253.7
2755	58.16	355.83	1927.97	1901.97	1521.86	-101.58	5734395.2	635253.4
2760	58.24	355.58	1930.60	1904.60	1526.10	-101.90	5734399.4	635253.1
2765	58.31	355.33	1933.23	1907.23	1530.34	-102.23	5734403.7	635252.7
2770	58.39	355.08	1935.86	1909.86	1534.58	-102.59	5734407.9	635252.4
2775	58.47	354.88	1938.47	1912.47	1538.82	-102.96	5734412.2	635252.0
2780	58.57	354.83	1941.09	1915.09	1543.07	-103.35	5734416.4	635251.6
2785	58.68	354.78	1943.69	1917.69	1547.32	-103.73	5734420.7	635251.2
2790	58.78	354.72	1946.28	1920.28	1551.57	-104.12	5734424.9	635250.8
2795	58.88	354.67	1948.87	1922.87	1555.83	-104.52	5734429.2	635250.4
2800	58.99	354.62	1951.45	1925.45	1560.10	-104.92	5734433.4	635250.0
2805	59.02	354.61	1954.03	1928.03	1564.37	-105.32	5734437.7	635249.6
2810	58.97	354.66	1956.60	1930.60	1568.63	-105.72	5734442.0	635249.2
2815	58.93	354.70	1959.18	1933.18	1572.90	-106.12	5734446.2	635248.8
2820	58.89	354.74	1961.76	1935.76	1577.16	-106.52	5734450.5	635248.4

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
2825	58.84	354.79	1964.35	1938.35	1581.42	-106.91	5734454.8	635248.0
2830	58.80	354.83	1966.94	1940.94	1585.68	-107.29	5734459.0	635247.7
2835	58.80	354.86	1969.53	1943.53	1589.94	-107.68	5734463.3	635247.3
2840	58.88	354.87	1972.11	1946.11	1594.20	-108.06	5734467.5	635246.9
2845	58.96	354.88	1974.70	1948.70	1598.47	-108.44	5734471.8	635246.5
2850	59.04	354.89	1977.27	1951.27	1602.74	-108.82	5734476.1	635246.1
2855	59.12	354.90	1979.84	1953.84	1607.01	-109.20	5734480.4	635245.7
2860	59.18	354.90	1982.40	1956.40	1611.29	-109.59	5734484.6	635245.4
2865	59.21	354.89	1984.96	1958.96	1615.56	-109.97	5734488.9	635245.0
2870	59.24	354.88	1987.52	1961.52	1619.84	-110.35	5734493.2	635244.6
2875	59.27	354.86	1990.08	1964.08	1624.12	-110.73	5734497.5	635244.2
2880	59.30	354.85	1992.63	1966.63	1628.40	-111.12	5734501.7	635243.8
2885	59.32	354.84	1995.18	1969.18	1632.69	-111.51	5734506.0	635243.4
2890	59.36	354.81	1997.73	1971.73	1636.97	-111.89	5734510.3	635243.1
2895	59.40	354.78	2000.28	1974.28	1641.25	-112.28	5734514.6	635242.7
2900	59.43	354.74	2002.83	1976.83	1645.54	-112.68	5734518.9	635242.3
2905	59.47	354.71	2005.37	1979.37	1649.83	-113.07	5734523.2	635241.9
2910	59.51	354.67	2007.90	1981.90	1654.12	-113.47	5734527.5	635241.5
2915	59.55	354.64	2010.44	1984.44	1658.41	-113.87	5734531.7	635241.1
2920	59.58	354.63	2012.97	1986.97	1662.70	-114.28	5734536.0	635240.7
2925	59.60	354.65	2015.50	1989.50	1666.99	-114.68	5734540.3	635240.3
2930	59.62	354.67	2018.03	1992.03	1671.29	-115.08	5734544.6	635239.9
2935	59.64	354.69	2020.56	1994.56	1675.58	-115.48	5734548.9	635239.5
2940	59.65	354.71	2023.09	1997.09	1679.88	-115.88	5734553.2	635239.1
2945	59.67	354.73	2025.61	1999.61	1684.18	-116.28	5734557.5	635238.7
2950	59.70	354.74	2028.14	2002.14	1688.47	-116.67	5734561.8	635238.3
2955	59.74	354.75	2030.66	2004.66	1692.77	-117.07	5734566.1	635237.9
2960	59.77	354.75	2033.18	2007.18	1697.08	-117.46	5734570.4	635237.5
2965	59.80	354.76	2035.69	2009.69	1701.38	-117.86	5734574.7	635237.1
2970	59.84	354.76	2038.21	2012.21	1705.68	-118.25	5734579.0	635236.7
2975	59.87	354.77	2040.72	2014.72	1709.99	-118.65	5734583.3	635236.3
2980	59.89	354.82	2043.23	2017.23	1714.30	-119.04	5734587.6	635235.9
2985	59.90	354.88	2045.73	2019.73	1718.60	-119.43	5734591.9	635235.5
2990	59.91	354.95	2048.24	2022.24	1722.91	-119.81	5734596.3	635235.1
2995	59.92	355.01	2050.75	2024.75	1727.22	-120.19	5734600.6	635234.8
3000	59.93	355.07	2053.25	2027.25	1731.53	-120.56	5734604.9	635234.4
3005	59.95	355.14	2055.76	2029.76	1735.85	-120.93	5734609.2	635234.0
3010	59.93	355.13	2058.26	2032.26	1740.16	-121.30	5734613.5	635233.6
3015	59.90	355.09	2060.77	2034.77	1744.47	-121.67	5734617.8	635233.3
3020	59.87	355.05	2063.28	2037.28	1748.78	-122.04	5734622.1	635232.9
3025	59.83	355.01	2065.79	2039.79	1753.08	-122.41	5734626.4	635232.5
3030	59.80	354.96	2068.30	2042.30	1757.39	-122.79	5734630.7	635232.2
3035	59.77	354.92	2070.82	2044.82	1761.69	-123.17	5734635.0	635231.8
3040	59.81	354.97	2073.33	2047.33	1766.00	-123.55	5734639.3	635231.4
3045	59.84	355.03	2075.85	2049.85	1770.30	-123.93	5734643.6	635231.0
3050	59.88	355.08	2078.36	2052.36	1774.61	-124.30	5734648.0	635230.6
3055	59.92	355.14	2080.87	2054.87	1778.92	-124.67	5734652.3	635230.3
3060	59.95	355.19	2083.37	2057.37	1783.23	-125.04	5734656.6	635229.9
3065	59.97	355.24	2085.87	2059.87	1787.55	-125.40	5734660.9	635229.5
3070	59.92	355.29	2088.38	2062.38	1791.86	-125.75	5734665.2	635229.2
3075	59.87	355.34	2090.89	2064.89	1796.17	-126.11	5734669.5	635228.8
3080	59.82	355.39	2093.40	2067.40	1800.48	-126.46	5734673.8	635228.5
3085	59.77	355.44	2095.91	2069.91	1804.79	-126.80	5734678.1	635228.1
3090	59.73	355.49	2098.43	2072.43	1809.09	-127.14	5734682.4	635227.8
3095	59.70	355.51	2100.95	2074.95	1813.40	-127.48	5734686.7	635227.5
3100	59.71	355.48	2103.48	2077.48	1817.70	-127.82	5734691.0	635227.1
3105	59.71	355.46	2106.00	2080.00	1822.01	-128.16	5734695.3	635226.8
3110	59.71	355.44	2108.52	2082.52	1826.31	-128.50	5734699.6	635226.4
3115	59.72	355.41	2111.04	2085.04	1830.61	-128.85	5734704.0	635226.1
3120	59.72	355.39	2113.56	2087.56	1834.92	-129.19	5734708.3	635225.8
3125	59.69	355.41	2116.08	2090.08	1839.22	-129.54	5734712.6	635225.4
3130	59.65	355.45	2118.61	2092.61	1843.52	-129.89	5734716.9	635225.1
3135	59.60	355.49	2121.14	2095.14	1847.82	-130.23	5734721.2	635224.7
3140	59.56	355.53	2123.67	2097.67	1852.12	-130.56	5734725.5	635224.4
3145	59.52	355.57	2126.20	2100.20	1856.42	-130.90	5734729.8	635224.0
3150	59.47	355.61	2128.74	2102.74	1860.71	-131.23	5734734.1	635223.7
3155	59.46	355.57	2131.28	2105.28	1865.01	-131.56	5734738.3	635223.4
3160	59.46	355.49	2133.82	2107.82	1869.30	-131.90	5734742.6	635223.1
3165	59.46	355.42	2136.36	2110.36	1873.59	-132.24	5734746.9	635222.7
3170	59.46	355.34	2138.91	2112.91	1877.88	-132.58	5734751.2	635222.4
3175	59.46	355.26	2141.45	2115.45	1882.18	-132.94	5734755.5	635222.0

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
3180	59.47	355.16	2143.99	2117.99	1886.47	-133.30	5734759.8	635221.7
3185	59.55	354.90	2146.52	2120.52	1890.76	-133.67	5734764.1	635221.3
3190	59.64	354.63	2149.05	2123.05	1895.06	-134.06	5734768.4	635220.9
3195	59.72	354.37	2151.58	2125.58	1899.35	-134.48	5734772.7	635220.5
3200	59.80	354.10	2154.10	2128.10	1903.65	-134.91	5734777.0	635220.0
3205	59.89	353.83	2156.61	2130.61	1907.95	-135.36	5734781.3	635219.6
3210	59.91	353.71	2159.12	2133.12	1912.25	-135.84	5734785.6	635219.1
3215	59.85	353.74	2161.62	2135.62	1916.55	-136.31	5734789.9	635218.6
3220	59.80	353.77	2164.14	2138.14	1920.84	-136.78	5734794.2	635218.2
3225	59.75	353.81	2166.65	2140.65	1925.14	-137.25	5734798.5	635217.7
3230	59.70	353.84	2169.18	2143.18	1929.43	-137.71	5734802.8	635217.2
3235	59.65	353.88	2171.70	2145.70	1933.72	-138.17	5734807.1	635216.8
3240	59.60	353.91	2174.23	2148.23	1938.01	-138.63	5734811.4	635216.3
3245	59.55	353.94	2176.76	2150.76	1942.30	-139.09	5734815.6	635215.9
3250	59.50	353.98	2179.30	2153.30	1946.58	-139.54	5734819.9	635215.4
3255	59.45	354.01	2181.84	2155.84	1950.87	-139.99	5734824.2	635215.0
3260	59.40	354.05	2184.38	2158.38	1955.15	-140.44	5734828.5	635214.5
3265	59.35	354.08	2186.93	2160.93	1959.43	-140.89	5734832.8	635214.1
3270	59.30	354.12	2189.48	2163.48	1963.71	-141.33	5734837.0	635213.6
3275	59.24	354.16	2192.03	2166.03	1967.98	-141.77	5734841.3	635213.2
3280	59.19	354.20	2194.59	2168.59	1972.26	-142.20	5734845.6	635212.7
3285	59.13	354.24	2197.15	2171.15	1976.53	-142.63	5734849.9	635212.3
3290	59.08	354.28	2199.72	2173.72	1980.80	-143.06	5734854.1	635211.9
3295	59.02	354.33	2202.29	2176.29	1985.06	-143.49	5734858.4	635211.5
3300	59.01	354.36	2204.87	2178.87	1989.33	-143.91	5734862.7	635211.0
3305	59.01	354.40	2207.44	2181.44	1993.59	-144.33	5734866.9	635210.6
3310	59.02	354.44	2210.02	2184.02	1997.86	-144.75	5734871.2	635210.2
3315	59.03	354.48	2212.59	2186.59	2002.13	-145.16	5734875.5	635209.8
3320	59.04	354.52	2215.16	2189.16	2006.39	-145.57	5734879.7	635209.4
3325	59.05	354.55	2217.73	2191.73	2010.66	-145.98	5734884.0	635209.0
3330	59.01	354.50	2220.31	2194.31	2014.93	-146.39	5734888.3	635208.6
3335	58.96	354.43	2222.88	2196.88	2019.20	-146.80	5734892.5	635208.1
3340	58.92	354.37	2225.46	2199.46	2023.46	-147.22	5734896.8	635207.7
3345	58.87	354.30	2228.05	2202.05	2027.72	-147.64	5734901.1	635207.3
3350	58.82	354.23	2230.63	2204.63	2031.98	-148.07	5734905.3	635206.9
3355	58.78	354.17	2233.22	2207.22	2036.23	-148.50	5734909.6	635206.4
3360	58.76	354.23	2235.81	2209.81	2040.49	-148.93	5734913.8	635206.0
3365	58.73	354.28	2238.41	2212.41	2044.74	-149.36	5734918.1	635205.6
3370	58.71	354.33	2241.00	2215.00	2048.99	-149.79	5734922.3	635205.2
3375	58.69	354.38	2243.60	2217.60	2053.24	-150.21	5734926.6	635204.7
3380	58.66	354.43	2246.20	2220.20	2057.49	-150.62	5734930.8	635204.3
3385	58.57	354.46	2248.81	2222.81	2061.74	-151.04	5734935.1	635203.9
3390	58.47	354.48	2251.42	2225.42	2065.99	-151.45	5734939.3	635203.5
3395	58.36	354.51	2254.04	2228.04	2070.23	-151.86	5734943.6	635203.1
3400	58.26	354.53	2256.66	2230.66	2074.46	-152.26	5734947.8	635202.7
3405	58.15	354.55	2259.30	2233.30	2078.69	-152.67	5734952.0	635202.3
3410	58.04	354.58	2261.94	2235.94	2082.92	-153.07	5734956.3	635201.9
3415	57.96	354.62	2264.59	2238.59	2087.14	-153.47	5734960.5	635201.5
3420	57.90	354.71	2267.24	2241.24	2091.36	-153.86	5734964.7	635201.1
3425	57.90	354.76	2269.90	2243.90	2095.57	-154.25	5734968.9	635200.7
3430	57.97	354.76	2272.56	2246.56	2099.79	-154.64	5734973.1	635200.3
3435	58.05	354.77	2275.20	2249.20	2104.02	-155.02	5734977.4	635199.9
3440	58.12	354.77	2277.85	2251.85	2108.24	-155.41	5734981.6	635199.5
3445	58.19	354.72	2280.49	2254.49	2112.47	-155.80	5734985.8	635199.1
3450	58.26	354.66	2283.12	2257.12	2116.70	-156.19	5734990.0	635198.8
3455	58.33	354.60	2285.75	2259.75	2120.94	-156.59	5734994.3	635198.4
3460	58.40	354.54	2288.37	2262.37	2125.18	-157.00	5734998.5	635198.0
3465	58.47	354.48	2290.99	2264.99	2129.42	-157.40	5735002.8	635197.5
3470	58.54	354.42	2293.60	2267.60	2133.66	-157.82	5735007.0	635197.1
3475	58.62	354.33	2296.20	2270.20	2137.91	-158.23	5735011.2	635196.7
3480	58.70	354.24	2298.80	2272.80	2142.16	-158.66	5735015.5	635196.3
3485	58.78	354.15	2301.40	2275.40	2146.41	-159.09	5735019.8	635195.9
3490	58.85	354.06	2303.99	2277.99	2150.66	-159.53	5735024.0	635195.4
3495	58.93	353.97	2306.57	2280.57	2154.92	-159.98	5735028.3	635195.0
3500	59.01	353.91	2309.15	2283.15	2159.18	-160.43	5735032.5	635194.5
3505	59.09	353.90	2311.72	2285.72	2163.45	-160.88	5735036.8	635194.1
3510	59.17	353.88	2314.29	2288.29	2167.71	-161.34	5735041.1	635193.6
3515	59.25	353.86	2316.84	2290.84	2171.98	-161.80	5735045.3	635193.1
3520	59.33	353.84	2319.40	2293.40	2176.26	-162.26	5735049.6	635192.7
3525	59.41	353.83	2321.95	2295.95	2180.54	-162.72	5735053.9	635192.2
3530	59.49	353.77	2324.49	2298.49	2184.82	-163.19	5735058.2	635191.8

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
3535	59.55	353.71	2327.02	2301.02	2189.10	-163.66	5735062.4	635191.3
3540	59.62	353.64	2329.55	2303.55	2193.39	-164.13	5735066.7	635190.8
3545	59.69	353.57	2332.08	2306.08	2197.67	-164.61	5735071.0	635190.3
3550	59.76	353.50	2334.60	2308.60	2201.97	-165.10	5735075.3	635189.8
3555	59.82	353.44	2337.12	2311.12	2206.26	-165.59	5735079.6	635189.4
3560	59.91	353.39	2339.63	2313.63	2210.55	-166.09	5735083.9	635188.9
3565	60.01	353.38	2342.13	2316.13	2214.85	-166.59	5735088.2	635188.4
3570	60.10	353.36	2344.63	2318.63	2219.16	-167.09	5735092.5	635187.9
3575	60.20	353.35	2347.11	2321.11	2223.46	-167.59	5735096.8	635187.4
3580	60.30	353.33	2349.60	2323.60	2227.78	-168.09	5735101.1	635186.9
3585	60.40	353.31	2352.07	2326.07	2232.09	-168.60	5735105.4	635186.4
3590	60.45	353.39	2354.54	2328.54	2236.41	-169.10	5735109.8	635185.8
3595	60.48	353.51	2357.00	2331.00	2240.73	-169.60	5735114.1	635185.3
3600	60.51	353.63	2359.46	2333.46	2245.06	-170.08	5735118.4	635184.9
3605	60.54	353.75	2361.92	2335.92	2249.38	-170.56	5735122.7	635184.4
3610	60.56	353.87	2364.38	2338.38	2253.71	-171.03	5735127.1	635183.9
3615	60.58	353.98	2366.84	2340.84	2258.04	-171.49	5735131.4	635183.5
3620	60.45	353.98	2369.30	2343.30	2262.37	-171.95	5735135.7	635183.0
3625	60.33	353.98	2371.77	2345.77	2266.69	-172.40	5735140.0	635182.5
3630	60.21	353.97	2374.25	2348.25	2271.01	-172.86	5735144.4	635182.1
3635	60.08	353.97	2376.74	2350.74	2275.33	-173.32	5735148.7	635181.6
3640	59.96	353.97	2379.24	2353.24	2279.63	-173.77	5735153.0	635181.2
3645	59.94	353.92	2381.74	2355.74	2283.93	-174.23	5735157.3	635180.7
3650	60.15	353.78	2384.24	2358.24	2288.24	-174.69	5735161.6	635180.3
3655	60.26	353.70	2386.72	2360.72	2292.55	-175.16	5735165.9	635179.8
3660	60.36	353.63	2389.20	2363.20	2296.87	-175.64	5735170.2	635179.3
3665	60.47	353.55	2391.67	2365.67	2301.19	-176.13	5735174.5	635178.8
3670	60.58	353.48	2394.13	2368.13	2305.52	-176.62	5735178.9	635178.3
3675	60.62	353.52	2396.58	2370.58	2309.85	-177.11	5735183.2	635177.8
3680	60.61	353.69	2399.04	2373.04	2314.18	-177.60	5735187.5	635177.3
3685	60.59	353.86	2401.49	2375.49	2318.51	-178.07	5735191.8	635176.9
3690	60.58	354.02	2403.95	2377.95	2322.84	-178.53	5735196.2	635176.4
3695	60.59	354.10	2406.40	2380.40	2327.17	-178.98	5735200.5	635176.0
3700	60.62	354.07	2408.86	2382.86	2331.50	-179.43	5735204.8	635175.5
3705	60.73	354.07	2411.31	2385.31	2335.84	-179.88	5735209.2	635175.1
3710	60.85	354.06	2413.75	2387.75	2340.18	-180.33	5735213.5	635174.6
3715	60.98	354.05	2416.18	2390.18	2344.52	-180.78	5735217.9	635174.2
3720	61.08	354.05	2418.60	2392.60	2348.88	-181.24	5735222.2	635173.7
3725	60.93	354.08	2421.02	2395.02	2353.23	-181.69	5735226.6	635173.3
3730	60.76	354.11	2423.46	2397.46	2357.57	-182.14	5735230.9	635172.8
3735	60.55	354.14	2425.91	2399.91	2361.90	-182.59	5735235.2	635172.4
3740	60.33	354.17	2428.38	2402.38	2366.23	-183.03	5735239.6	635171.9
3745	60.11	354.19	2430.86	2404.86	2370.55	-183.47	5735243.9	635171.5
3750	59.89	354.22	2433.36	2407.36	2374.86	-183.91	5735248.2	635171.0
3755	59.68	354.25	2435.87	2409.87	2379.16	-184.34	5735252.5	635170.6
3760	59.62	354.24	2438.40	2412.40	2383.45	-184.77	5735256.8	635170.2
3765	59.60	354.22	2440.93	2414.93	2387.74	-185.21	5735261.1	635169.7
3770	59.44	354.08	2443.47	2417.47	2392.03	-185.64	5735265.4	635169.3
3775	59.09	353.64	2446.02	2420.02	2396.30	-186.10	5735269.6	635168.8
3780	58.80	353.59	2448.60	2422.60	2400.56	-186.58	5735273.9	635168.4
3785	58.51	353.54	2451.20	2425.20	2404.80	-187.06	5735278.1	635167.9
3790	58.30	353.13	2453.82	2427.82	2409.03	-187.55	5735282.4	635167.4
3795	58.12	352.60	2456.45	2430.45	2413.25	-188.07	5735286.6	635166.9
3800	57.94	352.06	2459.10	2433.10	2417.45	-188.64	5735290.8	635166.3
3805	57.84	351.15	2461.76	2435.76	2421.64	-189.26	5735295.0	635165.7
3810	57.74	350.25	2464.43	2438.43	2425.82	-189.94	5735299.2	635165.0
3815	57.75	350.03	2467.09	2441.09	2429.98	-190.67	5735303.3	635164.3
3820	57.75	349.83	2469.76	2443.76	2434.14	-191.41	5735307.5	635163.5
3825	57.76	349.62	2472.43	2446.43	2438.31	-192.16	5735311.6	635162.8
3830	57.76	349.42	2475.10	2449.10	2442.46	-192.93	5735315.8	635162.0
3835	57.77	349.22	2477.76	2451.76	2446.62	-193.71	5735320.0	635161.2
3840	57.78	349.01	2480.43	2454.43	2450.77	-194.51	5735324.1	635160.4
3845	57.78	348.81	2483.10	2457.10	2454.92	-195.33	5735328.3	635159.6
3850	57.79	348.60	2485.76	2459.76	2459.07	-196.15	5735332.4	635158.8
3855	57.80	348.40	2488.43	2462.43	2463.22	-197.00	5735336.6	635157.9
3860	57.80	348.20	2491.09	2465.09	2467.36	-197.86	5735340.7	635157.1
3865	57.81	347.99	2493.76	2467.76	2471.50	-198.73	5735344.8	635156.2
3870	57.87	347.93	2496.42	2470.42	2475.64	-199.61	5735349.0	635155.3
3875	57.95	347.94	2499.08	2473.08	2479.78	-200.50	5735353.1	635154.4
3880	58.04	347.94	2501.73	2475.73	2483.93	-201.38	5735357.3	635153.6
3885	58.12	347.94	2504.37	2478.37	2488.08	-202.27	5735361.4	635152.7

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
3890	58.21	347.95	2507.01	2481.01	2492.23	-203.16	5735365.6	635151.8
3895	58.29	347.95	2509.64	2483.64	2496.39	-204.05	5735369.7	635150.9
3900	58.37	347.96	2512.26	2486.26	2500.55	-204.93	5735373.9	635150.0
3905	58.43	348.01	2514.88	2488.88	2504.72	-205.82	5735378.1	635149.1
3910	58.39	348.22	2517.50	2491.50	2508.89	-206.70	5735382.2	635148.2
3915	58.36	348.43	2520.12	2494.12	2513.06	-207.56	5735386.4	635147.4
3920	58.32	348.64	2522.75	2496.75	2517.23	-208.41	5735390.6	635146.5
3925	58.28	348.85	2525.38	2499.38	2521.40	-209.24	5735394.7	635145.7
3930	58.25	349.06	2528.01	2502.01	2525.57	-210.05	5735398.9	635144.9
3935	58.21	349.27	2530.64	2504.64	2529.75	-210.85	5735403.1	635144.1
3940	58.10	349.72	2533.28	2507.28	2533.92	-211.63	5735407.3	635143.3
3945	57.99	350.16	2535.92	2509.92	2538.10	-212.37	5735411.4	635142.6
3950	57.88	350.61	2538.58	2512.58	2542.28	-213.08	5735415.6	635141.9
3955	57.78	351.05	2541.24	2515.24	2546.46	-213.75	5735419.8	635141.2
3960	57.67	351.50	2543.91	2517.91	2550.63	-214.39	5735424.0	635140.6
3965	57.62	351.82	2546.59	2520.59	2554.81	-215.00	5735428.2	635139.9
3970	57.70	351.91	2549.26	2523.26	2558.99	-215.60	5735432.3	635139.3
3975	57.77	352.00	2551.93	2525.93	2563.18	-216.19	5735436.5	635138.8
3980	57.84	352.08	2554.60	2528.60	2567.37	-216.78	5735440.7	635138.2
3985	57.91	352.17	2557.26	2531.26	2571.57	-217.36	5735444.9	635137.6
3990	57.98	352.26	2559.91	2533.91	2575.76	-217.93	5735449.1	635137.0
3995	58.05	352.37	2562.56	2536.56	2579.97	-218.50	5735453.3	635136.4
4000	58.11	352.49	2565.20	2539.20	2584.17	-219.06	5735457.5	635135.9
4005	58.17	352.61	2567.84	2541.84	2588.38	-219.61	5735461.7	635135.3
4010	58.24	352.73	2570.48	2544.48	2592.60	-220.15	5735465.9	635134.8
4015	58.30	352.85	2573.10	2547.10	2596.82	-220.68	5735470.2	635134.3
4020	58.36	352.97	2575.73	2549.73	2601.04	-221.21	5735474.4	635133.7
4025	58.39	352.97	2578.35	2552.35	2605.27	-221.73	5735478.6	635133.2
4030	58.41	352.95	2580.97	2554.97	2609.49	-222.25	5735482.8	635132.7
4035	58.43	352.94	2583.59	2557.59	2613.72	-222.77	5735487.1	635132.2
4040	58.45	352.93	2586.21	2560.21	2617.95	-223.30	5735491.3	635131.6
4045	58.47	352.91	2588.82	2562.82	2622.18	-223.82	5735495.5	635131.1
4050	58.49	352.90	2591.44	2565.44	2626.41	-224.35	5735499.7	635130.6
4055	58.51	352.96	2594.05	2568.05	2630.64	-224.87	5735504.0	635130.1
4060	58.52	353.01	2596.66	2570.66	2634.87	-225.40	5735508.2	635129.6
4065	58.54	353.06	2599.27	2573.27	2639.10	-225.91	5735512.4	635129.0
4070	58.55	353.12	2601.88	2575.88	2643.34	-226.43	5735516.7	635128.5
4075	58.57	353.17	2604.49	2578.49	2647.57	-226.94	5735520.9	635128.0
4080	58.58	353.23	2607.09	2581.09	2651.81	-227.44	5735525.1	635127.5
4085	58.56	353.29	2609.70	2583.70	2656.05	-227.94	5735529.4	635127.0
4090	58.53	353.36	2612.31	2586.31	2660.28	-228.44	5735533.6	635126.5
4095	58.51	353.43	2614.92	2588.92	2664.52	-228.93	5735537.9	635126.0
4100	58.49	353.50	2617.53	2591.53	2668.75	-229.41	5735542.1	635125.5
4105	58.47	353.57	2620.15	2594.15	2672.99	-229.89	5735546.3	635125.1
4110	58.48	353.61	2622.76	2596.76	2677.22	-230.37	5735550.6	635124.6
4115	58.53	353.58	2625.38	2599.38	2681.46	-230.84	5735554.8	635124.1
4120	58.58	353.54	2627.98	2601.98	2685.70	-231.32	5735559.0	635123.6
4125	58.63	353.51	2630.59	2604.59	2689.94	-231.80	5735563.3	635123.1
4130	58.68	353.48	2633.19	2607.19	2694.18	-232.29	5735567.5	635122.7
4135	58.74	353.45	2635.79	2609.79	2698.43	-232.77	5735571.8	635122.2
4140	58.80	353.50	2638.38	2612.38	2702.68	-233.26	5735576.0	635121.7
4145	58.86	353.55	2640.97	2614.97	2706.93	-233.74	5735580.3	635121.2
4150	58.92	353.60	2643.55	2617.55	2711.18	-234.22	5735584.5	635120.7
4155	58.98	353.65	2646.13	2620.13	2715.44	-234.69	5735588.8	635120.3
4160	59.04	353.70	2648.70	2622.70	2719.70	-235.17	5735593.0	635119.8
4165	59.13	353.82	2651.27	2625.27	2723.96	-235.63	5735597.3	635119.3
4170	59.25	354.01	2653.83	2627.83	2728.23	-236.09	5735601.6	635118.9
4175	59.37	354.21	2656.39	2630.39	2732.51	-236.53	5735605.8	635118.4
4180	59.49	354.40	2658.93	2632.93	2736.79	-236.96	5735610.1	635118.0
4185	59.61	354.60	2661.46	2635.46	2741.08	-237.37	5735614.4	635117.6
4190	59.73	354.80	2663.99	2637.99	2745.38	-237.77	5735618.7	635117.2
4195	59.78	354.84	2666.51	2640.51	2749.68	-238.16	5735623.0	635116.8
4200	59.80	354.81	2669.02	2643.02	2753.99	-238.55	5735627.3	635116.4
4205	59.82	354.77	2671.54	2645.54	2758.29	-238.94	5735631.6	635116.0
4210	59.83	354.74	2674.05	2648.05	2762.59	-239.34	5735635.9	635115.6
4215	59.85	354.71	2676.56	2650.56	2766.90	-239.73	5735640.2	635115.2
4220	59.87	354.68	2679.07	2653.07	2771.20	-240.13	5735644.5	635114.8
4225	59.88	354.66	2681.58	2655.58	2775.51	-240.53	5735648.9	635114.4
4230	59.90	354.65	2684.09	2658.09	2779.82	-240.94	5735653.2	635114.0
4235	59.91	354.65	2686.60	2660.60	2784.12	-241.34	5735657.5	635113.6
4240	59.93	354.64	2689.10	2663.10	2788.43	-241.74	5735661.8	635113.2

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
4245	59.94	354.63	2691.61	2665.61	2792.74	-242.15	5735666.1	635112.8
4250	59.96	354.62	2694.11	2668.11	2797.05	-242.55	5735670.4	635112.4
4255	59.98	354.59	2696.61	2670.61	2801.36	-242.96	5735674.7	635112.0
4260	60.00	354.57	2699.11	2673.11	2805.67	-243.37	5735679.0	635111.6
4265	60.03	354.54	2701.61	2675.61	2809.98	-243.78	5735683.3	635111.2
4270	60.05	354.51	2704.11	2678.11	2814.29	-244.19	5735687.6	635110.8
4275	60.07	354.48	2706.61	2680.61	2818.61	-244.61	5735691.9	635110.3
4280	60.10	354.45	2709.10	2683.10	2822.92	-245.03	5735696.3	635109.9
4285	60.18	354.66	2711.59	2685.59	2827.24	-245.44	5735700.6	635109.5
4290	60.27	354.90	2714.07	2688.07	2831.56	-245.84	5735704.9	635109.1
4295	60.36	355.14	2716.55	2690.55	2835.88	-246.21	5735709.2	635108.7
4300	60.45	355.39	2719.02	2693.02	2840.22	-246.57	5735713.6	635108.4
4305	60.54	355.63	2721.48	2695.48	2844.55	-246.91	5735717.9	635108.0
4310	60.63	355.87	2723.94	2697.94	2848.90	-247.23	5735722.2	635107.7
4315	60.64	355.84	2726.39	2700.39	2853.24	-247.55	5735726.6	635107.4
4320	60.66	355.80	2728.84	2702.84	2857.59	-247.87	5735730.9	635107.1
4325	60.68	355.76	2731.29	2705.29	2861.94	-248.19	5735735.3	635106.8
4330	60.69	355.72	2733.74	2707.74	2866.29	-248.51	5735739.6	635106.4
4335	60.71	355.68	2736.18	2710.18	2870.63	-248.84	5735744.0	635106.1
4340	60.73	355.65	2738.63	2712.63	2874.98	-249.17	5735748.3	635105.8
4345	60.77	355.62	2741.07	2715.07	2879.33	-249.50	5735752.7	635105.4
4350	60.81	355.59	2743.51	2717.51	2883.68	-249.83	5735757.0	635105.1
4355	60.85	355.56	2745.95	2719.95	2888.04	-250.17	5735761.4	635104.8
4360	60.89	355.54	2748.39	2722.39	2892.39	-250.51	5735765.7	635104.4
4365	60.93	355.51	2750.82	2724.82	2896.75	-250.85	5735770.1	635104.1
4370	60.97	355.53	2753.24	2727.24	2901.10	-251.19	5735774.4	635103.8
4375	61.00	355.67	2755.67	2729.67	2905.46	-251.53	5735778.8	635103.4
4380	61.01	355.77	2758.09	2732.09	2909.82	-251.85	5735783.2	635103.1
4385	60.99	355.78	2760.52	2734.52	2914.19	-252.18	5735787.5	635102.8
4390	60.96	355.79	2762.94	2736.94	2918.55	-252.50	5735791.9	635102.4
4395	60.94	355.80	2765.37	2739.37	2922.91	-252.82	5735796.2	635102.1
4400	60.91	355.81	2767.80	2741.80	2927.26	-253.14	5735800.6	635101.8
4405	60.88	355.82	2770.23	2744.23	2931.62	-253.46	5735805.0	635101.5
4410	60.84	355.82	2772.67	2746.67	2935.98	-253.78	5735809.3	635101.2
4415	60.79	355.83	2775.10	2749.10	2940.33	-254.09	5735813.7	635100.9
4420	60.74	355.83	2777.55	2751.55	2944.68	-254.41	5735818.0	635100.5
4425	60.68	355.84	2779.99	2753.99	2949.03	-254.73	5735822.4	635100.2
4430	60.63	355.84	2782.44	2756.44	2953.38	-255.04	5735826.7	635099.9
4435	60.57	355.85	2784.90	2758.90	2957.72	-255.36	5735831.1	635099.6
4440	60.50	355.87	2787.36	2761.36	2962.06	-255.67	5735835.4	635099.3
4445	60.43	355.90	2789.82	2763.82	2966.40	-255.99	5735839.7	635099.0
4450	60.36	355.93	2792.29	2766.29	2970.74	-256.30	5735844.1	635098.7
4455	60.28	355.96	2794.77	2768.77	2975.07	-256.60	5735848.4	635098.3
4460	60.21	356.00	2797.25	2771.25	2979.40	-256.91	5735852.7	635098.0
4465	60.13	356.03	2799.74	2773.74	2983.73	-257.21	5735857.1	635097.7
4470	60.05	356.06	2802.23	2776.23	2988.05	-257.51	5735861.4	635097.4
4475	59.97	356.08	2804.73	2778.73	2992.37	-257.80	5735865.7	635097.1
4480	59.88	356.11	2807.23	2781.23	2996.69	-258.10	5735870.0	635096.8
4485	59.80	356.14	2809.75	2783.75	3001.00	-258.39	5735874.3	635096.6
4490	59.72	356.17	2812.26	2786.26	3005.31	-258.68	5735878.7	635096.3
4495	59.63	356.20	2814.79	2788.79	3009.62	-258.97	5735883.0	635096.0
4500	59.55	356.23	2817.32	2791.32	3013.92	-259.25	5735887.3	635095.7
4505	59.47	356.26	2819.86	2793.86	3018.22	-259.54	5735891.6	635095.4
4510	59.38	356.30	2822.40	2796.40	3022.52	-259.81	5735895.9	635095.1
4515	59.30	356.33	2824.95	2798.95	3026.81	-260.09	5735900.2	635094.9
4520	59.22	356.36	2827.51	2801.51	3031.10	-260.37	5735904.4	635094.6
4525	59.13	356.40	2830.07	2804.07	3035.38	-260.64	5735908.7	635094.3
4530	59.02	356.44	2832.64	2806.64	3039.67	-260.90	5735913.0	635094.0
4535	58.92	356.48	2835.21	2809.21	3043.94	-261.17	5735917.3	635093.8
4540	58.82	356.52	2837.80	2811.80	3048.21	-261.43	5735921.6	635093.5
4545	58.72	356.56	2840.39	2814.39	3052.48	-261.69	5735925.8	635093.3
4550	58.61	356.60	2842.99	2816.99	3056.74	-261.94	5735930.1	635093.0
4555	58.52	356.62	2845.60	2819.60	3061.00	-262.19	5735934.3	635092.8
4560	58.45	356.60	2848.21	2822.21	3065.26	-262.45	5735938.6	635092.5
4565	58.37	356.58	2850.83	2824.83	3069.51	-262.70	5735942.9	635092.2
4569	58.31	356.56	2852.93	2826.93	3072.91	-262.90	5735946.2	635092.0
4570	58.29	356.56	2853.46	2827.46	3073.76	-262.95	5735947.1	635092.0
4571	58.28	356.55	2853.98	2827.98	3074.61	-263.01	5735947.9	635091.9
4572	58.26	356.55	2854.51	2828.51	3075.46	-263.06	5735948.8	635091.9
4573	58.25	356.54	2855.04	2829.04	3076.30	-263.11	5735949.6	635091.8

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
4574	58.23	356.54	2855.56	2829.56	3077.15	-263.16	5735950.5	635091.8
4575	58.22	356.54	2856.09	2830.09	3078.00	-263.21	5735951.3	635091.7
4576	58.20	356.53	2856.62	2830.62	3078.85	-263.26	5735952.2	635091.7
4577	58.19	356.53	2857.14	2831.14	3079.70	-263.31	5735953.0	635091.6
4578	58.17	356.52	2857.67	2831.67	3080.55	-263.36	5735953.9	635091.6
4579	58.16	356.52	2858.20	2832.20	3081.39	-263.42	5735954.7	635091.5
4580	58.14	356.51	2858.72	2832.72	3082.24	-263.47	5735955.6	635091.5
4581	58.13	356.51	2859.25	2833.25	3083.09	-263.52	5735956.4	635091.4
4582	58.11	356.51	2859.78	2833.78	3083.94	-263.57	5735957.3	635091.4
4583	58.09	356.50	2860.31	2834.31	3084.78	-263.62	5735958.1	635091.3
4584	58.08	356.51	2860.84	2834.84	3085.63	-263.67	5735959.0	635091.3
4585	58.06	356.52	2861.37	2835.37	3086.48	-263.73	5735959.8	635091.2
4586	58.05	356.53	2861.90	2835.90	3087.33	-263.78	5735960.7	635091.2
4587	58.04	356.54	2862.43	2836.43	3088.17	-263.83	5735961.5	635091.1
4588	58.02	356.55	2862.95	2836.95	3089.02	-263.88	5735962.4	635091.1
4589	58.01	356.56	2863.48	2837.48	3089.87	-263.93	5735963.2	635091.0
4590	57.99	356.57	2864.01	2838.01	3090.71	-263.98	5735964.1	635091.0
4591	57.98	356.58	2864.54	2838.54	3091.56	-264.03	5735964.9	635090.9
4592	57.96	356.59	2865.07	2839.07	3092.41	-264.08	5735965.7	635090.9
4593	57.95	356.60	2865.61	2839.61	3093.25	-264.13	5735966.6	635090.8
4594	57.93	356.61	2866.14	2840.14	3094.10	-264.18	5735967.4	635090.8
4595	57.92	356.62	2866.67	2840.67	3094.94	-264.23	5735968.3	635090.7
4596	57.90	356.63	2867.20	2841.20	3095.79	-264.28	5735969.1	635090.7
4597	57.89	356.64	2867.73	2841.73	3096.64	-264.33	5735970.0	635090.6
4598	57.87	356.65	2868.26	2842.26	3097.48	-264.38	5735970.8	635090.6
4599	57.86	356.66	2868.79	2842.79	3098.33	-264.43	5735971.7	635090.5
4600	57.84	356.67	2869.33	2843.33	3099.17	-264.48	5735972.5	635090.5
4601	57.83	356.68	2869.86	2843.86	3100.02	-264.53	5735973.4	635090.4
4602	57.81	356.69	2870.39	2844.39	3100.86	-264.58	5735974.2	635090.4
4603	57.80	356.70	2870.92	2844.92	3101.71	-264.63	5735975.0	635090.3
4604	57.78	356.71	2871.46	2845.46	3102.55	-264.68	5735975.9	635090.3
4605	57.77	356.72	2871.99	2845.99	3103.40	-264.73	5735976.7	635090.2
4606	57.75	356.73	2872.52	2846.52	3104.24	-264.77	5735977.6	635090.2
4607	57.74	356.74	2873.06	2847.06	3105.08	-264.82	5735978.4	635090.1
4608	57.72	356.75	2873.59	2847.59	3105.93	-264.87	5735979.3	635090.1
4609	57.71	356.76	2874.12	2848.12	3106.77	-264.92	5735980.1	635090.0
4610	57.69	356.77	2874.66	2848.66	3107.62	-264.97	5735981.0	635090.0
4611	57.68	356.78	2875.19	2849.19	3108.46	-265.01	5735981.8	635089.9
4612	57.66	356.79	2875.73	2849.73	3109.30	-265.06	5735982.6	635089.9
4613	57.64	356.79	2876.26	2850.26	3110.15	-265.11	5735983.5	635089.8
4614	57.63	356.80	2876.80	2850.80	3110.99	-265.15	5735984.3	635089.8
4615	57.61	356.80	2877.33	2851.33	3111.83	-265.20	5735985.2	635089.7
4616	57.59	356.80	2877.87	2851.87	3112.68	-265.25	5735986.0	635089.7
4617	57.57	356.80	2878.41	2852.41	3113.52	-265.30	5735986.9	635089.7
4618	57.55	356.81	2878.94	2852.94	3114.36	-265.34	5735987.7	635089.6
4619	57.54	356.81	2879.48	2853.48	3115.20	-265.39	5735988.5	635089.6
4620	57.52	356.81	2880.02	2854.02	3116.05	-265.44	5735989.4	635089.5
4621	57.50	356.82	2880.55	2854.55	3116.89	-265.48	5735990.2	635089.5
4622	57.48	356.82	2881.09	2855.09	3117.73	-265.53	5735991.1	635089.4
4623	57.47	356.82	2881.63	2855.63	3118.57	-265.58	5735991.9	635089.4
4624	57.45	356.82	2882.17	2856.17	3119.41	-265.62	5735992.8	635089.3
4625	57.43	356.83	2882.70	2856.70	3120.26	-265.67	5735993.6	635089.3
4626	57.41	356.83	2883.24	2857.24	3121.10	-265.72	5735994.4	635089.2
4627	57.39	356.83	2883.78	2857.78	3121.94	-265.76	5735995.3	635089.2
4628	57.38	356.83	2884.32	2858.32	3122.78	-265.81	5735996.1	635089.1
4629	57.36	356.84	2884.86	2858.86	3123.62	-265.86	5735997.0	635089.1
4630	57.34	356.84	2885.40	2859.40	3124.46	-265.90	5735997.8	635089.0
4631	57.32	356.84	2885.94	2859.94	3125.30	-265.95	5735998.6	635089.0
4632	57.30	356.85	2886.48	2860.48	3126.14	-266.00	5735999.5	635089.0
4633	57.29	356.85	2887.02	2861.02	3126.98	-266.04	5736000.3	635088.9
4634	57.27	356.85	2887.56	2861.56	3127.82	-266.09	5736001.2	635088.9
4635	57.25	356.85	2888.10	2862.10	3128.66	-266.13	5736002.0	635088.8
4636	57.23	356.86	2888.64	2862.64	3129.50	-266.18	5736002.8	635088.8
4637	57.21	356.86	2889.18	2863.18	3130.34	-266.23	5736003.7	635088.7
4638	57.20	356.86	2889.73	2863.73	3131.18	-266.27	5736004.5	635088.7
4639	57.18	356.86	2890.27	2864.27	3132.02	-266.32	5736005.4	635088.6
4640	57.16	356.87	2890.81	2864.81	3132.86	-266.37	5736006.2	635088.6
4641	57.14	356.87	2891.35	2865.35	3133.70	-266.41	5736007.0	635088.5
4642	57.12	356.87	2891.89	2865.89	3134.54	-266.46	5736007.9	635088.5
4643	57.10	356.87	2892.44	2866.44	3135.38	-266.50	5736008.7	635088.4
4644	57.07	356.87	2892.98	2866.98	3136.21	-266.55	5736009.6	635088.4

MD	Angle	Direction	TVDRT	TVDSS	DNorth	DEast	Northing	Easting
4645	57.05	356.87	2893.52	2867.52	3137.05	-266.59	5736010.4	635088.4
4646	57.03	356.86	2894.07	2868.07	3137.89	-266.64	5736011.2	635088.3
4647	57.00	356.86	2894.61	2868.61	3138.73	-266.69	5736012.1	635088.3
4648	56.98	356.86	2895.16	2869.16	3139.56	-266.73	5736012.9	635088.2
4649	56.96	356.86	2895.70	2869.70	3140.40	-266.78	5736013.7	635088.2
4650	56.93	356.86	2896.25	2870.25	3141.24	-266.82	5736014.6	635088.1
4651	56.91	356.86	2896.79	2870.79	3142.07	-266.87	5736015.4	635088.1
4652	56.89	356.86	2897.34	2871.34	3142.91	-266.92	5736016.3	635088.0
4653	56.86	356.86	2897.89	2871.89	3143.75	-266.96	5736017.1	635088.0
4654	56.84	356.86	2898.43	2872.43	3144.58	-267.01	5736017.9	635087.9
4655	56.82	356.86	2898.98	2872.98	3145.42	-267.05	5736018.8	635087.9
4656	56.79	356.85	2899.53	2873.53	3146.25	-267.10	5736019.6	635087.8
4657	56.77	356.85	2900.08	2874.08	3147.09	-267.15	5736020.4	635087.8
4658	56.75	356.85	2900.62	2874.62	3147.92	-267.19	5736021.3	635087.8
4659	56.72	356.85	2901.17	2875.17	3148.76	-267.24	5736022.1	635087.7
4660	56.70	356.85	2901.72	2875.72	3149.59	-267.28	5736022.9	635087.7
4661	56.68	356.85	2902.27	2876.27	3150.43	-267.33	5736023.8	635087.6
4662	56.65	356.85	2902.82	2876.82	3151.26	-267.37	5736024.6	635087.6
4663	56.63	356.85	2903.37	2877.37	3152.10	-267.42	5736025.4	635087.5
4664	56.61	356.85	2903.92	2877.92	3152.93	-267.47	5736026.3	635087.5
4665	56.58	356.85	2904.47	2878.47	3153.76	-267.51	5736027.1	635087.4
4666	56.56	356.84	2905.02	2879.02	3154.60	-267.56	5736027.9	635087.4
4667	56.54	356.84	2905.57	2879.57	3155.43	-267.60	5736028.8	635087.3
4668	56.51	356.84	2906.13	2880.13	3156.26	-267.65	5736029.6	635087.3
4669	56.49	356.84	2906.68	2880.68	3157.10	-267.70	5736030.4	635087.3
4670	56.47	356.84	2907.23	2881.23	3157.93	-267.74	5736031.3	635087.2
4671	56.45	356.85	2907.78	2881.78	3158.76	-267.79	5736032.1	635087.2
4672	56.43	356.87	2908.33	2882.33	3159.59	-267.83	5736032.9	635087.1
4673	56.42	356.88	2908.89	2882.89	3160.42	-267.88	5736033.8	635087.1
4674	56.40	356.90	2909.44	2883.44	3161.26	-267.92	5736034.6	635087.0
4675	56.39	356.92	2909.99	2883.99	3162.09	-267.97	5736035.4	635087.0
4676	56.37	356.93	2910.55	2884.55	3162.92	-268.01	5736036.3	635086.9
4677	56.36	356.95	2911.10	2885.10	3163.75	-268.06	5736037.1	635086.9
4678	56.34	356.97	2911.66	2885.66	3164.58	-268.10	5736037.9	635086.8
4679	56.33	356.97	2912.21	2886.21	3165.41	-268.15	5736038.8	635086.8
4680	56.31	356.97	2912.77	2886.77	3166.24	-268.19	5736039.6	635086.8
4681	56.30	356.97	2913.32	2887.32	3167.08	-268.23	5736040.4	635086.7
4682	56.29	356.98	2913.87	2887.87	3167.91	-268.28	5736041.2	635086.7
4683	56.27	356.98	2914.43	2888.43	3168.74	-268.32	5736042.1	635086.6
4684	56.26	356.98	2914.99	2888.99	3169.57	-268.37	5736042.9	635086.6
4685	56.24	356.98	2915.54	2889.54	3170.40	-268.41	5736043.7	635086.5
4686	56.23	356.98	2916.10	2890.10	3171.23	-268.45	5736044.6	635086.5
4687	56.21	356.99	2916.65	2890.65	3172.06	-268.50	5736045.4	635086.5
4688	56.20	356.99	2917.21	2891.21	3172.89	-268.54	5736046.2	635086.4
4689	56.19	356.99	2917.77	2891.77	3173.72	-268.58	5736047.1	635086.4
4690	56.17	356.99	2918.32	2892.32	3174.55	-268.63	5736047.9	635086.3
4691	56.16	356.99	2918.88	2892.88	3175.38	-268.67	5736048.7	635086.3
4692	56.14	356.99	2919.44	2893.44	3176.21	-268.72	5736049.5	635086.2
4693	56.13	357.00	2919.99	2893.99	3177.04	-268.76	5736050.4	635086.2
4694	56.11	357.00	2920.55	2894.55	3177.86	-268.80	5736051.2	635086.1
4695	56.10	357.00	2921.11	2895.11	3178.69	-268.85	5736052.0	635086.1

907469 057

APPENDIX 2

APPENDIX 2a

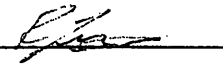
BLACKBACK A-1ST1

Petrophysics Evaluation Summary

Esso Australia Ltd
Exploration Department

Blackback A-1 ST1
Formation Evaluation
Log Analysis Report

R. J. Lyons
August 1999

Endorsed by: 
FE Team Leader

Date: 31/08/99

Blackback A-1 ST1 LOG ANALYSIS

Blackback A-1 was drilled by the semi-submersible Sedco 702 approximately one kilometre south south-east of the Terakihi-1 exploration well. This was the first well of the Blackback Phase 1 development project with an objective of developing the northern fault block of the Blackback field. The well was spudded on February 24, 1999 in 395m of water. After setting 20" casing at 682m the rig was temporarily released to deploy subsurface equipment for the A-2 and A-3 wells. The rig returned on location March 9th and drilled 17 1/2" hole to 1310m setting 13 3/8" intermediate casing 1302m. The 12 1/4" production hole was then drilled to a total depth of 4695 (MD Drlr) after an unintentional sidetrack at 4273 m. Openhole logging consisted of a PEX(AIT)-DSI-HNGS combination on wireline and a drill pipe conveyed VSP survey.

The electric log data have been analysed for effective porosity and water saturation from 4342 to 4623m. Esso's "K12" log model was used to derive effective porosity from density and neutron log responses and saturation using the Dual Water model. Note that all depths quoted below are logged MDKB unless specified otherwise. The result of the analyses is included as Attachment 1.

Following the velocity survey the well was abandoned. The A-1A location was subsequently drilled out of the A-1 surface casing after completion of the A-2 well.

DATA

Open Hole Logs Acquired

- | | |
|---------------------------|------------------------|
| 1. PEX(AIT-H), DSI, HNGS: | 4375 – 4647m |
| DSI, GR, CAL: | 637 – 4647m |
| 2. DUAL CSAT, GR: | 395 – 1312m (wireline) |
| | 3150 – 4440m (TLC) |

Hole Data

Hole Size:	12 1/4"
Max. Deviation:	61 degrees

Mud Data

Mud Type:	Petrofree
O/W:	80/20, water phase salinity 224,000 ppm
Mud Weight:	10.7 LB/G
BHT:	66 °C

Log Quality

- The environmentally corrected neutron logs (TNPH and NPOR) read anomalously low for clean quartzose sands, and low relative to the Terakihi-1 wireline data. The uncorrected NPHI was therefore used in this analysis, and is more consistent with , although still slightly low to the Terakihi-1 data (Figure 1).
- The neutron was hand edited over washouts such as 4574 to 4576m and stored as NPHI_C.
- The array induction tool is strongly affected by the high relative dip (in excess of 60 degrees) between the borehole and formation (Figure 2). At these high angles, the tool's response cuts across several beds and is unable to resolve individual beds. The varying depths of investigation (10, 20, 30, 60, 90 inches) measure differing formation volumes resulting in horns at bed boundaries and unstable resistivity profiles. For example, the separation observed between the induction curves over the oil zone (4571 to 4583m) is attributed to high dip effects (ie. the deeper reading measurement AT90 reads lower than the AT30 or AT10 as the AT90 is more strongly influenced by adjacent, lower resistivity beds than the shallow reading curves). Other examples of unstable tool response are in intervals with high resistivity contrasts (4615 to 4617m and possibly at 4590 m).

Depth Control

Depth control is an issue with the A-1 ST1 wireline logs.

- The PEX logging string was held up at 4653m and did not tag bottom. The up pass was recorded from this depth after applying a 14 meter stretch correction.
- The depths recorded on the up log were approximately 10 meters deep relative to the MWD gamma ray and were low relative to the Blackback Field Oil/Water (-2834m TVDss, 4582.4m MDRT).
- The up log GR was subsequently tied to the MWD-GR at 4577m MD and the logs played back without stretch corrections (this "corrected" log is recorded on the field prints). This resulted in the playback logs being on-depth at the reservoir level, however, the logger's casing shoe was high relative to the drillers.
- The digital data above 3650m were subsequently tied into the 13 3/8" casing shoe at 1302m. No correction was applied to the digital data below 3650m as the wireline GR agreed reasonably well with the MWD.
- The remaining logs were then depth aligned to the GR.

INTERPRETATION

Logs Used

GR, AHT90, RHOZ, NPHI_C.

Analysis Parameters

a	1
m	2
n	2
Fluid Density	0.85
GRmin	50
GRmax	120
Apparent Shale Neutron Porosity	.30
Apparent Shale Bulk Density	2.55
Input Hydrocarbon Density	.65
Shale Resistivity	10
Lower Grain Density Limit	2.645 g/cc
Upper Grain Density Limit	2.675 g/cc
Formation Water Resistivity	.065
Measured Rmf	N/A, POBM used

Free Formation Water Resistivity

The free formation water resistivity of 0.065 ohmm (41,000 ppm NaCl @ 90C) used in this analysis was derived from Rwa calculations in the clean water bearing sands underlying the oil leg (assuming a=1, m=2). Note, the temperature used in this calculation is from the Blackback-2 Production Test, as the maximum BHT (66C) measured from the wireline logs is considered to be too low and would result in an unrealistic apparent water salinity (54,000 ppm).

Shale Volume, Total Porosity and Water Saturation

An initial VSH calculated from the GR was compared to a calculated neutron-density value to test for input into an iterative log analysis model (K12). Initial neutron-density total porosity and dual-water total water saturation were then calculated and hydrocarbon and shale corrections applied to the neutron and density data using those values. The resulting calculated grain density was compared to a supplied grain density window and the initial VSH increased or decreased until the calculated GD fell within the window.

Effective Porosity and Water Saturations

Effective porosity was calculated using the final values of total porosity and VSH and the effective water saturation from the total water saturation using the following equations:

$$PHIE = (PHIT - (VSH * PHISH))$$

$$SWE = (1 - ((PHIT/PHIE) * (1 - SWT)))$$

DISCUSSION

1. Blackback A-1 ST1 penetrated 11.3 m MD (6.8 m TVD) of oil reservoir with a mean effective porosity of 20 p.u., and a mean effective water saturation of 27 s.u. (Table 1)
2. The AIT's inability to resolve true formation resistivity at high relative dip angles may explain the lower resistivities (higher water saturations) observed in the A-1 ST1 oil zone relative to Terakihi-1 (Figure 3).
3. A clear formation oil / water contact can not be determined. "Lowest Known Oil" is placed at 4584m MD (-2834.8 m SS). This compares to a Field OWC of -2834m SS (Figure 3).
4. "Highest Known Water" is placed at 4591m MD (-2838.5m SS). The resistivity increase at 4590m MD is thought to be caused by bed boundary effects. However, this can not be resolved without resistivity modelling.

Attached are the following presentations of results:

- Table 1 - Summary of Results, Blackback A-1 ST1
- Figure 1 - Neutron – Density Crossplot, A-1 ST1 and Terakihi-1.
- Figure 2 - Depth Plot of Analysis.
- Figure 3 - Crossplot of Deep Resistivity vs. Phie, A-1 ST1 and Terakihi-1.
- Attachment 1 - Analysis Depth Plot Blackback A-1 ST1

BLACKBACK A1ST1

PETROPHYSICS ANALYSIS SUMMARY

Net porosity cut-off: 0.120 volume per volume
 Net water saturation cut-off: 0.500 volume per volume
 Depth reference: MDKB

Net Porous Interval based on Porosity cut-off only.
 Both Porosity and Sw cut-offs invoked when generating Hydrocarbon-Metres.

GROSS INTERVAL		NET POROUS INTERVAL									
metres) MD		Gross Metres	Net Metres	Net to Gross(%)	Mean Vwclay	(Std.) (Dev.)	Mean Porosity	(Std.) (Dev.)	Mode Porosity	Mean Sw	Comments
(top)	(base)										
4571	4584	13	11.3	87	0.02	-0.045	0.20	-0.024	0.21	0.27	Oil
4584	4591	7	1.2	18	0.14	-0.084	0.16	-0.025	0.18	0.77	Possible Oil

Neutron - Density Comparison

Blackback A-1 ST1 / Terakihi-1

A1-ST1 TNPH

A1-ST1 NPHI

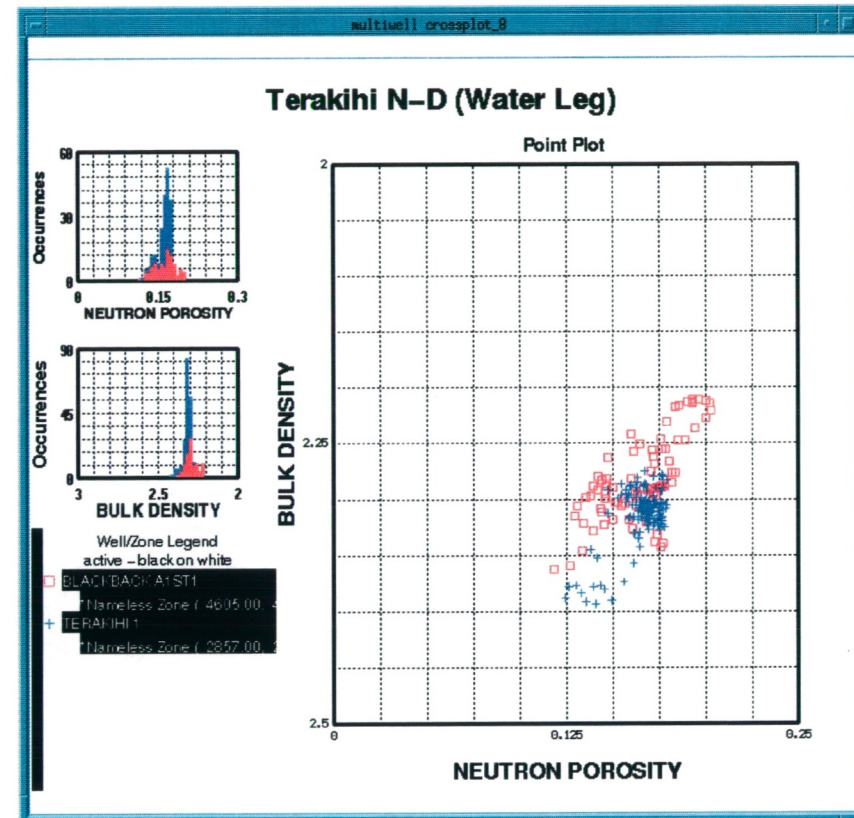
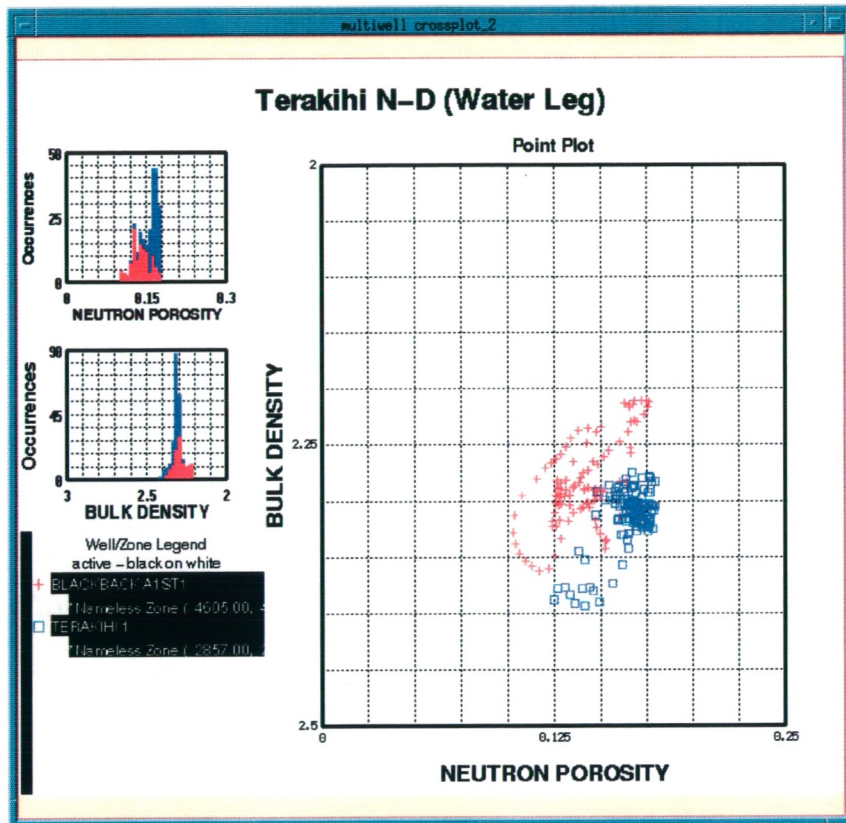


Figure 1.

907469 065

Blackback A-1 ST1

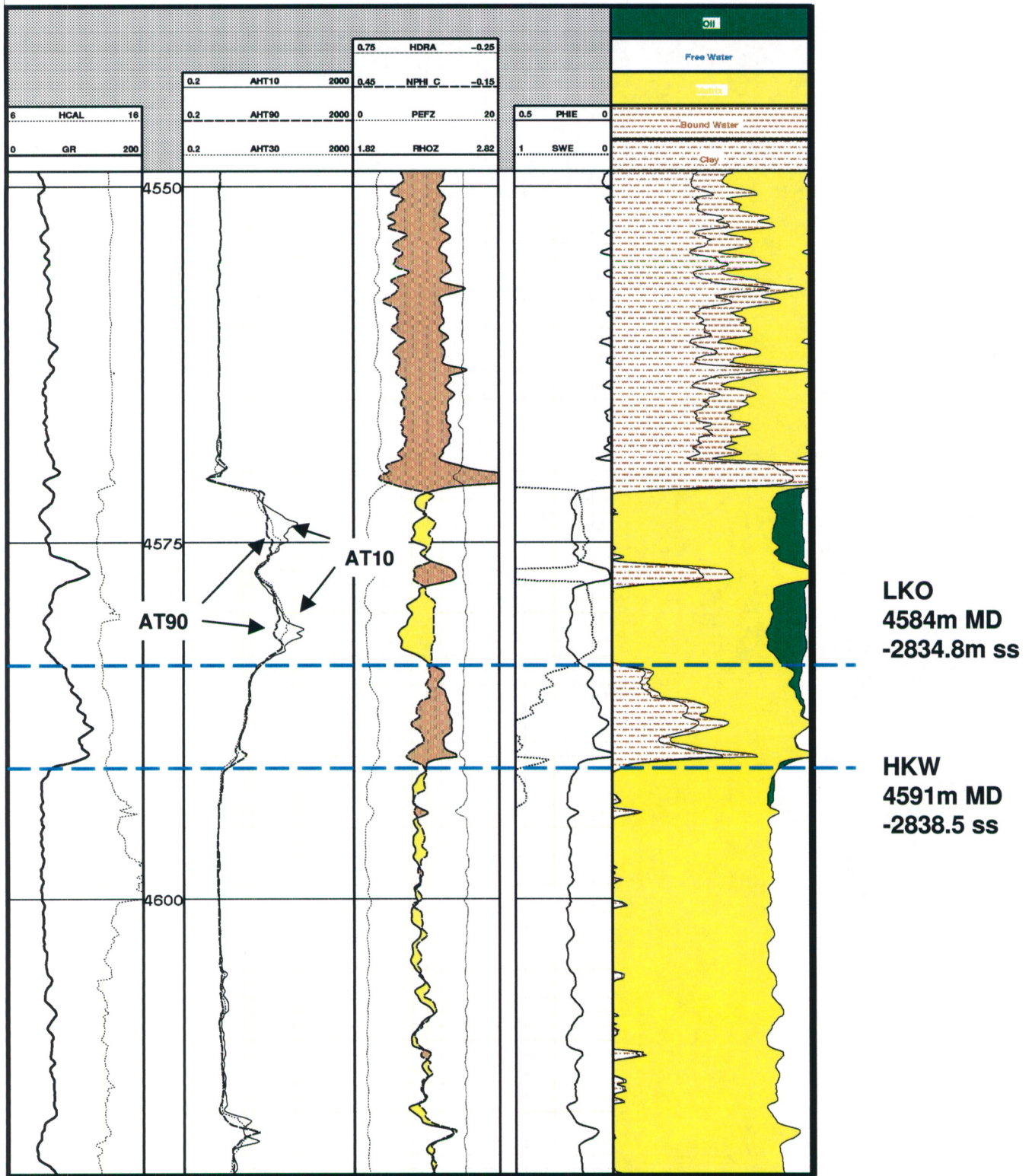


Figure 2.

Resistivity Comparison in Oil Reservoir

Blackback A-1 ST1 / Terakihi-1

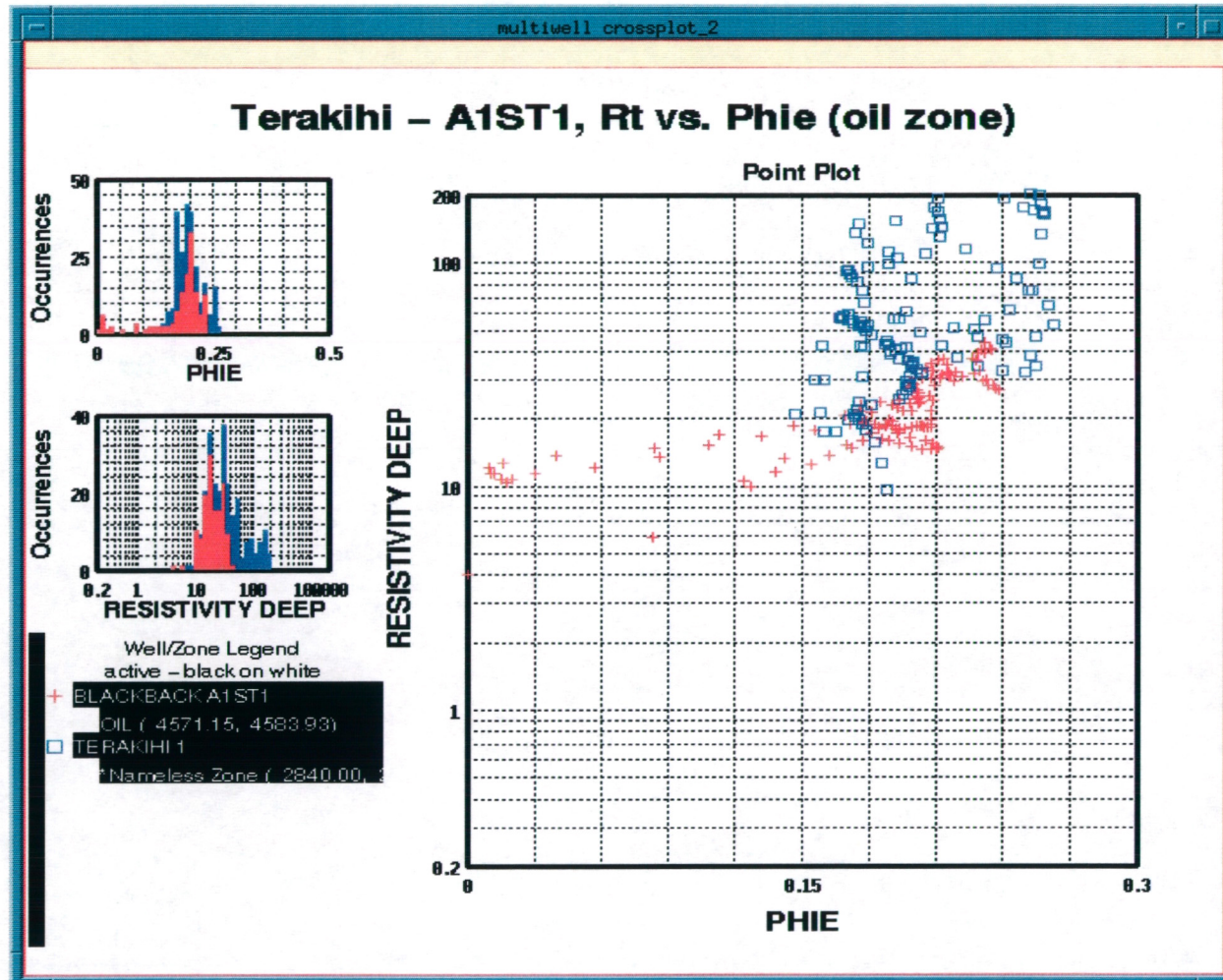


Figure 3

PE605453

This is an enclosure indicator page.
The enclosure PE605453 is enclosed within the
container PE907469 at this location in this
document.

The enclosure PE605453 has the following characteristics:

- ITEM_BARCODE = PE605453
- CONTAINER_BARCODE = PE907469
- NAME = Blackback-A1ST1 Log Analysis Depth Plot
- BASIN = GIPPSLAND
- ONSHORE? = N
- DATA_TYPE = WELL
- DATA_SUB_TYPE = WELL_LOG
- DESCRIPTION = Blackback-A1ST1 Log Analysis Depth Plot
4349 - 4652 MD, Attachment 1.
- REMARKS =
- DATE_WRITTEN =
- DATE_PROCESSED =
- DATE_RECEIVED = 25-OCT-1999
- RECEIVED_FROM = Esso Australia Ltd
- WELL_NAME = Blackback-A1ST1
- CONTRACTOR = Solar
- AUTHOR =
- ORIGINATOR = Esso Australia Ltd
- TOP_DEPTH = 4349
- BOTTOM_DEPTH = 4652
- ROW_CREATED_BY = PC00_SW

(Inserted by DNRE - Vic Govt Mines Dept)

907469 069

BLACKBACK A1 ST1

Attachment 1

Log Analysis Depth Plot
4349 - 4652 MD

907469 070

APPENDIX 3

APPENDIX 3a

BLACKBACK A-1

Lithology/Show Descriptions

Geologist: Greg Clota /Jon Reeve/Erik Hinsman

Blackback A-1 Lithology/Show Descriptions

Interval	%	Lithology/Show Description
		Geologist onboard from 687mMD
687-720		Sample nearly 100% cement. Trace LIMESTONE as below.
720-750	100	LIMESTONE: calcarenite, (fossils and fossil fragments with a calcareous, slightly argillaceous matrix), some calcsiltite, light olive grey, occasionally olive grey, fossiliferous, abundant Foraminifera and coral fragments and shell fragments, generally soft, occasionally moderately hard, sticky in part, slightly argillaceous, no visible porosity, no fluorescence.
750-780	100	LIMESTONE: as above, becoming more calcsiltite.
780-810	100	LIMESTONE: as above.
810-840	100	LIMESTONE: predominantly calcarenite and calcsiltite, occasionally calcilutite, light olive grey, occasionally olive grey, abundant fine grained fossil fragments, common Foraminifera, slightly argillaceous, rare glauconite, generally soft, occasionally moderately hard, sticky in part, slightly dispersive in part, no visible porosity, no fluorescence.
840-870	100	LIMESTONE: as above.
870-900	100	LIMESTONE: calcarenite, some calcsiltite, light olive grey, occasionally olive grey, fossiliferous, abundant Foraminifera and coral fragments and shell fragments, generally soft, occasionally moderately hard, sticky in part, slightly argillaceous, no visible porosity, no fluorescence.
900-928	100	LIMESTONE: as above, becoming more calcsiltite, abundant finer grained Foraminifera. BLACKBACK A-1 PLUGGED BACK FROM 928 METERS TO 822 METERS DUE TO JUNK IN THE HOLE. KICKED OFF AT 826 METERS. 100% FORMATION FROM 900 METERS.
930-960	100	LIMESTONE: calcarenite, some calcsiltite, light olive grey, occasionally olive grey, fossiliferous, abundant Foraminifera and coral fragments and shell fragments, trace glauconite, trace pyrite, generally soft, occasionally moderately hard, sticky in part, slightly argillaceous, no visible porosity, no fluorescence.
960-990	100	LIMESTONE: as above, increasing glauconite.
990-1020	100	LIMESTONE: mostly calcarenite, abundant fossils, as above
1020-1050	100	LIMESTONE: calcarenite, some calcsiltite, light olive grey, abundant fossil fragments and Foraminifera, trace glauconite, trace pyrite, slightly argillaceous in part, generally soft and slightly sticky, occasionally firm, no visible porosity, no fluorescence.
1050-1080	100	LIMESTONE: generally calcisiltite with some calcilutite, as above.
1080-1110	100	LIMESTONE: as above, calcarenite, trace pyrite.
1110-1140	100	LIMESTONE: as above.
1140-1170	100	LIMESTONE: as above.
1170-1200	100	LIMESTONE: as above.
1200-1230	100	LIMESTONE: as above, calcarenite, micritic in part, generally firm, no visible porosity.
1230-1260	100	LIMESTONE: as above with some calcisiltite, light grey, slightly argillaceous, no visible porosity.
1260-1290	100	LIMESTONE: as above, soft, dispersive, abundant dark grey fossil fragments. Sample collected after sea water sweep.
1290-1310	100	LIMESTONE: as above.
17½" SECTION DRILLED TO 1310 METERS (1208 METRES TVD). 13¾" CASING SET AT 1302 METRES. PIT @ 1313 METRES WAS 12.5 PPG EMW. 12¼" HOLE DRILLED FROM 1310 METRES.		
1310-1350	100	LIMESTONE: calcisiltite and very fine grained calcarenite, light olive grey, trace fossil fragments and Foraminifera, trace pyrite, trace glauconite, trace black mineral (carbonaceous?), slightly argillaceous in part, firm, blocky, no visible porosity, no fluorescence.
1350-1380	100	LIMESTONE: as above.
1380-1410	100	LIMESTONE: as above.
1410-1440	100	LIMESTONE: as above.
1440-1470	100	LIMESTONE: as above, mostly calcisiltite, trace carbonaceous flecks.
1470-1500	100	LIMESTONE: as above, becoming very fine grained calcarenite.
1500-1530	100	LIMESTONE: as above, mostly calcisiltite.
1530-1560	100	LIMESTONE: as above, occasionally hard and micritic, no visible porosity.
1560-1590	100	LIMESTONE: as above, increasing calcarenite.
1590-1620	100	LIMESTONE: as above, increasing calcisiltite.

Interval	%	Lithology/Show Description
1620-1650	100	LIMESTONE: as above.
1650-1680	100	LIMESTONE: as above.
1680-1710	100	LIMESTONE: as above, increasing calcarenite.
1710-1740	100	LIMESTONE: as above, increasing calcisiltite.
1740-1770	100	LIMESTONE: calcisiltite, light olive grey, trace fossil fragments, trace glauconite, trace pyrite, trace carbonaceous flecks, rare Foraminifera, firm, blocky, no visual porosity, no fluorescence.
1770-1800	100	LIMESTONE: as above, occasionally light grey.
1800-1830	100	LIMESTONE: as above, some calcarenite.
1830-1860	100	LIMESTONE: as above.
1860-1890	100	LIMESTONE: as above, calcisiltite and some calcarenite.
1890-1920	100	LIMESTONE: as above, calcisiltite and calcilutite, increasing light grey.
1920-1950	100	LIMESTONE: as above.
1950-1980	100	LIMESTONE: as above.
1980-2010	100	LIMESTONE: as above.
2010-2040	100	LIMESTONE: as above.
2040-2070	100	LIMESTONE: as above, decreasing fossil fragments.
2070-2100	100	LIMESTONE: as above, decreasing fossil fragments.
2100-2130	100	LIMESTONE: as above.
2130-2148	100	LIMESTONE: as above.
BIT TRIP AT 2148 METRES		
2148-2160	100	LIMESTONE: as above.
2160-2190	100	LIMESTONE: mostly calcisiltite and some calcilutite, light olive grey, some light grey, trace pyrite, trace carbonaceous flecks, slightly argillaceous in part, firm, occasionally moderately hard, blocky, no visible porosity, no fluorescence.
2190-2220	100	LIMESTONE: as above, increasing calcilutite.
2220-2250	100	LIMESTONE: as above, some calcarenite.
2250-2286	100	LIMESTONE: as above.
BIT TRIP AT 2286 METRES		
2286-2310	100	LIMESTONE: as above, mostly calcilutite.
2310-2340	100	LIMESTONE: as above.
2340-2370	100	LIMESTONE: as above.
2370-2400	100	LIMESTONE: as above, calcilutite and calcisiltite.
2400-2430	100	LIMESTONE: as above, occasionally olive grey.
2430-2460	100	LIMESTONE: as above, increasing olive grey.
2460-2490	100	LIMESTONE: as above, some calcisiltite.
2490-2520	100	LIMESTONE: as above.
2520-2550	100	LIMESTONE: calcilutite, occasional calcisiltite, mostly olive grey, occasionally light olive grey, rarely light grey, trace pyrite, trace carbonaceous flecks, slightly argillaceous in part, moderately hard, blocky, no visible porosity, no fluorescence.
2550-2580	100	LIMESTONE: as above.
2580-2626	100	LIMESTONE: as above.
WIPER TRIP AT 2626 METRES TO 13 ³ / ₈ " CASING SHOE. WAIT ON WEATHER AT SHOE.		
2626-2640	100	LIMESTONE: as above.
2640-2670	100	LIMESTONE: as above.
2670-2700	100	LIMESTONE: as above.
2700-2730	100	LIMESTONE: as above, some calcisiltite.
2730-2760	100	LIMESTONE: calcilutite, olive grey, trace pyrite, slightly argillaceous, firm to moderately hard, blocky, no visible porosity, no fluorescence.
2760-2790	100	LIMESTONE: as above, some calcarenite, trace carbonaceous flecks.
2790-2820	100	LIMESTONE: as above, calcilutite and calcisiltite, trace glauconite.
2820-2850	100	LIMESTONE: as above.
2850-2880	100	LIMESTONE: as above.
2880-2910	100	LIMESTONE: as above, becoming more argillaceous, trace Foraminifera, some calcisiltite.
2910-2940	100	LIMESTONE: as above, decreasing argillaceous content.
2940-2970	100	LIMESTONE: as above, increasing argillaceous content, trace glauconite.
2970-3000	100	LIMESTONE: as above, decreasing argillaceous content, locally common glauconite, trace Foraminifera.

Interval	%	Lithology/Show Description
WIPER TRIP AT 3027 METRES. 3000m - 3030m SAMPLE COLLECTED AFTER WIPER TRIP.		
3000-3030	100	LIMESTONE: sample appears to be from higher in the formation, common calcarenite, fossiliferous in part.
3030-3060	100	LIMESTONE: mostly calcilutite, some calcisiltite, olive grey, trace pyrite nodules and disseminated pyrite, rare carbonaceous flecks, rare glauconite, rare Foraminifera, firm to moderately hard, blocky, no visible porosity, no fluorescence.
3060-3090	100	LIMESTONE: Medium dark grey, brown grey, calcilutite, silty in part grades to calcisiltite, micritic, trace carbonaceous material, firm, blocky.
3090-3120	100	LIMESTONE: Medium dark grey to brown grey, calcisiltite, locally very argillaceous grades to calcilutite, micritic, trace carbonaceous material, trace fine calcareous sand, common brown grey calcarenite inclusions, very fine to fine grained, trace carbonaceous material, rare disseminated pyrite, trace forams, firm to moderately hard, blocky.
3120-3150	100	LIMESTONE: Predominantly as above, calcisiltite grades to calcilutite, trace fine calcareous sand.
3150-3180	100	LIMESTONE: Medium dark grey to brown grey, calcilutite, silty in part, micritic, trace carbonaceous material, trace forams, trace fine calcareous sand, firm to moderately hard, blocky.
3180-3210	100	LIMESTONE: Medium grey to brown grey, calcisiltite, locally very argillaceous grades to calcilutite in part, micritic, trace fine calcareous sand, trace light grey very fine calcarenite inclusions, trace carbonaceous specks, firm, blocky.
3210-3240	100	LIMESTONE: As above.
3240-3270	100	LIMESTONE: Brown grey to medium dark grey, calcisiltite, locally moderately argillaceous grades to calcilutite in part, trace carbonaceous material, locally common very fine light grey calcarenite inclusions, firm to moderately hard, blocky.
3270-3300	100	LIMESTONE: Medium dark grey to brown grey, calcisiltite, locally becomes very arenaceous grades to very fine calcarenite, micritic, trace carbonaceous fragments, firm to moderately hard, blocky.
3300-3330	100	LIMESTONE: Medium dark grey to brown grey, calcisiltite becomes increasingly argillaceous grades to calcilutite, micritic, trace very fine calcareous sand, trace light grey very fine to fine calcarenite inclusions, moderately hard, blocky.
3330-3360	100	LIMESTONE: Dark grey to brown grey, calcisiltite, moderately argillaceous, micritic, trace carbonaceous material, trace very fine calcareous sand, occasionally very fine light grey calcarenite, moderately hard, blocky.
3360-3390	100	LIMESTONE: Medium dark grey, brown grey, calcisiltite becomes arenaceous in part grades to very fine calcarenite, trace carbonaceous material, common light grey very fine calcarenite inclusions, moderately hard to occasionally hard, blocky.
3390-3420	100	LIMESTONE: As above.
3420-3450	100	LIMESTONE: Medium dark grey to brown grey, olive grey, calcilutite, silty in part grades to calcisiltite, trace carbonaceous specks, trace light grey very fine calcarenite inclusions, trace free white calcite infill, rare disseminated pyrite, firm, moderately hard in part, blocky to platy in part.
3450-3480	100	LIMESTONE: Medium dark grey, brown grey, brown black, calcisiltite, trace carbonaceous fragments and microlaminae, locally common light grey very fine calcarenite inclusions, firm, blocky.
3480-3510	100	LIMESTONE: Dark grey, brown grey, brown black, calcisiltite, argillaceous, locally grades to calcilutite, micritic, trace fine calcareous sand, occasionally light grey very fine calcarenite inclusions, trace carbonaceous microlaminae, firm, blocky.
3510-3540	100	LIMESTONE: Predominantly as above, trace white calcite infill, rare calcareous fossil fragments.
3540-3570	100	LIMESTONE: Predominantly as above, locally common white light grey very fine calcarenite inclusions.
3570-3600	100	LIMESTONE: Dark grey to brown grey, calcilutite, micritic, slightly silty in part, trace carbonaceous specks, trace white calcite infill, moderately hard, blocky.
3600-3630	100	LIMESTONE: Medium dark grey to brown grey, brown black, calcilutite, slightly silty, micritic, trace carbonaceous specks, trace very fine calcareous sand, rare disseminated pyrite, trace light grey to off white very fine calcarenite inclusions, firm to moderately hard in part, blocky.

Interval	%	Lithology/Show Description
3630-3660	100	LIMESTONE: Predominantly as above, locally becomes very argillaceous grades to calcareous claystone.
3660-3690	100	LIMESTONE: As above.
3690-3720	100	LIMESTONE: Medium dark to dark grey, olive grey in part, calcilutite, becomes increasingly argillaceous grades to calcareous claystone, micritic, trace carbonaceous specks, homogeneous, firm to moderately hard, blocky.
3720-3750	100	LIMESTONE: Predominantly as above becomes dark grey.
3750-3780	100	LIMESTONE: Predominantly as above, calcilutite locally very argillaceous grades to calcareous claystone.
3780-3810	100	LIMESTONE: Medium grey to dark grey, olive grey in part, calcilutite, slightly silty in part, micritic, trace carbonaceous specks, becomes homogeneous, firm to moderately hard, blocky.
3810-3840	100	LIMESTONE: As above.
3840-3870	100	LIMESTONE: Medium grey to dark grey, olive grey, light grey in part, calcilutite becomes very argillaceous grades to calcareous claystone, trace carbonaceous specks, firm, blocky to platy in part.
3870-3900	80	LIMESTONE: Medium dark grey, brown grey, calcilutite, slightly silty in part, micritic, trace carbonaceous fragments, trace very fine calcareous sand, firm, blocky.
	20	CLAYSTONE: Light to medium grey, moderately to very calcareous grades to calcilutite, trace carbonaceous specks, firm, blocky to platy.
3900-3930	70	LIMESTONE: As above.
	30	CLAYSTONE: Light to pale grey, medium grey in part, moderately to very calcareous grades to calcilutite in part, slightly silty in part, trace glauconite, occasionally very fine calcareous sand, firm, massive to blocky.
3930-3960	60	LIMESTONE: As above.
	40	CLAYSTONE: Predominantly as above, becomes very argillaceous grades to calcilutite.
3960-3990	70	LIMESTONE: Medium dark grey to brown grey, calcilutite becomes very argillaceous grades to calcareous claystone, trace carbonaceous specks, trace very fine calcareous sand, moderately hard, blocky.
	30	CLAYSTONE: As above.
	30	LIMESTONE: As above.
3990-4020	70	CLAYSTONE: Light to medium grey, moderately to locally very calcareous grades to calcilutite, slightly silty, trace carbonaceous specks, trace forams, trace fine calcareous sand, trace glauconite, soft, plastic, massive to amorphous.
	100	CLAYSTONE: Medium grey to brown grey, moderately to very calcareous grades to calcilutite, slightly silty, trace carbonaceous specks, trace white sparry calcarenite inclusions, firm to moderately hard, blocky to platy.
4020-4050	100	CLAYSTONE: Medium grey to brown grey, moderately to very calcareous grades to calcilutite, slightly silty, trace carbonaceous specks, trace white sparry calcarenite inclusions, firm to moderately hard, blocky to platy.
4050-4080	100	CLAYSTONE: As above.
4080-4110	100	CLAYSTONE: Medium grey to brown grey, occasionally green grey, moderately calcareous, slightly silty, trace carbonaceous specks, trace disseminated pyrite, homogeneous, moderately hard, blocky to platy.
4110-4140	100	CLAYSTONE: Predominantly as above, rare glauconite, trace white calcilutite inclusions/laminae.
4140-4170	100	CLAYSTONE: Light to medium grey, occasionally brown grey, moderately to locally very calcareous grades to calcilutite, rare glauconite, trace disseminated pyrite, marly texture, soft to plastic, massive to amorphous.
4170-4200	100	CLAYSTONE: Predominantly as above, trace forams, trace fine calcareous sand.
4200-4230	100	CLAYSTONE: Medium dark to dark grey, green grey, moderately calcareous, trace fine calcareous sand, trace carbonaceous specks, homogeneous, moderately hard, platy.
4230-4260	100	CLAYSTONE: Medium to dark grey, brown grey, occasionally blue grey, moderately calcareous locally grades to calcilutite, slightly silty, trace carbonaceous fragments, trace disseminated pyrite, marly texture in part, soft to firm, massive to platy in part.
4260-4273	100	CLAYSTONE: As above. A wiper trip was made at 4273m. Drillstring packed off at 3890m on trip out. Plug back and sidetrack.

APPENDIX 3b

BLACKBACK A-1ST1

Lithology/Show Descriptions

Geologist: Greg Clota /Jon Reeve/Erik Hinsman

Blackback A-1ST1 Lithology/Show Descriptions

Interval	%	Lithology/Show Description
		Blackback A-1 Sidetrack 1 was kicked off a cement plug at 3684m on 1/4/99
3667-3690	95	CEMENT.
	5	LIMESTONE: Medium dark grey, olive grey, calcilutite, micritic, trace carbonaceous specks, firm to moderately hard, blocky to platy.
3690-3720	95	CEMENT
	5	LIMESTONE: As above.
3720-3750	90	CEMENT.
	10	LIMESTONE: Medium grey to dark grey, olive grey, calcilutite, micritic, trace carbonaceous specks, homogeneous, firm, blocky to platy.
3750-3780	90	CEMENT.
	10	LIMESTONE: Medium grey to dark grey, olive grey, calcilutite, micritic, trace carbonaceous specks, homogeneous, firm, blocky to platy.
3780-3810	60	CEMENT.
	40	LIMESTONE: Brown grey to olive grey, medium dark grey in part, calcilutite locally very argillaceous grades to calcareous claystone, slightly silty, micritic, rare carbonaceous specks, occasionally white sparry calcite infill, homogeneous, firm, blocky.
3810-3840	100	LIMESTONE: As above. (Trace to 10% cement contamination in returns from 3800m)
3840-3870	90	LIMESTONE: Predominantly as above, trace light brown fine calcarenite inclusions, rare Forams.
	10	CLAYSTONE: Medium to dark grey, moderately to very calcareous grades to calcilutite in part, rare glauconite, trace disseminated pyrite, firm to moderately hard, blocky to platy.
3870-3900	70	LIMESTONE: As above.
	30	CLAYSTONE: As above.
3900-3930	70	LIMESTONE: Brown grey to olive grey, calcilutite locally very argillaceous grades to calcareous claystone, slightly silty, micritic, trace white calcite infill, occasionally carbonaceous specks, firm, blocky.
	30	CLAYSTONE: Light to medium grey, dark grey in part, moderately to locally very calcareous grades to calcilutite, trace disseminated pyrite, rare glauconite, firm, massive to blocky.
3930-3960	60	LIMESTONE: Brown grey to dark grey, calcilutite becomes very argillaceous grades to calcareous claystone in part, trace carbonaceous specks, firm, blocky.
	40	CLAYSTONE: Light to medium grey, locally very calcareous grades to calcilutite in part, slightly silty in part, trace nodular and disseminated pyrite, soft to firm, massive to platy.
3960-3990	40	LIMESTONE: As above.
	60	CLAYSTONE: As above.
3990-4020	10	LIMESTONE: As above.
	90	CLAYSTONE: As above.
4020-4050	100	CLAYSTONE: Brown grey to dark grey, moderately calcareous, trace medium to coarse calcite spar inclusions, rare disseminated pyrite, rare carbonaceous specks, homogeneous, firm to moderately hard, blocky to massive.
4050-4080	100	CLAYSTONE: Predominantly as above, slightly silty in part, trace medium rounded calcite sand float.
4080-4110	100	CLAYSTONE: Medium grey to green grey, occasionally brown grey, moderately calcareous, slightly silty, trace carbonaceous specks, trace disseminated pyrite, homogeneous, moderately hard, blocky to sub-fissile, trace planktonic Forams.
4110-4140	100	CLAYSTONE: Medium grey to medium dark grey, becoming greenish black, firm to moderately hard, silty texture in part, homogenous, slightly calcareous, trace silt and disseminated pyrite, rare disseminated carbonaceous specks, trace Forams and shell fragments.
4140-4170	100	CLAYSTONE: Predominantly as above, trace fine calcareous sand.
4170-4200	100	CLAYSTONE: Generally as above, no Forams.
4200-4230	100	CLAYSTONE: Generally as above, predominantly very dark greenish grey, no Forams.
4230-4260	100	CLAYSTONE: Very dark greenish grey, firm to hard, blocky to sub-fissile, slightly calcareous, silty texture in part, predominantly homogenous, trace disseminated pyrite, rare disseminated carbonaceous specks.
4260-4290	100	CLAYSTONE: As above.

Interval	%	Lithology/Show Description
4290-4320	100	CLAYSTONE: Very dark green grey, firm to hard, sub-blocky to sub-fissile, slightly calcareous, silty texture in part, rare carbonaceous specks, trace disseminated pyrite, trace planktonic Forams.
4320-4350	100	CLAYSTONE: As above, dark to very dark green grey, olive grey in part, soft when water wet.
4350-4380	100	CLAYSTONE: As above, trace Forams, common black lignitic mud additive.
4380-4390	100	CLAYSTONE: As above. Pooh to change BHA.
4390-4400	100	CLAYSTONE: Very dark greenish grey to very dark olive grey, firm, sub-fissile, homogenous, slightly calcareous, rare carbonaceous specks, trace disseminated pyrite, becoming micromicaceous, trace Forams.
4400-4410	100	CLAYSTONE: As above.
4410-4420	100	CLAYSTONE: As above, occasionally light olive grey, very soft and dispersive, moderately reactive.
4420-4430	100	CLAYSTONE: As above.
4430-4440	100	CLAYSTONE: As above.
4440-4450	100	CLAYSTONE: As above. Adding 2ppb Baracarb (CaCO3) to the mud.
4450-4460	100	CLAYSTONE: As above becoming predominantly light olive grey to light greenish grey, firm, disseminated pyrite and carbonaceous specs, moderately calcareous, blocky.
4460-4470	100	CLAYSTONE: As above.
4470-4480	100	CLAYSTONE: As above, no Forams.
4480-4490	100	CLAYSTONE: As above, no Forams.
4490-4500	100	CLAYSTONE: As above.
4500-4510	100	CLAYSTONE: As above, medium grey to light olive grey and light greenish grey, no Forams.
4510-4520	100	CLAYSTONE: Generally as above, medium green grey to light green grey, firm, sub-blocky, occasionally sub-fissile, very soft and dispersive when wet, also lighter, trace silt, trace disseminated pyrite, rare carbonaceous specs, trace micromicaceous.
4520-4530	100	CLAYSTONE: As above, occasionally light grey and silty.
4530-4535	100	CLAYSTONE: Generally as above olive grey to light greenish grey, firm to very soft, sub-blocky to blocky, moderately reactive and dispersive, slightly calcareous, trace silt, trace nodular and disseminated pyrite, rare carbonaceous specs, trace micromicaceous.
4535-4540	100	CLAYSTONE: As above, paler and becoming more silty
4540-4545	100	CLAYSTONE: As above. Trace scattered very coarse rounded quartz grains.
4545-4550	100	CLAYSTONE: As above, trace nodular pyrite, rare glauconite pellets.
4550-4555	100	CLAYSTONE: As above, trace Forams.
4558 Spot	100	CLAYSTONE: As above, commonly silty, common pyrite.
4555-4560	100	CLAYSTONE: As above, commonly silty.
4560-4565	100	CLAYSTONE: Olive grey to light olive grey, soft to firm, sub-fissile, silty in part, slightly-moderately calcareous, common disseminated and nodular pyrite, micromicaceous in part, occasional trace glauconite, trace Forams, dispersive and moderately reactive in part.
4568 Spot	85	CLAYSTONE: As above.
	15	SANDSTONE: Light brown, translucent, disaggregated loose quartz, fine grained, sub-rounded to rounded, well sorted, 20% brown pellets limonite (probably oxidised glauconite), no show.
4565-4570	100	CLAYSTONE: As above, mottled/streaked olive grey, light olive grey and light green grey, becoming more glauconitic with trace green black glauconite pellets.
4571 Spot	80	CLAYSTONE: Light to medium grey to grey brown, firm, blocky, silty in part, trace pyrite nodules, trace micromicaceous.
	5	CLAYSTONE: Off white to very light grey, fluffy, dispersive, silty, micromicaceous.
	10	GREENSAND: Dark green, black, soft, 100% pelletal glauconite in a glauconitic matrix with pale green to white argillaceous matrix, common hard pyrite nodules, no show.
	5	SANDSTONE: Colourless and translucent, fine grained as above, 20% green very fine pelletal black glauconite.

Interval	%	Lithology/Show Description
4570-4575	30	CLAYSTONE: As above.
	5	GREENSAND: Dark green as above.
	65	SANDSTONE: Colourless and translucent quartz, disaggregated, fine to coarse grained, predominantly medium, sub-angular to angular, moderately sorted, moderate sphericity, trace pyrite cemented aggregates, trace to locally common grey clay matrix, good inferred porosity, 100% very dull blue white fluorescence, cut cannot be distinguished from affects of PETROFREE.
4575-4580	40	SANDSTONE: Colourless and translucent quartz, dis-aggregated, medium to coarse grained, moderately sorted, occasional broken granules, angular to sub-angular, occasionally sub-rounded, moderate sphericity, trace to common pyrite cement, trace feldspar, trace pyritic chert, good porosity, 100% dull blue white fluorescence, no distinctive cut.
	10	GREENSAND: Pale green as above.
	10	SILTSTONE: Off white to pale green, soft to firm, micromicaceous with abundant kaolinitic matrix, possibly altered feldspar.
	40	CLAYSTONE: As above.
4580-4585	50	SANDSTONE: As above, medium to very coarse, poorly sorted, nil to trace pyrite, trace pyritic inclusions.
	30	CLAYSTONE(1): Off white to pale green, light brown, soft to firm, commonly silty, micromicaceous, occasional glauconite, moderately calcareous in part.
	10	CLAYSTONE(2): Medium to dark grey, firm to hard, sub-fissile, micaceous, carbonaceous and coaly specks.
	10	SILTSTONE: As above, often with very fine to fine quartz grading to argillaceous very fine sand.
4585-4590	20	CLAYSTONE(2): Medium to dark grey to grey brown, firm, sub-fissile, mica, abundant disseminated pyrite in part.
	30	CLAYSTONE(1): Pale colours as above.
	50	SANDSTONE: As above, medium to coarse, sub-rounded, moderately sorted, no cement, trace feldspar.
4590-4595	70	SANDSTONE: Colourless, translucent, disaggregated, quartz, medium to predominantly coarse, occasional very coarse to granular, moderately to well sorted, sub-rounded to angular,
	30	moderate to high sphericity, slightly frosted, good porosity. No show.
	Tr	CLAYSTONE(2): As above. SILTSTONE: Medium to dark brown grey, firm, blocky, argillaceous matrix.
4595-4600	60	SANDSTONE: As above, coarse to very coarse, sub-rounded to sub-angular, well sorted, high sphericity, trace to common pyritised quartz grains, good porosity. No show.
	40	CLAYSTONE(2): As above.
4600-4605	90	SANDSTONE: Colourless, translucent, disaggregated to very friable, very coarse to fine,
	10	poorly sorted, sub-angular, high to moderate sphericity, weak siliceous cement, abundant white kaolinitic matrix, trace white feldspar, trace pyritised quartz, good to fair porosity, no show. CLAYSTONE(2): As above.
4605-4610	100	SANDSTONE: As above, medium to very coarse, predominantly coarse, poorly to moderately sorted, 10% white feldspar.
4610-4615	100	SANDSTONE: As above, medium to very coarse, poorly sorted, trace pyrite cement.
4615-4620	Tr	CLAYSTONE: Light brown, soft, plastic, sticky, trace carbonaceous specks.
	100	SANDSTONE: As above, medium to very coarse, angular to sub-rounded, loose and disaggregated.
4620-4625	100	SANDSTONE: As above, medium to very coarse, occasional granules, loose and disaggregated.
4625-4630	100	SANDSTONE: Colourless, translucent, light grey, disaggregated loose quartz, medium to predominantly very coarse quartz grains, granules in part, sub-rounded to angular, poorly to moderately sorted, trace pyrite cement, weak siliceous cement, trace brown argillaceous cement, common pyritic quartz grains, 10% white to grey feldspar grains, common brown mica flake inclusions, good inferred porosity, no show.
4630-4635	90	SANDSTONE: As above, becoming predominantly medium grained, trace pyrite nodular, good porosity.
	10	SILTSTONE: Medium brown to grey brown, occasionally, soft to firm, argillaceous, micromicaceous, pyritic, grading to silty Claystone.

Interval	%	Lithology/Show Description
4635-4640	100	SANDSTONE: Off white, colourless, translucent, light grey, medium to very coarse, poorly sorted, angular to sub-rounded, moderate to high sphericity, weak siliceous cement, abundant white argillaceous matrix, trace muscovite flakes, trace pyrite nodular, 10% white - grey feldspar grains, trace pyritic quartz, fair porosity, no show.
4640-4645	100	SANDSTONE: As above, medium to granules, poorly sorted, common broken grains, 10% white feldspar grains, trace pyritic quartz.
4645-4650	90	SANDSTONE: As above, medium to coarse grained, occasionally very coarse, sub-angular to angular, abundant grey silty matrix, trace glauconite.
	10	CLAYSTONE: Grey brown to grey, firm, plastic, very silty and arenaceous in part, micromicaceous, trace pyrite, trace carbonaceous specks, trace glauconite grading to argillaceous Siltstone.
4650-4655	90	SANDSTONE: As above, medium grained to granules, poorly sorted, angular to sub-rounded, common broken grains, trace pyrite cement, weak siliceous cement, abundant argillaceous to silty matrix in part, common pyritic quartz grains, 10% white to grey feldspar grains, common brown mica flakes inclusions, good inferred porosity, no show.
	10	CLAYSTONE: As above.
4655-4660	90	SANDSTONE: Colourless, translucent, off white to light grey, medium grained to granules, predominantly coarse to very coarse, moderately to poorly sorted, angular to sub-rounded, moderate to high sphericity, weak siliceous cement, trace pyrite cement, abundant white argillaceous and arenaceous matrix, 10% white and grey feldspar, trace nodular pyrite, common pyritised quartz grains, fair porosity, no show.
	10	SILTSTONE: Off white, soft, friable, argillaceous, common fine quartz, micromicaceous, grading to arenaceous Claystone.
4660-4665	90	SANDSTONE: As above.
	10	CLAYSTONE: Medium grey brown, soft, silty and arenaceous in part, micromicaceous, trace biotite 'books'.
4665-4670	80	SANDSTONE: As above.
	20	SILTSTONE: Grey brown to brown grey, firm, very argillaceous, common carbonaceous specks and microlaminations, common mica flakes, trace pyrite nodules.
4670-4675	90	SANDSTONE: Off white to light grey, translucent, fine to granular, predominantly m to very coarse, poorly sorted, abundant broken grains, sub-rounded-angular, granules occasionally rounded, predominantly disaggregated loose quartz, weak siliceous cement, trace dolomitic cement and pyrite cement, abundant white to grey argillaceous matrix, trace mica flakes, 10% feldspar, fair porosity, no show.
	10	SILTSTONE: As above.
4675-4680	80	SANDSTONE: As above, trace pyritised quartz.
	20	SILTSTONE: As above.
4680-4685	80	SANDSTONE: As above, predominantly very coarse to granular, abundant broken grains, trace pyrite cement, trace biotite.
	20	SILTSTONE: As above.
4685-4690	70	SANDSTONE: As above, becoming predominantly medium to coarse grained, very poorly sorted, 25% grey and white feldspar grains.
	30	SILTSTONE: As above, possibly also as matrix in granular sandstone, common quartz granules within silt.
4690-4695	70	SANDSTONE: As above, fine grained to granules, very poorly sorted, angular to sub-rounded, occasionally rounded granules, weak siliceous cement, abundant dark grey silty matrix (see Siltstone), 15% grey and white feldspar grains, trace pyrite, poorly porosity, no show.
	30	SILTSTONE: Dark grey, friable, argillaceous, very sandy in part, trace glauconite, common carbonaceous specks and mica, slightly dolomitic, appears to be grain supporting matrix within granular sandstone.,

907469 081

907469 082

APPENDIX 4a

BLACKBACK A-1

Mud Log

PE605454

This is an enclosure indicator page.
The enclosure PE605454 is enclosed within the
container PE907469 at this location in this
document.

The enclosure PE605454 has the following characteristics:

ITEM_BARCODE = PE605454
CONTAINER_BARCODE = PE907469
NAME = Blackback-A1 Mud Log
BASIN = GIPPSLAND
ONSHORE? = N
DATA_TYPE = WELL
DATA_SUB_TYPE = MUD_LOG
DESCRIPTION = Blackback-A1ST1 Mud Log or Master Log,
Appendix 4a.
REMARKS =
DATE_WRITTEN =
DATE_PROCESSED =
DATE_RECEIVED = 25-OCT-1999
RECEIVED_FROM = Esso Australia Ltd
WELL_NAME = Blackback-A1
CONTRACTOR = Geoservices
AUTHOR =
ORIGINATOR = Esso Australia Ltd
TOP_DEPTH = 650
BOTTOM_DEPTH = 4300
ROW_CREATED_BY = PC00_SW

(Inserted by DNRE - Vic Govt Mines Dept)

907469 084

APPENDIX 4b

BLACKBACK A-1ST1

Mud Log

907469 085

PE605455

This is an enclosure indicator page.
The enclosure PE605455 is enclosed within the
container PE907469 at this location in this
document.

The enclosure PE605455 has the following characteristics:

- ITEM_BARCODE = PE605455
- CONTAINER_BARCODE = PE907469
 - NAME = Blackback-A1ST1 Mud Log
 - BASIN = GIPPSLAND
 - ONSHORE? = N
 - DATA_TYPE = WELL
 - DATA_SUB_TYPE = MUD_LOG
 - DESCRIPTION = Blackback-A1ST1 Mud Log or Master Log,
Appendix 4b.
- REMARKS =
- DATE_WRITTEN =
- DATE_PROCESSED =
- DATE_RECEIVED = 25-OCT-1999
- RECEIVED_FROM = Esso Australia Ltd
 - WELL_NAME = Blackback-A1ST1
 - CONTRACTOR = Geoservices
 - AUTHOR =
 - ORIGINATOR = Esso Australia Ltd
 - TOP_DEPTH = 3650
 - BOTTOM_DEPTH = 4720
 - ROW_CREATED_BY = PC00_SW

(Inserted by DNRE - Vic Govt Mines Dept)

907469 086

APPENDIX 4c

BLACKBACK A-1ST1

Well Completion Log

907469 087

PE605456

This is an enclosure indicator page.
The enclosure PE605456 is enclosed within the
container PE907469 at this location in this
document.

The enclosure PE605456 has the following characteristics:

ITEM_BARCODE = PE605456
CONTAINER_BARCODE = PE907469
NAME = Blackback-A1ST1 Well Completion Log
BASIN = GIPPSLAND
ONSHORE? = N
DATA_TYPE = WELL
DATA_SUB_TYPE = COMPLETION_LOG
DESCRIPTION = Blackback-A1ST1 Well Completion Log,
Appendix 4c.
REMARKS =
DATE_WRITTEN =
DATE_PROCESSED =
DATE_RECEIVED = 25-OCT-1999
RECEIVED_FROM = Esso Australia Ltd
WELL_NAME = Blackback-A1ST1
CONTRACTOR =
AUTHOR =
ORIGINATOR = Esso Australia Ltd
TOP_DEPTH =
BOTTOM_DEPTH = 4695
ROW_CREATED_BY = PC00_SW

(Inserted by DNRE - Vic Govt Mines Dept)

907469 088

907469 089

APPENDIX 5a

BLACKBACK A-1ST1

Velocity Survey Report

907469 090

PE605457

This is an enclosure indicator page.
The enclosure PE605457 is enclosed within the
container PE907469 at this location in this
document.

The enclosure PE605457 has the following characteristics:

- ITEM_BARCODE = PE605457
- CONTAINER_BARCODE = PE907469
- NAME = Blackback-A1ST1 Velocity Survey Report
- BASIN = GIPPSLAND
- ONSHORE? = N
- DATA_TYPE = WELL
- DATA_SUB_TYPE = VELOCITY_CHART
- DESCRIPTION = Blackback-A1ST1 Velocity Survey Report,
Appendix 5a.
- REMARKS =
- DATE_WRITTEN =
- DATE_PROCESSED =
- DATE_RECEIVED = 25-OCT-1999
- RECEIVED_FROM = Esso Australia Ltd
- WELL_NAME = Blackback-A1ST1
- CONTRACTOR = Schlumberger
- AUTHOR =
- ORIGINATOR = Esso Australia Ltd
- TOP_DEPTH =
- BOTTOM_DEPTH = 4470
- ROW_CREATED_BY = PC00_SW

(Inserted by DNRE - Vic Govt Mines Dept)