Schlumberger

Company: ESSO Australia Pty Ltd

Well: SNA A19A
Field: SNAPPER
Rig: ISDL 175
State: Victoria

8.50 In. Section

EcoScope* Resistivity
1:500 Measured Depth
Recorded Mode Log

Location		Elevation	
Total depth:	4100.0 m	K.B.	Top Drive
Spud date:	27–Mar–08	G.L.	−55.0 m
Run:	3	D.F.	41.7 m
Permanent datum:	Mean Sea Level	Elev.:	0.0 m
Log measured from:	Drill Floor	41.7 m above Perm. datum	
Depth reference:	Driller's Depth		

Service Order no.	07ASQ0023	X = E 589,787.584 m	Y = N 5,772,180.379 m
Longitude	E 148° 1' 31.298"	Latitude	S 38° 11' 37.84"

Rig: ISDL 175
Field: SNAPPER
Location: Bass Strait
Well: SNA A19A
Company: ESSO Australia Pty Ltd

Depth logged:	4031.0 m To 4065.7 m	Mag decl:	13.01 deg
Date logged:	15–Apr–08 To 15–Apr–08	Mag dip:	−68.71 deg
Other services:	See Remarks		

Bore hole record / **Casing record**

Hole size	from	to	Size	Density	from	to
8.50 in.	4031.0 m	4100.0 m	9.625 in.	47.0 lb/ft	27.1 m	4031.0 m

Mud record / **Borehole deviation record**

Type	from	to	Min	Max	from	to
Accolade SBM	4031.0 m	4100.0 m	34.10 deg.	81.60 deg.	4031.0 m	4100.0 m

Surface equipment / **Software record**

Unit	ESSO Office Unit	IDEAL Wis	ID13_0c_08
Depth system	PDA/CLT	HSPM	13_0c_03
		LWD	See Remarks
		MWD	9.2C02

Bit Run Summary

Run number		3	4	5							
Bit size	in	8.5	8.5	8.5							
Bit start depth	m	4031.0	4100.0	4031.0							
Bit end depth	m	4100.0	4888.0	4848.0							
Top interval logged	m	4031.0	4089.6	4031.0							
Bottom interval logged	m	4089.6	4877.6	4842.5							
Begin log: time		9:34	15:10	15:33							
Begin log: date		15–Apr–08	19–Apr–08	27–Apr–08							
End log: time		19:07	0:23	23:06							
End log: date		15–Apr–08	23–Apr–08	27–Apr–08							
Mud data											
Depth	m	4099.0	4888.0	4888.0							
Type		Accolade SBM	Accolade SBM	Accolade SBM							
Mud weight	ppg	11.30	10.80	10.90							
Solids	%	15.80	15.60	15.70							
Chlorides	mg/L	46,623	50,501	50,423							
Rm	Ohm.m @ °C	n/a	n/a	n/a							
Rmf	Ohm.m @ °C	n/a	n/a	n/a							
Rmc	Ohm.m @ °C	n/a	n/a	n/a							

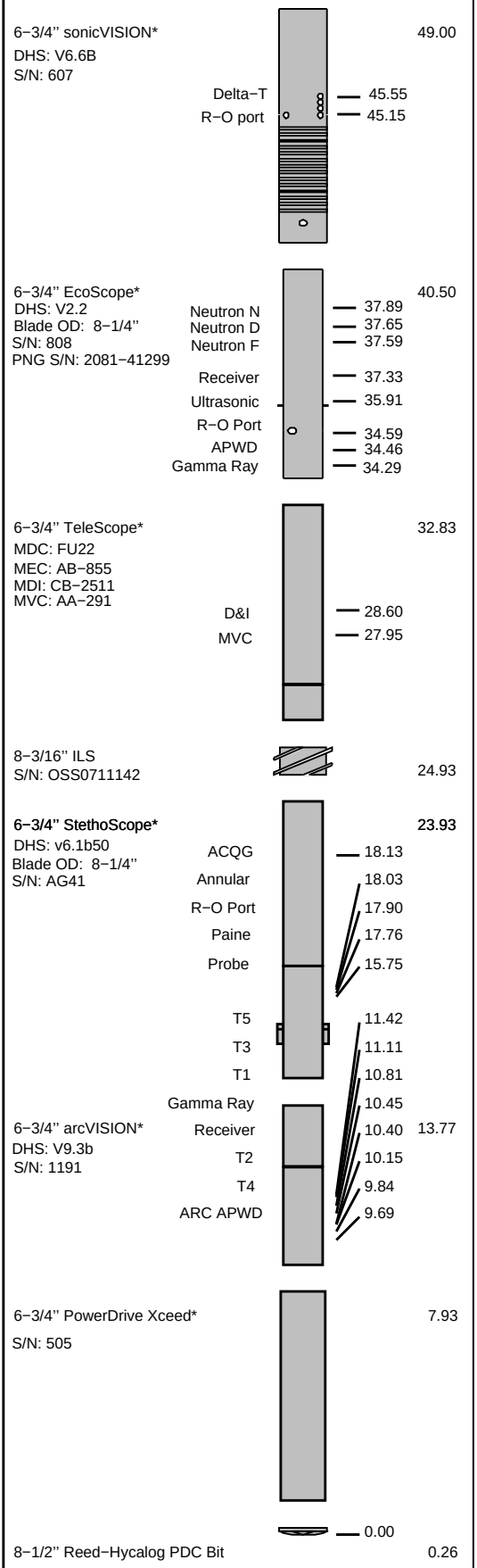
Potassium		n/a	n/a	n/a							
Environmental data											
GR											
Mud weight	ppg	11.30	10.80	10.90							
Bit size	in	8.5	8.5	8.5							
Resistivity											
Neutron porosity											
Hole Size	in	8.5	8.5	8.5							
Mud weight	ppg	11.30	10.80	10.90							
Temperature	°C	85	89	89							
Mud salinity	ppk	59.925	n/a	n/a							
Formation salinity		n/a	n/a	n/a							
Recording rate 1	SEC	6 (ARC) 10 (SON)	6 (ARC)	6 (ARC)							
Recording rate 2	SEC	2 (Ecoscope)	n/a	n/a							
Filtering GR		3 pts.	3 pts.	3 pts.							
Filtering density		3 pts.	n/a	n/a							
Filtering Neutron		3 pts.	n/a	n/a							
Company representative		G. Doty	R. Moore	M. Calicutt	R. Spence	D. Daniels					
Anadrill personnel		M. Amarasena	M. Sihite	M. Lu	J. Ikeda	C. Soper	D. Bui	F. Debacker			

OTHER SERVICES FOR RUN 3	OTHER SERVICES FOR RUN 4	OTHER SERVICES FOR RUN 5
Directional Drilling Directional Surveys Annular Pressure & Temperature Shock & Vibrations	Directional Drilling Directional Surveys Annular Pressure & Temperature Shock & Vibrations	Directional Drilling Directional Surveys Annular Pressure & Temperature Shock & Vibrations
REMARKS: RUN NUMBER 3	**REMARKS: RUN NUMBER 4**	**REMARKS: RUN NUMBER 5**
Depth is referenced to Driller's depth Gamma ray is corrected for mud weight, tool size and bit size Resistivity is borehole compensated and environmentally corrected Neutron porosity is corrected for the effects of borehole size (bit size), temperature, mud salinity and mud hydrogen index (a factor of mud weight, mud temperature and pressure) Neutron porosity is calculated by using a limestone matrix density of 2.71 g/cm3 SSn and LSn variables in the calibration are depicted as "exceeding limits" and Gamma−Gamma density calibration is depicted as "out of date". All inconsequential as operation was sourceless POOH to change out BHA (due to hole condition)	Depth is referenced to Driller's depth Gamma ray is corrected for mud weight, tool size and bit size Resistivity is borehole compensated and environmentally corrected POOH upon reaching TD of SNA A19A	Depth is referenced to Driller's depth Gamma ray is corrected for mud weight, tool size and bit size Resistivity is borehole compensated and environmentally corrected POOH due to completion of wiper trip.

EQUIPMENT DESCRIPTION

RUN 3	RUN 4	RUN 5

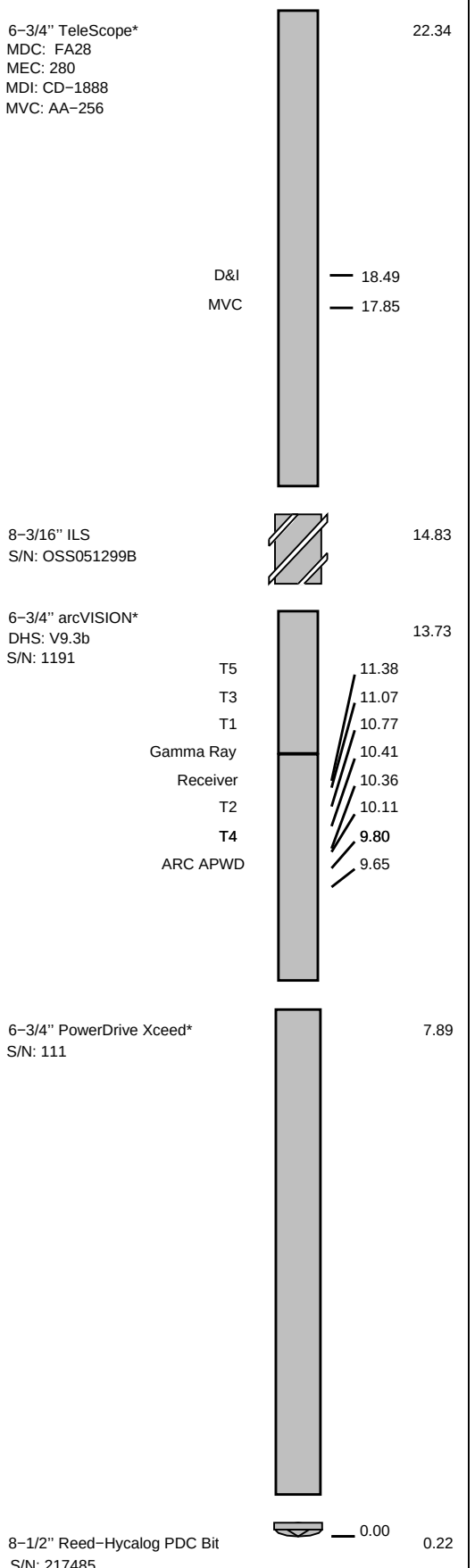
DOWNHOLE EQUIPMENT



Maximum string diameter 8.50 in.

All lengths in Meters

DOWNHOLE EQUIPMENT



Maximum string diameter 8.50 in.

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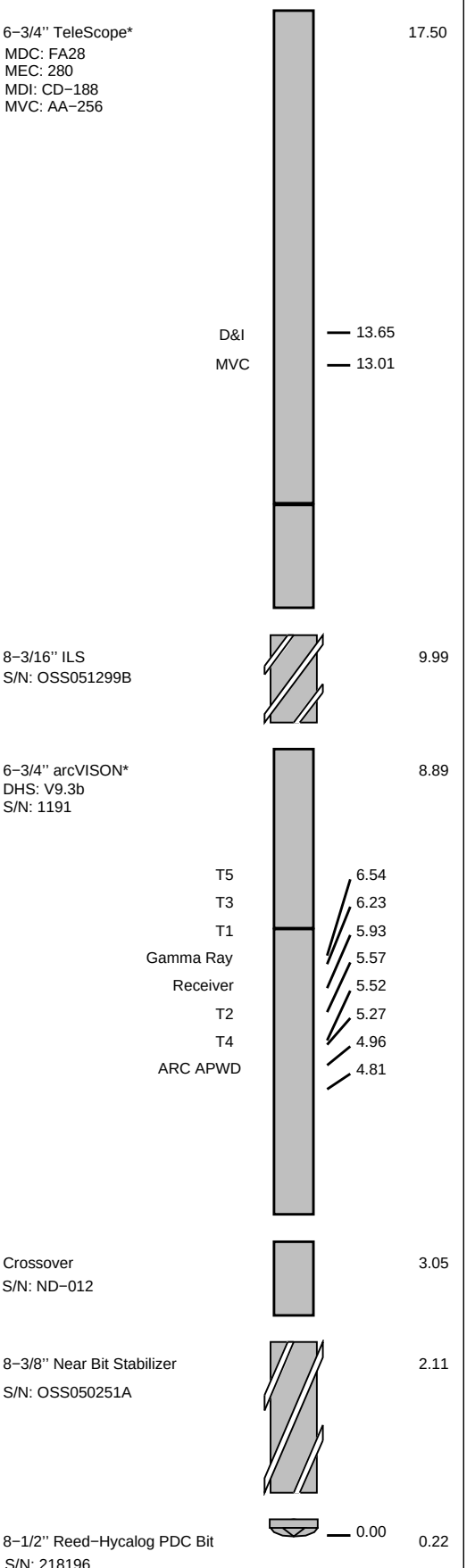
DOWNHOLE EQUIPMENT



Maximum string diameter 8.50 in.

All lengths in Meters

Variable Name	Variable Description	Run Name & Value		
	Run Number			3
	General Information			
BHT_RM	Bottom Hole Temperature (RM)		DEGC	85.000
BSAL_RM	Mud Salinity (RM)		PPK	59.932
BS_RM	Bit Size (RM)		IN	8.500
COEF_M	User Defined FEXP in Clean Sand		----	1.650
C_WS	Overpressure correction to Sw and M		----	1.000
FEXP	Formation Factor Exponent(RM)		----	2.000
FNUM	Formation Factor Enumerator(RM)		----	1.000
FPHI_RM	Formation Factor Porosity Source (RM)		----	XPLOT
MST_RM	Mud Sample temperature (RM)		DEGC	24.000
MW_RM	Mud Weight (RM)		LB/G	11.300
OBMF_RM	Oil Based Mud (RM)		----	YES
RHOF_RM	Mud Filtrate Density (RM)		G/C3	1.000
RHOM_RM	Matrix density (RM)		G/C3	2.710
RMS_RM	Resistivity of Mud Sample (RM)		OHMM	1000.000
RWA_COMP_M	Rwa computation model			
RWA_DEN_AD	Rwa Density Input ADN			
RWA_DEN_CD	Rwa Density Input CDN			
RWA_DEN_IN	Rwa Density Input			
RWA_FORM_M	Rwa computation formation model			
RWA_RES_IN	Rwa computation resistivity input			
RWS_RM	Resistivity of Connate Water (RM)		OHMM	1.000
SHT_RM	Ground Level Temperature (Mud-Line When Offshore) (RM)		DEGC	10.000
TD_RM	Total Measured Depth (RM)		M	4100.000
TWS_RM	Temperature of Connate Water (RM)		DEGC	24.000
VF_ILLI	Fraction of illite in shales		----	0.500
VF_KAOL	Fraction of kaolinite in shales		----	0.500
VF_MONT	Fraction of montmorillonite in shales		----	0.000
XPDM_RM	Cross plot density porosity multiplier		----	0.675
XPNM_RM	Cross plot neutron porosity multiplier		----	0.325
	DVD			
----------	Parameters----------	Parameters----------	----------	---------Sigma
----------	Parameters----------	Parameters----------	----------	---------Sigma
A12A	ARC Air Cal Attenuation From T1 at 2 MHz		DB	8.405
A14A	ARC Air Cal Attenuation From T1 at 400 KHz		DB	8.370
A22A	ARC Air Cal Attenuation From T2 at 2 MHz		DB	6.564
A24A	ARC Air Cal Attenuation From T2 at 400 KHz		DB	6.610
A32A	ARC Air Cal Attenuation From T3 at 2 MHz		DB	5.028
A34A	**ARC Air Cal Attenuation From T3 at 400 KHz**		**DB**	**4.983**
A42A	**ARC Air Cal Attenuation From T4 at 2 MHz**		**DB**	**4.464**
A44A	ARC Air Cal Attenuation From T4 at 400 KHz		DB	4.503
A52A	ARC Air Cal Attenuation From T5 at 2 MHz		DB	3.577
A54A	ARC Air Cal Attenuation From T5 at 400 KHz		DB	3.541
ABNT	Abnormal Transmitter Indicator		----	No_Tx_Failed
ALPHA_DEN_OPT	Density Enhanced Vertical Resolution Processing Switch		----	NO
AM2A	ARC Air Cal Amplitude Offset at 2 MHz		----	-50000.000
ANISO_COMPUTE	Anisotropy Computation Option		----	YES
ATMP_ARC	ARC Select Temperature Channel		----	Annulus_Temp
AZMF	Formation DIP Azimuth		DEG	0.000
BH_COMPUTE	Borehole Inversion Computation Option		----	YES
CDPTH_ARC	Process Start Depth		M	30.480
CHI_RM	Caliper High Limit from BS (RM)		IN	10.000
CLO_RM	Caliper Low Limit from BS (RM)		IN	-5.000
DIELEC_COMPUTE	Dielectric Computation Option		----	YES
DIPF	Formation DIP Angle		DEG	0.000
DTMUD	Delta-T for Mud (RM)		US/F	206.000
DTMUD_DH	Delta-T for Mud Downhole (RT)		US/F	230.700
DVDMDHS	DVDM Down Hole Software Version		----	Karl2 (V2.2)
DVDM_DATA_LTB	DVDM: Create An DVDM LTB Data File		----	NO
DVD_DATA_FIX	DVDM: Create A Corrected DVDM Time Data File		----	NO
DYN_IMAGE_OPT	Generate Dynamic Normalized Image?		----	YES
EDPTH	Wizard Process Stop Depth		----	50000
EN_WIZARD	Enable ARC Wizard Processing		----	NO
ERRCT	Percentage Error Cutoff		----	4.500
EVRL	EVR Process averaging number of samples (RM)		----	49
FWVN	Firmware Version Number		----	2.200
GCSE	Generalized Caliper Selection		----	BS
GRSH	GR Shale (Invasion Computation Cutoff)		GAPI	1000.000
GR_CF	Gamma Ray Correction Factor		----	1.800
GR_O2COR_OPT	Enable Gamma Ray Oxygen Activation Correction		----	YES
HIGH_BLEND	High Resistivity Threshold for Blending		OHMM	2.000
IDQT	Image Derived Quality Threshold		----	2.000
IMAGE_MAX_DCRA	Image Density Caliper Right Scale		IN	8.000
IMAGE_MAX_IDDQ	Image Density Quality Right Scale		----	1.000
IMAGE_MAX_SPEF	Image PEF(Segment) Right Scale		----	6.000
IMAGE_MAX_SRHOB	Image RHOB(Segment) Right Scale		G/C3	2.650
IMAGE_MIN_DCRA	Image Density Caliper Left Scale		IN	2.000
IMAGE_MIN_IDDQ	Image Density Quality Left Scale		----	0.000
IMAGE_MIN_SPEF	Image PEF(Segment) Left Scale		----	2.000
IMAGE_MIN_SRHOB	Image RHOB(Segment) Left Scale		G/C3	2.050
INCLIN_B0	ARC Bias Constant (mg)		----	0.000
INCLIN_B1	ARC Bias First-order Coefficient (mg/degC)		----	0.000
INCLIN_B2	ARC Bias Secod-order Coeeficient (mg/degC)		----	0.000
INCLIN_B3	ARC Bias Third-order Coeeficient (mg/degC)		----	0.000
INCLIN_C0	ARC Current Scale Factor Constant (mA/g)		----	1.000
INCLIN_C1	ARC Scale First-order Coeeficient (mA/g/degC)		----	0.000
INCLIN_C2	ARC Scale Second-order Coeeficient (mA/g/degC)		----	0.000

INCLIN_C3	ARC Scale Third-order Coeeficient (mA/g/degC)	----	0.000	
INVAS_COMPUTE	Invasion Computation Option	----	YES	
JSD	Acquisition start date	----	14-Apr-08	
JSD_ARC	ARC Acquisition start date	----	YES	
LOW_BLEND	Low Resistivity Threshold for Blending	OHMM	1.000	
MATR	Rock Matrix for Neutron Porosity Corrections	----	LIMESTONE	
MSWS	ARC Wizard Model Switch Window	M	1.524	
MULTIEFFECT_COM	Multi Effect Option	----	YES	
NEU_DCOR_OPT	Density Correction Source for Neutron Processing	----	None	
NEU_FTUBE_OPT	Far Thermal Tube Selection	----	Both	
NEU_PRESCOR_OPT	Pressure Correction Source for Neutron Processing	----	Annulus_Press	
NEU_TEMPCOR_OPT	Temperature Correction Source for Neutron Processing	----	Tool_Temp	
NTIK_SEL	Neutron Tick Channel Name	----	FAZ1	
OACF	Oxygen Activation Correction Factor (RM)	----	8.000	
P11AC_RM	ARC: Air Calibration For Phase T1 to R1	DEG	-999.250	
P12A	ARC Air Cal Phase-Shift From T1 at 2 MHz	DEG	-0.519	
P14A	ARC Air Cal Phase-Shift From T1 at 400 KHz	DEG	0.870	
P22A	ARC Air Cal Phase-Shift From T2 at 2 MHz	DEG	0.550	
P24A	ARC Air Cal Phase-Shift From T2 at 400 KHz	DEG	-0.934	
P32A	ARC Air Cal Phase-Shift From T3 at 2 MHz	DEG	-0.574	
P34A	ARC Air Cal Phase-Shift From T3 at 400 KHz	DEG	0.889	
P42A	ARC Air Cal Phase-Shift From T4 at 2 MHz	DEG	0.522	
P44A	ARC Air Cal Phase-Shift From T4 at 400 KHz	DEG	-0.927	
P52A	ARC Air Cal Phase-Shift From T5 at 2 MHz	DEG	-0.589	
P54A	ARC Air Cal Phase-Shift From T5 at 400 KHz	DEG	0.878	
PMUD	Potassium Concentration in Mud	----	0.000	
PRTD	Preferred Resistivity Log for Rt Display while Multi-Effects	----	P34B	
PSOF_ADJ_T1	ARC: User Input Phase offset	DEG	0.000	
RESTIK	ARC resistivity tick source	----	Phase	
RSD	LWD run start date dd-mmm-yy	----	14-Apr-08	
RUN_DURATION_OP	Run Duration Type ?	----	Normal	
RWA_COMP_MOD	Rwa computation model	----	BASIC	
RWA_DEN_ADN	Rwa Density Input	----	RHOB	
RWA_DEN_CDN	Rwa Density Input	----	RHOB	
RWA_DEN_INPUT	Rwa Density Input	----	RHOB	
RWA_FORM_MOD	Rwa computation formation model	----	CLASTIC	
RWA_RES_INPUT	Rwa computation resistivity input	----	RT	
SDPTH	Wizard Process Start Depth	----	100	
SIG_PCOR_OPT	Porosity Correction Source for Sigma Processing	----	Best	
SPEC_CSG_DEPTH	Casing Depth for Spectroscopy Processing	M	30.480	
SPEC_K_OPT	Potassium standard used during acquisition?	----	NO	
SPL_CLAY_MODEL	SpectroLith Clay Model	----	SUBARKOSE	
SPL_MG_OPT	Magnesium Flag Switch ?	----	OFF	
SPL_SULFUR_MIN	SpectroLith Sulfur Mineral Option	----	PYRITE	
STAB_SIZE	Stabilizer Size	IN	8.250	
STOH	Top of Hole Sector	----	SECTOR_0	
TRNO	Tool Run Number	M	3	
TSIZ_ARC	**ARC Tool Size**	**IN**	**6.750**	
TSNO	**Tool Serial Number**	**----**	**808**	
UNIFORM_COMPUTE	Uniform Rock Option	----	YES	
VERS_ARC	ARC Down hole software version Number	----	9.300	
WPPV	Water Phase as Percent of Total Volume in OBM	----	25.000	
WPSL	Salinity of the Water Phase Emulsified within the OBM	PPK	239.727	
WRK	to Report Potassium Concentration	----	K_by_Wgt_%	
WSDI	Window Size of Dynamic Normalization Image	M	4.572	
	ARC			
ADHS	ARC Down Hole Software Version	----	v9.3b	
APICG	ARC5 Gamma Ray Gain Factor	----	1.070	
APIG	ARC Gamma Ray API Gain Factor	----	-1.000	
ARC_DATA_FIX	ARC: Create A Corrected ARC Time Data File	----	NO	
ARC_DATA_LTB	ARC: Create An ARC LTB Data File	----	NO	
ATRN	ARC Tool Run Number	----	1	
ATSN	ARC Tool Serial Number	----	1191	
CALG	ARC Gamma Ray Cal Gain Factor	----	1.070	
CALI_SLCT_ARC	ARC Caliper Selection	----	BITSIZE	
KPER	Potassium Concentration (RM)	----	0.000	
POFFSET_ARC	ARC: Pressure Offset	PSI	0.000	
SHIG	ARC High Shock Risk Level	CPS	0.500	
SMED	ARC Medium Shock Risk Level	CPS	0.330	
SMIN	ARC Minimum Shock Risk Level	CPS	0.160	
SUPD	ARC Real Time Shock Update Rate	S	30.000	
TCODE_ARC	ARC Tool File Code	S	30.000	
WRK	to Report Potassium Concentration (RM)	----	K_by_Wgt_%	

Variable Name	Variable Description		Run Name & Value	
	Run Number		4	5
	General Information			
BHT_RM	Bottom Hole Temperature (RM)	DEGC	89.000	89.000
BSAL_RM	Mud Salinity (RM)	PPK	N/A	N/A
BS_RM	Bit Size (RM)	IN	8.500	8.500
COEF_M	User Defined FEXP in Clean Sand	----	1.650	1.650
C_WS	Overpressure correction to Sw and M	----	1.000	1.000
FEXP	Formation Factor Exponent(RM)	----	2.000	2.000
FNUM	Formation Factor Enumerator(RM)	----	1.000	1.000

FPHI_RM	Formation Factor Porosity Source (RM)	----	XPLOT	XPLOT
MST_RM	Mud Sample temperature (RM)	DEGC	24.000	24.000
MW_RM	Mud Weight (RM)	LB/G	10.800	10.900
OBMF_RM	Oil Based Mud (RM)	----	YES	YES
RHOF_RM	Mud Filtrate Density (RM)	G/C3	1.000	1.000
RHOM_RM	Matrix density (RM)	G/C3	2.710	2.710
RMS_RM	Resistivity of Mud Sample (RM)	OHMM	1000.000	1000.000
RWA_COMP_M	Rwa computation model			
RWA_DEN_AD	Rwa Density Input ADN			
RWA_DEN_CD	Rwa Density Input CDN			
RWA_DEN_IN	Rwa Density Input			
RWA_FORM_M	Rwa computation formation model			
RWA_RES_IN	Rwa computation resistivity input			
RWS_RM	Resistivity of Connate Water (RM)	OHMM	1.000	1.000
SHT_RM	Ground Level Temperature (Mud-Line When Offshore) (RM)	DEGC	10.000	10.000
TD_RM	Total Measured Depth (RM)	M	4888.000	4888.000
TWS_RM	Temperature of Connate Water (RM)	DEGC	24.000	24.000
VF_ILLI	Fraction of illite in shales	----	0.500	0.500
VF_KAOL	Fraction of kaolinite in shales	----	0.500	0.500
VF_MONT	Fraction of montmorillonite in shales	----	0.000	0.000
XPDM_RM	Cross plot density porosity multiplier	----	0.675	0.675
XPNM_RM	Cross plot neutron porosity multiplier	----	0.325	0.325
	ARC			
A12A	ARC Air Cal Attenuation From T1 at 2 MHz	DB	8.405	8.405
A14A	ARC Air Cal Attenuation From T1 at 400 KHz	DB	8.370	8.370
A22A	ARC Air Cal Attenuation From T2 at 2 MHz	DB	6.564	6.564
A24A	ARC Air Cal Attenuation From T2 at 400 KHz	DB	6.610	6.610
A32A	ARC Air Cal Attenuation From T3 at 2 MHz	DB	5.028	5.028
A34A	ARC Air Cal Attenuation From T3 at 400 KHz	DB	4.983	4.983
A42A	ARC Air Cal Attenuation From T4 at 2 MHz	DB	4.464	4.464
A44A	ARC Air Cal Attenuation From T4 at 400 KHz	DB	4.503	4.503
A52A	ARC Air Cal Attenuation From T5 at 2 MHz	DB	3.577	3.577
A54A	ARC Air Cal Attenuation From T5 at 400 KHz	DB	3.541	3.541
ABNT	Abnormal Transmitter Indicator	----	No_Tx_Failed	No_Tx_Failed
ADHS	ARC Down Hole Software Version	----	v9.3b	v9.3b
AM2A	ARC Air Cal Amplitude Offset at 2 MHz	----	-50000.000	-50000.000
ANISO_COMPUTE	Anisotropy Computation Option	----	YES	YES
APICG	ARC5 Gamma Ray Gain Factor	----	1.070	1.070
APIG	ARC Gamma Ray API Gain Factor	----	-1.000	-1.000
ARC_DATA_FIX	ARC: Create A Corrected ARC Time Data File	----	NO	NO
ARC_DATA_LTB	ARC: Create An ARC LTB Data File	----	NO	NO
ATMP_ARC	ARC Select Temperature Channel	----	Annulus_Temp	Annulus_Temp
ATRN	ARC Tool Run Number	----	4	5
ATSN	ARC Tool Serial Number	----	1191	1191
AZMF	Formation DIP Azimuth	DEG	0.000	0.000
BH_COMPUTE	Borehole Inversion Computation Option	----	YES	YES
CALG	**ARC Gamma Ray Cal Gain Factor**	**----**	**1.070**	**1.070**
CALI_SLCT_ARC	**ARC Caliper Selection**	**----**	**BITSIZE**	**BITSIZE**
CDPTH_ARC	Process Start Depth	M	30.480	30.480
DIELEC_COMPUTE	Dielectric Computation Option	----	YES	YES
DIPF	Formation DIP Angle	DEG	0.000	0.000
ERRCT	Percentage Error Cutoff	----	4.500	4.500
GRSH	GR Shale (Invasion Computation Cutoff)	GAPI	1000.000	1000.000
HIGH_BLEND	High Resistivity Threshold for Blending	OHMM	2.000	2.000
INCLIN_B0	ARC Bias Constant (mg)	----	0.000	0.000
INCLIN_B1	ARC Bias First-order Coefficient (mg/degC)	----	0.000	0.000
INCLIN_B2	ARC Bias Secod-order Coeeficient (mg/degC)	----	0.000	0.000
INCLIN_B3	ARC Bias Third-order Coeeficient (mg/degC)	----	0.000	0.000
INCLIN_C0	ARC Current Scale Factor Constant (mA/g)	----	1.000	1.000
INCLIN_C1	ARC Scale First-order Coeeficient (mA/g/degC)	----	0.000	0.000
INCLIN_C2	ARC Scale Second-order Coeeficient (mA/g/degC)	----	0.000	0.000
INCLIN_C3	ARC Scale Third-order Coeeficient (mA/g/degC)	----	0.000	0.000
INVAS_COMPUTE	Invasion Computation Option	----	YES	YES
JSD_ARC	ARC Acquisition start date	----	18-Apr-08	26-Apr-08
KPER	Potassium Concentration (RM)	----	0.000	0.000
LOW_BLEND	Low Resistivity Threshold for Blending	OHMM	1.000	1.000
MSWS	ARC Wizard Model Switch Window	M	1.524	1.524
MULTIEFFECT_COM	Multi Effect Option	----	YES	YES
P11AC_RM	ARC: Air Calibration For Phase T1 to R1	DEG	-999.250	-999.250
P12A	ARC Air Cal Phase-Shift From T1 at 2 MHz	DEG	-0.519	-0.519
P14A	ARC Air Cal Phase-Shift From T1 at 400 KHz	DEG	0.870	0.870
P22A	ARC Air Cal Phase-Shift From T2 at 2 MHz	DEG	0.550	0.550
P24A	ARC Air Cal Phase-Shift From T2 at 400 KHz	DEG	-0.934	-0.934
P32A	ARC Air Cal Phase-Shift From T3 at 2 MHz	DEG	-0.574	-0.574
P34A	ARC Air Cal Phase-Shift From T3 at 400 KHz	DEG	0.889	0.889
P42A	ARC Air Cal Phase-Shift From T4 at 2 MHz	DEG	0.522	0.522
P44A	ARC Air Cal Phase-Shift From T4 at 400 KHz	DEG	-0.927	-0.927
P52A	ARC Air Cal Phase-Shift From T5 at 2 MHz	DEG	-0.589	-0.589
P54A	ARC Air Cal Phase-Shift From T5 at 400 KHz	DEG	0.878	0.878
POFFSET_ARC	ARC: Pressure Offset	PSI	0.000	0.000
PRTD	Preferred Resistivity Log for Rt Display while Multi-Effects	----	P34B	P34B
PSOF_ADJ_T1	ARC: User Input Phase offset	DEG	0.000	0.000
RESTIK	ARC resistivity tick source	----	Phase	Phase
RSD	LWD run start date dd-mmm-yy	----	18-Apr-08	26-Apr-08
RWA_COMP_MOD	Rwa computation model	----	BASIC	BASIC
RWA_DEN_ADN	Rwa Density Input	----	RHOB	RHOB
RWA_DEN_CDN	Rwa Density Input	----	RHOB	RHOB
RWA_DEN_INPUT	Rwa Density Input	----	RHOB	RHOB
RWA_FORM_MOD	Rwa computation formation model	----	CLASTIC	CLASTIC
RWA_RES_INPUT	Rwa computation resistivity input	----	RT	RT
SHIG	ARC High Shock Risk Level	CPS	0.500	0.500
SMED	ARC Medium Shock Risk Level	CPS	0.330	0.330
SMIN	ARC Minimum Shock Risk Level	CPS	0.160	0.160
SUPD	ARC Real Time Shock Update Rate	S	30.000	30.000
TCODE_ARC	ARC Tool File Code	S	30.000	30.000

TSIZ_ARC	ARC Tool Size	IN	6.750	6.750
UNIFORM_COMPUTE	Uniform Rock Option	----	YES	YES
VERS_ARC	ARC Down hole software version Number	----	V9.3b	v9.3b
WRK	to Report Potassium Concentration (RM)	----	K_by_Wgt_%	K_by_Wgt_%

Schlumberger Drilling & Measurements ID13 Parameter Insert Header Software vers:

IDEAL Version: ID13_0C_08

IDF

ARC6A−AA **id13_0c_02**

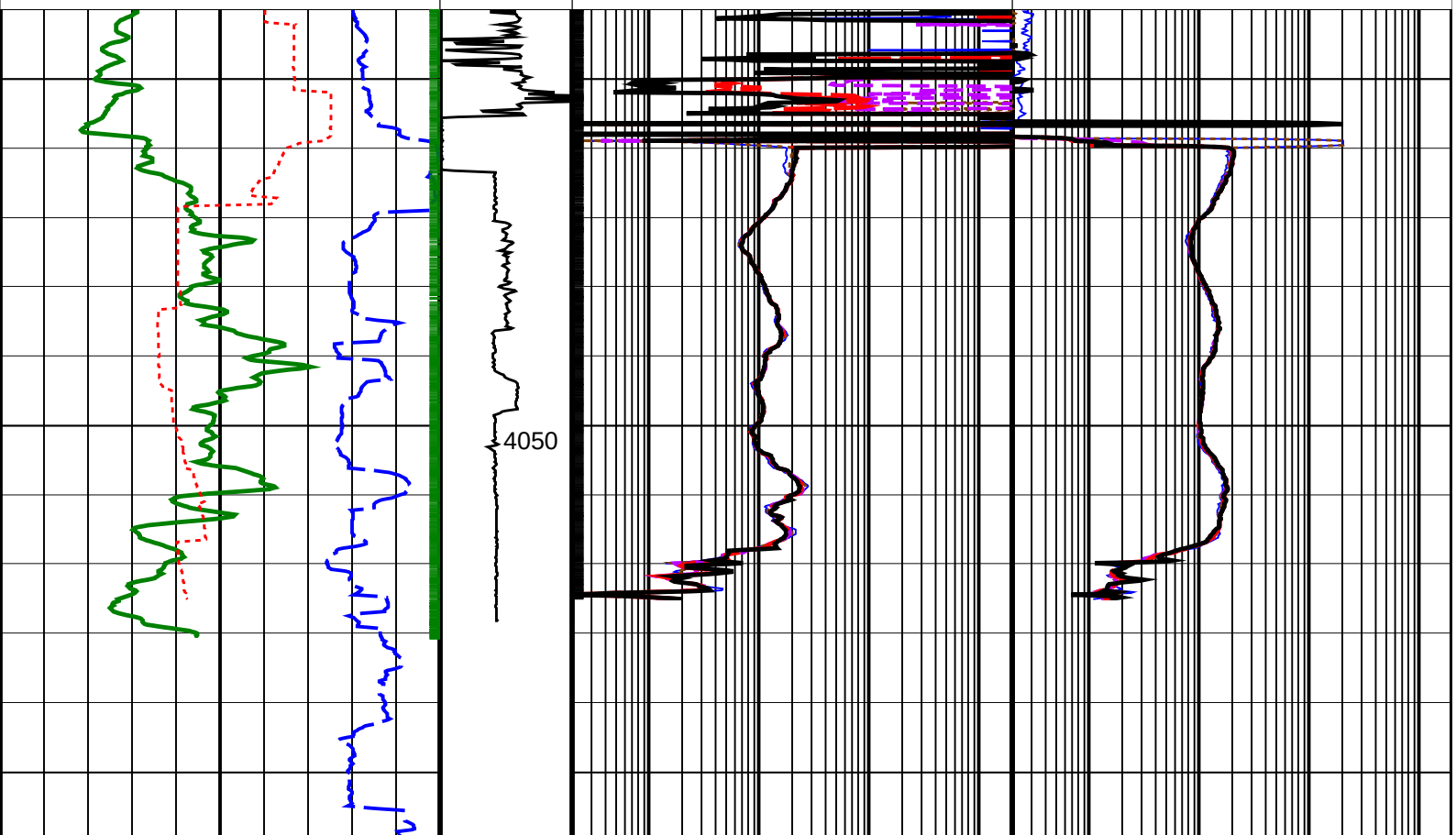
Format: EcoScope Resistivity 2Mhz **Vertical Scale: 1:500** **Graphics File Created: 02−May−2008 16:18**

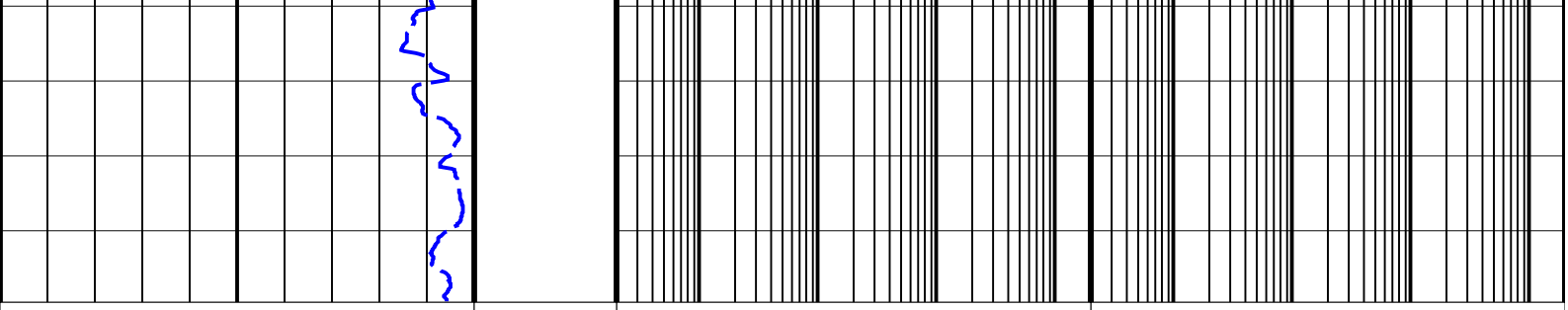
PIP SUMMARY

Gamma Ray Samples

Resistivity Samples

		ARC Phase Shift Resistivity 40 inch at 2 MHz (P40H) 0.2 (OHMM) 2000	ARC Attenuation Resistivity 40 inch at 2 MHz (A40H) 0.2 (OHMM) 2000
		ARC Phase Shift Resistivity 34 inch at 2 MHz (P34H) 0.2 (OHMM) 2000	ARC Attenuation Resistivity 34 inch at 2 MHz (A34H) 0.2 (OHMM) 2000
Rate of Penetration, Averaged over Last 5ft (ROP5_RM) 200 (M/HR) 0		ARC Phase Shift Resistivity 28 inch at 2 MHz (P28H) 0.2 (OHMM) 2000	ARC Attenuation Resistivity 28 inch at 2 MHz (A28H) 0.2 (OHMM) 2000
Time after BIT (between drilling and measurement) (TAB_ARC_RES) 0 (HR) 10		ARC Phase Shift Resistivity 22 inch at 2 MHz (P22H) 0.2 (OHMM) 2000	ARC Attenuation Resistivity 22 inch at 2 MHz (A22H) 0.2 (OHMM) 2000
Gamma Ray, Average (GRMA) 0 (GAPI) 200	Collar Rotational Speed (CRPM) (RPM) 0 200	ARC Phase Shift Resistivity 16 inch at 2 MHz (P16H) 0.2 (OHMM) 2000	ARC Attenuation Resistivity 16 inch at 2 MHz (A16H) 0.2 (OHMM) 2000





Gamma Ray, Average (GRMA)	Collar Rotational Speed (CRPM) (RPM)	ARC Phase Shift Resistivity 16 inch at 2 MHz (P16H)	ARC Attenuation Resistivity 16 inch at 2 MHz (A16H)
0 (GAPI) 200	0 200	0.2 (OHMM) 2000	0.2 (OHMM) 2000
Time after BIT (between drilling and measurement) (TAB_ARC_RES)		ARC Phase Shift Resistivity 22 inch at 2 MHz (P22H)	ARC Attenuation Resistivity 22 inch at 2 MHz (A22H)
0 (HR) 10		0.2 (OHMM) 2000	0.2 (OHMM) 2000
Rate of Penetration, Averaged over Last 5ft (ROP5_RM)		ARC Phase Shift Resistivity 28 inch at 2 MHz (P28H)	ARC Attenuation Resistivity 28 inch at 2 MHz (A28H)
200 (M/HR) 0		0.2 (OHMM) 2000	0.2 (OHMM) 2000
		ARC Phase Shift Resistivity 34 inch at 2 MHz (P34H)	ARC Attenuation Resistivity 34 inch at 2 MHz (A34H)
		0.2 (OHMM) 2000	0.2 (OHMM) 2000
		ARC Phase Shift Resistivity 40 inch at 2 MHz (P40H)	ARC Attenuation Resistivity 40 inch at 2 MHz (A40H)
		0.2 (OHMM) 2000	0.2 (OHMM) 2000

PIP SUMMARY

Gamma Ray Samples

Resistivity Samples

IDEAL Version: ID13_0C_08

IDF

ARC6A−AA **id13_0c_02**

6.75−in. Array Resistivity Compensated / Equipment Identification

Primary Equipment:		
Tool Name and Serial Number	ARC6 − BA	447
ARC675 Calibration Status	Valid	

Master: 7−Apr−2008 5:16

6.75−in. Array Resistivity Compensated Calibration

Resistivity: Air

Phase	Phase−Shift T1	Value
Master		−0.5190
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T2	Value
Master		0.5500
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T3	Value
Master		−0.5740
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T4	Value
Master		0.5220
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T5	Value
Master		−0.5890
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T1 at 400KHz	Value
Master		0.8700
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T2 at 400KHz	Value
Master		−0.9340
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T3 at 400KHz	Value
Master		0.8890
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T4 at 400KHz	Value
Master		−0.9270
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T5 at 400KHz	Value
Master		0.8780

−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Master: 7−Apr−2008 5:16

6.75−in. Array Resistivity Compensated Calibration

Resistivity: Air

Phase	Attenuation T1	Value
Master		8.405
6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)

Phase	Attenuation T2	Value
Master		6.564
4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)

Phase	Attenuation T3	Value
Master		5.028
2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)

Phase	Attenuation T4	Value
Master		4.464
2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)

Phase	Attenuation T5	Value
Master		3.577
1.600 (Minimum)	3.600 (Nominal)	5.600 (Maximum)

Phase	Attenuation T1 at 400KHz	Value
Master		8.370
6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)

Phase	Attenuation T2 at 400KHz	Value
Master		6.610
4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)

Phase	Attenuation T3 at 400KHz	Value
Master		4.983
2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)

Phase	Attenuation T4 at 400KHz	Value
Master		4.503
2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)

Phase	Attenuation T5 at 400KHz	Value
Master		3.541
1.600 (Minimum)	3.600 (Nominal)	5.600 (Maximum)

Master: 20−Mar−2008 14:59

6.75−in. Array Resistivity Compensated Calibration

Gamma Ray: Blanket

Phase	Gamma ray factor (equals Calibration Gain multiplied by API Gain Factor) CPS	Value
Master		5.134
2.780 (Minimum)	4.800 (Nominal)	6.000 (Maximum)

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch / Equipment Identification

Primary Equipment:		
Tool Name and Serial Number	ECO − 675	804
Calibration Status	Valid	
Neutron Logging Source	PNG − C	2081−41299
Density Logging Source	N/A	
Stabilizer Size	8.25 − in.	

Master: 9−Apr−2008 6:30

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

SSn LSn : Water Tank

Phase	SSn Gain	Value
Master		1.085
0.6000 (Minimum)	1.000 (Nominal)	1.400 (Maximum)

Phase	SSn Offset	Value
Master	EXCEEDS LIMIT	317.9
−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Phase	LSn Gain	Value
Master		1.049
0.6000 (Minimum)	1.000 (Nominal)	1.400 (Maximum)

Phase	LSn Offset	Value
Master	EXCEEDS LIMIT	37.38
−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Master: 9−Apr−2008 6:30

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Neutron: Water Tank

Phase	Far 2 Gain	Value
Master		0.9766
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)

Phase	Far 2 Offset	Value
Master		1.825
−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Phase	Far 1 Gain	Value
Master		1.000
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)

Phase	Far 1 Offset	Value
Master		1.294
−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Phase	Thermal Near gain	Value

Phase	Thermal Near offset	Value

Phase		Value
Master		1.026
	0.7000 (Minimum) 1.000 (Nominal) 1.300 (Maximum)	

Phase		Value
Master		44.00
	−500.0 (Minimum) 0 (Nominal) 500.0 (Maximum)	

Phase	Epithermal Near gain ----	Value
Master		1.056
	0.7000 (Minimum) 1.000 (Nominal) 1.300 (Maximum)	

Phase	Epithermal Near offset ----	Value
Master		85.55
	−300.0 (Minimum) 0 (Nominal) 300.0 (Maximum)	

Master: Calibration out of date 15−Sep−2007 12:07

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Gamma Density: Magnesium Block

Phase	LS window 3 − Mg CPS	Value
Master	EXCEEDS LIMIT	1965
	2200 (Minimum) 3350 (Nominal) 4500 (Maximum)	

Phase	SS window 1 − Mg CPS	Value
Master		4716
	4560 (Minimum) 6830 (Nominal) 9100 (Maximum)	

Phase	SS window 3 − Mg CPS	Value
Master		11100
	11100 (Minimum) 16700 (Nominal) 22300 (Maximum)	

Master: Calibration out of date 15−Sep−2007 12:07

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Gamma Density: Aluminum Block

Phase	LS window 3 − Al CPS	Value
Master		368.8
	350.0 (Minimum) 575.0 (Nominal) 800.0 (Maximum)	

Phase	SS window 1 − Al CPS	Value
Master		2457
	2300 (Minimum) 3550 (Nominal) 4800 (Maximum)	

Phase	SS window 3 − Al CPS	Value
Master		8183
	7600 (Minimum) 11550 (Nominal) 15500 (Maximum)	

Master: Calibration out of date 15−Sep−2007 12:07

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Gamma Density: Background

Phase	LS window 3 − Background CPS	Value
Master		59.30
	50.00 (Minimum) 70.00 (Nominal) 90.00 (Maximum)	

Phase	SS window 1 − Background CPS	Value
Master		72.40
	50.00 (Minimum) 75.00 (Nominal) 100.0 (Maximum)	

Phase	SS window 3 − Background CPS	Value
Master		353.9
	270.0 (Minimum) 370.0 (Nominal) 470.0 (Maximum)	

Master: Calibration out of date 15−Sep−2007 12:07

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Gamma Density: Water Block Check

Phase	Long spacing water density G/C3	Value
Master	EXCEEDS LIMIT	1.024
	1.026 (Minimum) 1.043 (Nominal) 1.059 (Maximum)	

Phase	Short spacing water density G/C3	Value
Master		1.280
	1.221 (Minimum) 1.256 (Nominal) 1.291 (Maximum)	

Master: 7−Apr−2008 12:08

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Resistivity: Air

Phase	Phase−Shift T1	Value
Master		0.8622
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T2	Value
Master		−0.9757
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T3	Value
Master		0.8405
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T4	Value
Master		−0.9681
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T5	Value
Master		0.8605
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T1 at 400KHz	Value
Master		1.597
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T2 at 400KHz	Value
Master		−1.590
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T3 at 400KHz	Value
Master		1.596
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T4 at 400KHz	Value
Master		−1.610
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Phase	Phase−Shift T5 at 400KHz	Value
Master		1.601
	−4.000 (Minimum) 0 (Nominal) 4.000 (Maximum)	

Master: 7−Apr−2008 12:08

EcoScope Integrated Logging−While−Drilling Tool − 6.75 inch Calibration

Resistivity: Air

Phase	Attenuation T1	Value
Master		8.404

Phase	Attenuation T2	Value
Master		6.020

Phase	Attenuation T3	Value
Master		5.002

Phase	Attenuation T4	Value
Master		4.422
	2.500 (Minimum) 4.500 (Nominal) 6.500 (Maximum)	

Phase	Attenuation T5	Value
Master		3.556
	2.000 (Minimum) 4.000 (Nominal) 6.000 (Maximum)	

Phase	Attenuation T1 at 400KHz	Value
Master		8.401
	7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)	

Phase	Attenuation T2 at 400KHz	Value
Master		6.038
	4.000 (Minimum) 6.000 (Nominal) 8.000 (Maximum)	

Phase	Attenuation T3 at 400KHz	Value
Master		4.992
	3.500 (Minimum) 5.500 (Nominal) 7.500 (Maximum)	

Phase	Attenuation T4 at 400KHz	Value
Master		4.434
	2.500 (Minimum) 4.500 (Nominal) 6.500 (Maximum)	

Phase	Attenuation T5 at 400KHz	Value
Master		3.549
	2.000 (Minimum) 4.000 (Nominal) 6.000 (Maximum)	

SCHLUMBERGER

Survey report 2-May-2008 03:11:54

Client.....: Esso Australia Pty. Ltd.
Field.....: SNAPPER

Well.....: SNA A-19A
Service Order no.....: 07ASQ0023
Engineer.....: MA/MS/JI

RIG.....: ISDL 175
STATE:.....: Victoria

Spud date.....: 27-Mar-08
Last survey date.....: 23-Apr-08
Total accepted surveys...: 297
MD of first survey.....: 0.00 m
MD of last survey.....: 4888.00 m

----- Survey calculation methods-----
Method for positions.....: Minimum curvature
Method for DLS.....: Mason & Taylor

----- Depth reference -----
Permanent datum.....: GROUND LEVEL
Depth reference.....: Driller's Depth
GL above permanent.....: -51.00 m
KB above permanent.....: Top Drive
DF above permanent.....: 47.10 m

----- Vertical section origin-----
Latitude (+N/S-).....: -4.23 m
Departure (+E/W-).....: 0.54 m

Azimuth from Vsect Origin to target: 222.93 degrees

----- Geomagnetic data -----
Magnetic model.....: BGGM version 2007
Magnetic date.....: 12-Apr-2008
Magnetic field strength..: 1197.78 HCNT
Magnetic dec (+E/W-).....: 13.01 degrees
Magnetic dip.....: -68.71 degrees

----- MWD survey Reference Criteria ---
Reference G.....: 1000.02 mGal
Reference H.....: 1197.78 HCNT
Reference Dip.....: -68.71 degrees
Tolerance of G.....: (+/-) 2.50 mGal
Tolerance of H.....: (+/-) 6.00 HCNT
Tolerance of Dip.....: (+/-) 0.45 degrees

----- Corrections -----
Magnetic dec (+E/W-).....: 13.01 degrees
Grid convergence (+E/W-).: -0.63 degrees
Total az corr (+E/W-)....: 13.64 degrees
(Total az corr = magnetic dec - grid conv)
Survey Correction Type ...:I, D
I=Sag Corrected Inclination
M=Schlumberger Magnetic Correction
S=Shell Magnetic Correction
F=Failed Axis Correction
R=Magnetic Resonance Tool Correction
D=Dmag Magnetic Correction

Seq # -	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W- (m)	Total displ (m)	At Azim (deg)	DLS (deg/ 100f)	Srvy tool type	Tool Corr (deg)
1	0.00	0.00	0.00	0.00	0.00	0.00	-4.23	0.54	4.26	172.73	0.00	TIP	None
2	6.98	0.00	0.00	6.98	6.98	0.00	-4.23	0.54	4.26	172.73	0.00	MWD_M	None
3	51.98	0.57	256.84	45.00	51.98	0.19	-4.28	0.32	4.29	175.70	0.39	MWD_M	None
4	56.98	0.58	254.94	5.00	56.98	0.23	-4.29	0.27	4.30	176.36	0.13	MWD_M	None
5	61.98	0.57	255.53	5.00	61.98	0.27	-4.31	0.22	4.31	177.01	0.07	MWD_M	None
6	66.98	0.60	260.17	5.00	66.98	0.31	-4.32	0.17	4.32	177.68	0.34	MWD_M	None
7	71.98	0.62	257.38	5.00	71.98	0.36	-4.33	0.12	4.33	178.37	0.22	MWD_M	None
8	76.98	0.59	257.95	5.00	76.98	0.40	-4.34	0.07	4.34	179.06	0.19	MWD_M	None
9	81.98	0.64	260.43	5.00	81.98	0.44	-4.35	0.02	4.35	179.76	0.35	MWD_M	None
10	86.98	0.57	258.86	5.00	86.98	0.48	-4.36	-0.03	4.36	180.44	0.44	MWD_M	None
11	91.98	0.63	257.65	5.00	91.98	0.53	-4.37	-0.08	4.37	181.11	0.37	MWD_M	None
12	96.98	0.68	260.93	5.00	96.98	0.57	-4.38	-0.14	4.38	181.84	0.38	MWD_M	None
13	101.98	0.79	260.49	5.00	101.98	0.62	-4.39	-0.20	4.39	182.66	0.67	MWD_M	None
14	106.98	0.99	264.34	5.00	106.98	0.68	-4.40	-0.28	4.41	183.66	1.27	MWD_M	None

15	111.98	1.17	266.07	5.00	111.97	0.75	-4.41	-0.38	4.42	184.86	1.12	MWD_M	None
16	116.98	1.32	267.06	5.00	116.97	0.83	-4.41	-0.48	4.44	186.25	0.92	MWD_M	None
17	121.98	1.45	265.71	5.00	121.97	0.92	-4.42	-0.60	4.46	187.78	0.82	MWD_M	None
18	126.98	1.61	265.82	5.00	126.97	1.02	-4.43	-0.74	4.49	189.45	0.98	MWD_M	None
19	131.98	1.87	266.12	5.00	131.97	1.13	-4.44	-0.89	4.53	191.31	1.59	MWD_M	None
20	136.98	2.05	264.52	5.00	136.97	1.25	-4.46	-1.06	4.58	193.37	1.15	MWD_M	None
21	141.98	2.26	263.84	5.00	141.96	1.40	-4.47	-1.25	4.65	195.56	1.29	MWD_M	None
22	146.98	2.47	262.65	5.00	146.96	1.55	-4.50	-1.45	4.73	197.87	1.31	MWD_M	None
23	151.98	2.63	261.25	5.00	151.95	1.73	-4.53	-1.67	4.83	200.25	1.05	MWD_M	None
24	156.98	2.87	260.10	5.00	156.95	1.92	-4.57	-1.91	4.95	202.66	1.50	MWD_M	None
25	161.98	3.08	259.03	5.00	161.94	2.12	-4.62	-2.16	5.10	205.11	1.32	MWD_M	None
26	166.98	3.41	255.74	5.00	166.93	2.36	-4.68	-2.44	5.28	207.53	2.31	MWD_M	None
27	171.98	3.82	253.42	5.00	171.92	2.63	-4.76	-2.74	5.50	209.94	2.65	MWD_M	None
28	176.98	4.45	249.90	5.00	176.91	2.94	-4.88	-3.08	5.77	212.31	4.14	MWD_M	None
29	181.98	5.11	247.18	5.00	181.89	3.32	-5.03	-3.47	6.11	214.62	4.25	MWD_M	None
30	186.98	5.86	245.33	5.00	186.87	3.76	-5.22	-3.91	6.52	216.81	4.70	MWD_M	None
31	191.98	6.71	243.55	5.00	191.84	4.27	-5.46	-4.40	7.01	218.88	5.32	MWD_M	None
32	196.98	7.56	242.03	5.00	196.80	4.85	-5.74	-4.95	7.59	220.78	5.31	MWD_M	None
33	201.98	8.27	240.91	5.00	201.75	5.50	-6.07	-5.56	8.23	222.47	4.43	MWD_M	None
34	206.98	9.00	239.78	5.00	206.70	6.22	-6.44	-6.21	8.95	223.94	4.57	MWD_M	None
35	211.98	9.60	238.89	5.00	211.63	7.00	-6.86	-6.91	9.73	225.21	3.76	MWD_M	None
36	216.98	10.23	237.64	5.00	216.55	7.83	-7.31	-7.64	10.57	226.26	4.06	MWD_M	None
37	221.98	10.86	236.40	5.00	221.47	8.71	-7.81	-8.41	11.47	227.11	4.08	MWD_M	None
38	226.98	11.34	235.78	5.00	226.38	9.65	-8.35	-9.20	12.42	227.80	3.02	MWD_M	None
39	231.98	11.80	235.08	5.00	231.28	10.63	-8.91	-10.03	13.42	228.37	2.93	MWD_M	None
40	236.98	12.14	234.58	5.00	236.17	11.64	-9.51	-10.88	14.45	228.83	2.17	MWD_M	None
41	241.98	12.47	234.17	5.00	241.05	12.69	-10.13	-11.74	15.51	229.21	2.08	MWD_M	None
42	246.98	12.73	233.78	5.00	245.93	13.76	-10.77	-12.63	16.60	229.53	1.67	MWD_M	None
43	251.98	12.99	233.25	5.00	250.81	14.85	-11.44	-13.52	17.71	229.78	1.74	MWD_M	None
44	256.98	13.27	232.75	5.00	255.68	15.97	-12.12	-14.43	18.84	229.97	1.84	MWD_M	None
45	261.98	13.57	232.33	5.00	260.54	17.12	-12.83	-15.35	20.00	230.12	1.92	MWD_M	None
46	266.98	13.90	232.00	5.00	265.40	18.29	-13.55	-16.29	21.19	230.23	2.07	MWD_M	None
47	271.98	14.27	231.60	5.00	270.25	19.49	-14.31	-17.24	22.41	230.32	2.33	MWD_M	None
48	276.98	14.71	231.16	5.00	275.09	20.73	-15.09	-18.22	23.66	230.37	2.76	MWD_M	None
49	281.98	15.25	230.52	5.00	279.92	22.01	-15.90	-19.22	24.95	230.40	3.44	MWD_M	None
50	286.98	15.85	230.02	5.00	284.73	23.34	-16.76	-20.25	26.29	230.39	3.75	MWD_M	None
51	291.98	16.57	229.56	5.00	289.53	24.72	-17.66	-21.32	27.68	230.36	4.46	MWD_M	None
52	296.98	17.29	229.18	5.00	294.32	26.17	-18.61	-22.42	29.14	230.31	4.44	MWD_M	None
53	301.98	17.94	229.04	5.00	299.08	27.67	-19.60	-23.57	30.65	230.25	3.97	MWD_M	None
54	**306.98**	**18.66**	**228.83**	**5.00**	**303.83**	**29.23**	**-20.63**	**-24.75**	**32.22**	**230.19**	**4.41**	**MWD_M**	**None**
55	**311.98**	**19.37**	**228.65**	**5.00**	**308.56**	**30.86**	**-21.71**	**-25.98**	**33.85**	**230.12**	**4.34**	**MWD_M**	**None**
56	316.98	20.04	228.65	5.00	313.26	32.53	-22.82	-27.24	35.54	230.05	4.08	MWD_M	None
57	321.98	20.68	228.71	5.00	317.95	34.26	-23.97	-28.55	37.28	229.98	3.90	MWD_M	None
58	326.98	21.30	228.74	5.00	322.62	36.05	-25.15	-29.89	39.07	229.93	3.78	MWD_M	None
59	331.98	21.91	228.78	5.00	327.27	37.88	-26.36	-31.28	40.91	229.87	3.72	MWD_M	None
60	336.98	22.48	228.79	5.00	331.90	39.76	-27.61	-32.70	42.80	229.83	3.47	MWD_M	None
61	341.98	23.12	228.76	5.00	336.51	41.68	-28.88	-34.16	44.73	229.78	3.90	MWD_M	None
62	346.98	23.74	228.82	5.00	341.10	43.66	-30.19	-35.65	46.72	229.74	3.78	MWD_M	None
63	351.98	24.36	228.85	5.00	345.66	45.69	-31.54	-37.19	48.76	229.70	3.78	MWD_M	None
64	356.98	25.01	228.93	5.00	350.20	47.77	-32.91	-38.76	50.85	229.67	3.97	MWD_M	None
65	361.98	25.69	228.95	5.00	354.72	49.89	-34.31	-40.37	52.99	229.64	4.15	MWD_M	None
66	366.98	26.33	229.04	5.00	359.22	52.07	-35.75	-42.03	55.18	229.61	3.91	MWD_M	None
67	371.98	26.95	229.13	5.00	363.69	54.30	-37.22	-43.72	57.42	229.59	3.79	MWD_M	None
68	376.98	27.50	229.13	5.00	368.13	56.58	-38.72	-45.45	59.71	229.57	3.35	MWD_M	None
69	381.98	28.03	229.19	5.00	372.56	58.89	-40.24	-47.21	62.04	229.56	3.24	MWD_M	None
70	386.98	28.52	229.25	5.00	376.96	61.25	-41.79	-49.01	64.41	229.55	2.99	MWD_M	None
71	391.98	28.98	229.40	5.00	381.34	63.64	-43.36	-50.83	66.81	229.54	2.84	MWD_M	None
72	396.98	29.44	229.42	5.00	385.71	66.06	-44.94	-52.68	69.25	229.53	2.80	MWD_M	None
73	401.98	29.82	229.46	5.00	390.05	68.52	-46.55	-54.56	71.72	229.53	2.32	MWD_M	None
74	406.98	30.28	229.38	5.00	394.38	71.01	-48.18	-56.46	74.23	229.53	2.81	MWD_M	None
75	411.98	30.75	229.34	5.00	398.69	73.53	-49.83	-58.39	76.76	229.52	2.87	MWD_M	None
76	416.98	31.21	229.47	5.00	402.98	76.09	-51.51	-60.35	79.34	229.52	2.83	MWD_M	None
77	421.98	31.67	229.52	5.00	407.24	78.68	-53.20	-62.33	81.95	229.52	2.81	MWD_M	None
78	426.98	32.14	229.46	5.00	411.49	81.30	-54.92	-64.34	84.59	229.52	2.87	MWD_M	None
79	431.98	32.64	229.45	5.00	415.71	83.96	-56.66	-66.37	87.27	229.51	3.05	MWD_M	None
80	436.98	33.12	229.59	5.00	419.91	86.66	-58.42	-68.44	89.98	229.51	2.96	MWD_M	None
81	441.98	33.60	229.64	5.00	424.08	89.39	-60.20	-70.53	92.73	229.52	2.93	MWD_M	None
82	446.98	34.09	229.66	5.00	428.24	92.16	-62.01	-72.65	95.52	229.52	2.99	MWD_M	None
83	451.98	34.63	229.69	5.00	432.36	94.96	-63.83	-74.81	98.34	229.53	3.29	MWD_M	None
84	456.98	35.17	229.58	5.00	436.46	97.80	-65.69	-76.98	101.20	229.53	3.31	MWD_M	None
85	461.98	35.72	229.51	5.00	440.54	100.68	-67.57	-79.19	104.10	229.53	3.36	MWD_M	None
86	466.98	36.31	229.64	5.00	444.58	103.60	-69.47	-81.43	107.04	229.53	3.63	MWD_M	None
87	471.98	36.92	229.73	5.00	448.60	106.56	-71.40	-83.70	110.02	229.53	3.73	MWD_M	None
88	476.98	37.48	229.76	5.00	452.58	109.56	-73.36	-86.01	113.04	229.54	3.42	MWD_M	None
89	481.98	37.99	229.72	5.00	456.53	112.60	-75.33	-88.35	116.10	229.55	3.11	MWD_M	None
90	486.98	38.59	229.71	5.00	460.46	115.68	-77.34	-90.71	119.20	229.55	3.66	MWD_M	None
91	491.98	39.34	229.64	5.00	464.34	118.80	-79.37	-93.11	122.35	229.55	4.58	MWD_M	None
92	496.98	40.05	229.66	5.00	468.19	121.97	-81.44	-95.54	125.54	229.56	4.33	MWD_M	None
93	501.98	40.71	229.70	5.00	472.00	125.19	-83.53	-98.01	128.78	229.56	4.03	MWD_M	None
94	506.98	41.53	229.68	5.00	475.77	128.45	-85.66	-100.52	132.07	229.56	5.00	MWD_M	None

94	506.98	41.53	229.68	5.00	475.77	128.43	-85.66	-100.52	132.07	229.56	5.00	MWD_M	None
95	511.98	42.30	229.73	5.00	479.49	131.77	-87.82	-103.06	135.41	229.57	4.70	MWD_M	None
96	516.98	43.13	229.67	5.00	483.16	135.14	-90.02	-105.65	138.80	229.57	5.07	MWD_M	None
97	521.98	43.89	229.72	5.00	486.79	138.56	-92.24	-108.28	142.24	229.57	4.64	MWD_M	None
98	526.98	44.69	229.74	5.00	490.37	142.02	-94.50	-110.94	145.73	229.58	4.88	MWD_M	None
99	531.98	45.45	229.77	5.00	493.90	145.54	-96.79	-113.64	149.27	229.58	4.63	MWD_M	None
100	536.98	46.22	229.85	5.00	497.38	149.10	-99.10	-116.38	152.86	229.59	4.71	MWD_M	None
101	541.98	46.87	229.97	5.00	500.82	152.70	-101.44	-119.16	156.49	229.59	4.00	MWD_M	None
102	546.98	47.64	229.94	5.00	504.21	156.35	-103.80	-121.97	160.16	229.60	4.70	MWD_M	None
103	551.98	48.34	229.87	5.00	507.56	160.03	-106.19	-124.81	163.88	229.61	4.28	MWD_M	None
104	556.98	49.03	230.00	5.00	510.86	163.76	-108.61	-127.69	167.63	229.62	4.25	MWD_M	None
105	561.98	49.60	230.01	5.00	514.12	167.52	-111.05	-130.59	171.42	229.62	3.48	MWD_M	None
106	566.98	50.07	230.01	5.00	517.35	171.32	-113.50	-133.52	175.24	229.63	2.87	MWD_M	None
107	571.98	50.38	230.08	5.00	520.54	175.13	-115.97	-136.46	179.09	229.64	1.92	MWD_M	None
108	576.98	50.71	230.12	5.00	523.72	178.96	-118.45	-139.43	182.95	229.65	2.02	MWD_M	None
109	581.98	51.07	230.13	5.00	526.88	182.81	-120.93	-142.40	186.83	229.66	2.20	MWD_M	None
110	586.98	51.42	230.05	5.00	530.01	186.68	-123.44	-145.39	190.72	229.67	2.17	MWD_M	None
111	591.98	51.74	230.02	5.00	533.11	190.56	-125.95	-148.40	194.64	229.68	1.96	MWD_M	None
112	596.98	52.08	230.00	5.00	536.20	194.47	-128.48	-151.41	198.58	229.68	2.07	MWD_M	None
113	601.98	52.44	229.98	5.00	539.26	198.39	-131.02	-154.44	202.53	229.69	2.20	MWD_M	None
114	606.98	52.85	229.89	5.00	542.29	202.34	-133.58	-157.48	206.51	229.69	2.54	MWD_M	None
115	611.98	53.20	229.98	5.00	545.30	206.30	-136.15	-160.54	210.50	229.70	2.18	MWD_M	None
116	616.98	53.63	229.91	5.00	548.28	210.29	-138.74	-163.61	214.51	229.70	2.64	MWD_M	None
117	621.98	54.09	229.87	5.00	551.23	214.30	-141.34	-166.70	218.55	229.71	2.81	MWD_M	None
118	626.98	54.59	229.82	5.00	554.14	218.33	-143.96	-169.80	222.61	229.71	3.06	MWD_M	None
119	631.98	55.15	229.71	5.00	557.02	222.39	-146.60	-172.93	226.70	229.71	3.46	MWD_M	None
120	636.98	55.66	229.73	5.00	559.86	226.48	-149.26	-176.07	230.82	229.71	3.11	MWD_M	None
121	641.98	56.22	229.71	5.00	562.66	230.59	-151.94	-179.23	234.96	229.71	3.42	MWD_M	None
122	646.98	56.86	229.62	5.00	565.42	234.73	-154.64	-182.41	239.13	229.71	3.93	MWD_M	None
123	651.98	57.51	229.47	5.00	568.13	238.91	-157.36	-185.60	243.34	229.71	4.04	MWD_M	None
124	656.98	58.07	229.45	5.00	570.79	243.11	-160.11	-188.82	247.57	229.70	3.42	MWD_M	None
125	661.98	58.58	229.49	5.00	573.42	247.34	-162.88	-192.05	251.82	229.70	3.12	MWD_M	None
126	666.98	59.12	229.36	5.00	576.00	251.59	-165.66	-195.30	256.10	229.69	3.36	MWD_M	None
127	671.98	59.65	229.20	5.00	578.55	255.86	-168.47	-198.56	260.40	229.69	3.34	MWD_M	None
128	676.98	61.46	229.13	5.00	581.01	260.19	-171.32	-201.86	264.76	229.68	11.04	MWD_M	None
129	681.98	62.53	228.98	5.00	583.35	264.58	-174.21	-205.19	269.17	229.67	6.57	MWD_M	None
130	686.98	62.08	228.89	5.00	585.68	268.99	-177.12	-208.53	273.60	229.66	2.79	MWD_M	None
131	691.98	62.38	228.87	5.00	588.01	273.39	-180.03	-211.86	278.02	229.64	1.83	MWD_M	None
132	696.98	62.97	228.86	5.00	590.30	277.80	-182.95	-215.21	282.46	229.63	3.60	MWD_M	None
133	701.98	63.49	228.85	5.00	592.56	282.24	-185.89	-218.57	286.93	229.62	3.17	MWD_M	None
134	**706.98**	**64.01**	**228.88**	**5.00**	**594.77**	**286.70**	**-188.84**	**-221.95**	**291.41**	**229.61**	**3.17**	**MWD_M**	**None**
135	**711.98**	**63.74**	**229.00**	**5.00**	**596.97**	**291.17**	**-191.79**	**-225.33**	**295.90**	**229.60**	**1.77**	**MWD_M**	**None**
136	716.98	64.20	229.24	5.00	599.16	295.64	-194.73	-228.73	300.39	229.59	3.10	MWD_M	None
137	721.98	66.54	229.69	5.00	601.25	300.15	-197.68	-232.18	304.94	229.59	14.48	MWD_M	None
138	726.98	66.41	230.21	5.00	603.24	304.70	-200.63	-235.69	309.52	229.59	3.01	MWD_M	None
139	731.98	67.11	230.69	5.00	605.21	309.26	-203.55	-239.24	314.12	229.61	5.04	MWD_M	None
140	736.98	66.29	231.14	5.00	607.19	313.80	-206.45	-242.80	318.71	229.63	5.60	MWD_M	None
141	741.98	66.73	231.72	5.00	609.19	318.34	-209.31	-246.39	323.29	229.65	4.21	MWD_M	None
142	746.98	66.99	232.33	5.00	611.15	322.88	-212.14	-250.01	327.88	229.68	3.77	MWD_M	None
143	751.98	66.05	233.16	5.00	613.14	327.40	-214.91	-253.66	332.46	229.73	7.37	MWD_M	None
144	756.98	65.58	234.19	5.00	615.19	331.88	-217.62	-257.33	337.01	229.78	6.40	MWD_M	None
145	761.98	63.99	235.32	5.00	617.32	336.31	-220.23	-261.03	341.52	229.85	11.52	MWD_M	None
146	766.98	63.80	236.33	5.00	619.52	340.68	-222.75	-264.74	345.99	229.92	5.65	MWD_M	None
147	771.98	63.66	237.08	5.00	621.73	345.04	-225.21	-268.49	350.44	230.01	4.19	MWD_M	None
148	776.98	63.71	237.52	5.00	623.95	349.38	-227.63	-272.26	354.88	230.10	2.42	MWD_M	None
149	781.98	63.63	237.58	5.00	626.17	353.71	-230.04	-276.04	359.33	230.19	0.59	MWD_M	None
150	786.98	64.25	237.59	5.00	628.36	358.06	-232.44	-279.84	363.78	230.29	3.78	MWD_M	None
151	791.98	64.09	237.61	5.00	630.54	362.41	-234.85	-283.64	368.25	230.37	0.98	MWD_M	None
152	796.98	64.73	237.63	5.00	632.70	366.78	-237.27	-287.44	372.72	230.46	3.90	MWD_M	None
153	801.98	65.08	237.59	5.00	634.82	371.16	-239.70	-291.27	377.21	230.55	2.14	MWD_M	None
154	806.98	65.42	237.57	5.00	636.92	375.55	-242.13	-295.10	381.72	230.63	2.08	MWD_M	None
155	811.98	65.16	237.55	5.00	639.01	379.94	-244.57	-298.93	386.23	230.71	1.59	MWD_M	None
156	816.98	65.13	237.47	5.00	641.11	384.33	-247.00	-302.76	390.74	230.79	0.48	MWD_M	None
157	818.00	65.15	237.47	1.02	641.54	385.23	-247.50	-303.54	391.66	230.81	0.60	MWD_M	None
158	825.33	66.85	236.89	7.33	644.52	391.72	-251.13	-309.17	398.31	230.91	7.40	MWD_M	None
159	844.01	67.54	235.57	18.68	651.76	408.48	-260.70	-323.48	415.46	231.13	2.28	MWD_M	None
160	934.88	72.09	232.69	90.87	683.11	492.12	-310.68	-392.55	500.62	231.64	1.78	MWD_M	None
161	964.33	73.97	231.11	29.45	691.71	519.94	-328.06	-414.71	528.78	231.65	2.50	MWD_M	None
162	993.65	75.85	229.32	29.32	699.34	548.02	-346.18	-436.46	557.08	231.58	2.65	MWD_M	None
163	1022.61	78.51	227.17	28.96	705.77	576.13	-364.98	-457.52	585.27	231.42	3.56	MWD_M	None
164	1051.74	79.96	224.41	29.13	711.21	604.71	-384.94	-478.03	613.75	231.16	3.22	MWD_M	None
165	1080.99	80.88	221.07	29.25	716.08	633.54	-406.12	-497.60	642.29	230.78	3.56	MWD_M	None
166	1109.77	81.36	218.53	28.78	720.52	661.93	-427.96	-515.80	670.23	230.32	2.71	MWD_M	None
167	1139.06	81.18	218.70	29.29	724.97	690.80	-450.58	-533.87	698.60	229.84	0.26	MWD_M	None
168	1168.54	81.15	219.37	29.48	729.49	719.86	-473.21	-552.22	727.23	229.41	0.69	MWD_M	None
169	1197.52	81.19	220.70	28.98	733.94	748.46	-495.13	-570.64	755.50	229.05	1.38	MWD_M	None
170	1226.81	81.37	221.45	29.29	738.38	777.40	-516.96	-589.66	784.18	228.76	0.79	MWD_M	None
171	1256.11	81.22	220.88	29.30	742.82	806.35	-538.76	-608.72	812.90	228.49	0.61	MWD_M	None
172	1286.01	81.22	220.82	29.90	747.38	835.88	-561.11	-628.05	842.20	228.22	0.06	MWD_M	None
173	1314.74	80.98	220.55	28.73	751.83	864.24	-582.64	-646.55	870.34	227.98	0.38	MWD_M	None

174	1342.72	81.24	219.97	27.98	756.15	891.85	-603.73	-664.42	897.75	227.74	0.69	MWD_M	None
175	1368.44	81.53	219.81	25.72	760.00	917.25	-623.24	-680.73	922.94	227.52	0.39	MWD_M	None
176	1401.74	81.16	220.34	33.30	765.02	950.13	-648.44	-701.92	955.60	227.27	0.59	MWD_M	None
177	1431.03	80.87	220.65	29.29	769.59	979.03	-670.44	-720.71	984.33	227.07	0.44	MWD_M	None
178	1458.21	81.11	220.57	27.18	773.85	1005.86	-690.82	-738.18	1011.01	226.90	0.28	MWD_M	None
179	1487.53	80.72	220.01	29.32	778.48	1034.78	-712.90	-756.90	1039.77	226.71	0.70	MWD_M	None
180	1517.39	80.23	220.32	29.86	783.42	1064.19	-735.40	-775.90	1069.04	226.53	0.59	MWD_M	None
181	1545.95	80.47	220.05	28.56	788.20	1092.31	-756.91	-794.07	1097.02	226.37	0.38	MWD_M	None
182	1576.23	80.53	219.86	30.28	793.20	1122.14	-779.81	-813.24	1126.71	226.20	0.20	MWD_M	None
183	1605.64	80.15	220.46	29.41	798.14	1151.10	-801.96	-831.94	1155.54	226.05	0.73	MWD_M	None
184	1634.87	80.32	220.54	29.23	803.09	1179.88	-823.87	-850.65	1184.22	225.92	0.20	MWD_M	None
185	1663.67	80.73	221.96	28.80	807.84	1208.27	-845.23	-869.38	1212.53	225.81	1.54	MWD_M	None
186	1693.30	80.64	221.29	29.63	812.63	1237.50	-867.08	-888.80	1241.69	225.71	0.69	MWD_M	None
187	1721.76	80.72	220.31	28.46	817.24	1265.57	-888.34	-907.15	1269.68	225.60	1.04	MWD_M	None
188	1750.85	80.65	220.10	29.09	821.95	1294.24	-910.27	-925.68	1298.26	225.48	0.23	MWD_M	None
189	1778.12	80.57	219.58	27.27	826.40	1321.11	-930.92	-942.92	1325.04	225.37	0.58	MWD_M	None
190	1808.70	80.38	219.55	30.58	831.46	1351.21	-954.17	-962.13	1355.04	225.24	0.19	MWD_M	None
191	1838.39	80.83	220.24	29.69	836.31	1380.46	-976.65	-980.92	1384.21	225.13	0.84	MWD_M	None
192	1867.48	80.28	220.10	29.09	841.08	1409.13	-998.57	-999.43	1412.80	225.02	0.59	MWD_M	None
193	1896.95	80.70	221.42	29.47	845.95	1438.17	-1020.59	-1018.40	1441.79	224.94	1.41	MWD_M	None
194	1925.66	81.13	222.12	28.71	850.48	1466.51	-1041.73	-1037.29	1470.09	224.88	0.86	MWD_M	None
195	1953.25	80.70	221.87	27.59	854.84	1493.75	-1061.98	-1055.52	1497.30	224.83	0.55	MWD_M	None
196	1983.62	81.07	221.75	30.37	859.65	1523.73	-1084.33	-1075.51	1527.25	224.77	0.39	MWD_M	None
197	2012.53	80.93	221.32	28.91	864.17	1552.28	-1105.70	-1094.44	1555.76	224.71	0.47	MWD_M	None
198	2042.33	80.87	221.97	29.80	868.89	1581.70	-1127.69	-1113.99	1585.14	224.65	0.66	MWD_M	None
199	2072.85	80.93	221.91	30.52	873.71	1611.83	-1150.11	-1134.14	1615.24	224.60	0.08	MWD_M	None
200	2101.05	80.96	222.26	28.20	878.15	1639.67	-1170.78	-1152.80	1643.07	224.56	0.37	MWD_M	None
201	2130.10	80.70	222.11	29.05	882.78	1668.35	-1192.03	-1172.06	1671.72	224.52	0.31	MWD_M	None
202	2158.30	80.73	221.62	28.20	887.33	1696.18	-1212.75	-1190.63	1699.52	224.47	0.52	MWD_M	None
203	2187.92	80.47	221.13	29.62	892.17	1725.39	-1234.68	-1209.95	1728.70	224.42	0.56	MWD_M	None
204	2216.87	80.29	220.82	28.95	897.01	1753.91	-1256.23	-1228.66	1757.19	224.36	0.37	MWD_M	None
205	2246.30	80.58	220.42	29.43	901.90	1782.91	-1278.26	-1247.56	1786.15	224.30	0.51	MWD_M	None
206	2275.82	80.41	220.26	29.52	906.77	1812.00	-1300.45	-1266.40	1815.20	224.24	0.24	MWD_M	None
207	2304.97	80.52	219.89	29.15	911.60	1840.71	-1322.45	-1284.91	1843.87	224.18	0.40	MWD_M	None
208	2334.71	80.58	220.07	29.74	916.48	1870.01	-1344.93	-1303.76	1873.13	224.11	0.19	MWD_M	None
209	2363.60	80.32	220.65	28.89	921.28	1898.47	-1366.64	-1322.21	1901.56	224.05	0.66	MWD_M	None
210	2391.27	80.31	220.78	27.67	925.93	1925.72	-1387.31	-1340.00	1928.79	224.01	0.14	MWD_M	None
211	2422.94	80.52	221.30	31.67	931.20	1956.93	-1410.86	-1360.51	1959.98	223.96	0.53	MWD_M	None
212	2450.47	80.82	221.00	27.53	935.67	1984.08	-1431.32	-1378.38	1987.11	223.92	0.47	MWD_M	None
213	**2480.06**	**80.93**	**220.99**	**29.59**	**940.36**	**2013.28**	**-1453.37**	**-1397.55**	**2016.29**	**223.88**	**0.11**	**MWD_M**	**None**
214	**2510.37**	**81.02**	**220.91**	**30.31**	**945.11**	**2043.20**	**-1475.98**	**-1417.17**	**2046.19**	**223.84**	**0.12**	**MWD_M**	**None**
215	2537.19	80.76	221.32	26.82	949.36	2069.67	-1495.93	-1434.58	2072.64	223.80	0.55	MWD_M	None
216	2567.88	80.26	221.91	30.69	954.42	2099.93	-1518.56	-1454.68	2102.89	223.77	0.76	MWD_M	None
217	2595.87	80.60	221.41	27.99	959.07	2127.52	-1539.18	-1473.03	2130.47	223.74	0.65	MWD_M	None
218	2624.74	80.58	222.25	28.87	963.79	2156.00	-1560.40	-1492.02	2158.93	223.72	0.88	MWD_M	None
219	2654.71	80.64	222.52	29.97	968.68	2185.57	-1582.24	-1511.96	2188.49	223.70	0.28	MWD_M	None
220	2683.77	80.82	222.05	29.06	973.37	2214.25	-1603.46	-1531.25	2217.17	223.68	0.52	MWD_M	None
221	2712.74	80.67	221.95	28.97	978.02	2242.83	-1624.71	-1550.38	2245.75	223.66	0.19	MWD_M	None
222	2742.20	80.67	220.94	29.46	982.80	2271.89	-1646.50	-1569.63	2274.79	223.63	1.03	MWD_M	None
223	2772.49	80.95	220.30	30.29	987.64	2301.77	-1669.20	-1589.09	2304.65	223.59	0.70	MWD_M	None
224	2800.58	80.86	220.32	28.09	992.08	2329.48	-1690.35	-1607.04	2332.35	223.55	0.10	MWD_M	None
225	2829.67	80.81	219.94	29.09	996.71	2358.16	-1712.31	-1625.55	2361.01	223.51	0.40	MWD_M	None
226	2858.19	80.90	220.73	28.52	1001.25	2386.29	-1733.77	-1643.77	2389.13	223.47	0.84	MWD_M	None
227	2887.36	80.86	220.63	29.17	1005.87	2415.07	-1755.61	-1662.54	2417.90	223.44	0.11	MWD_M	None
228	2916.76	80.84	221.21	29.40	1010.54	2444.08	-1777.54	-1681.56	2446.89	223.41	0.59	MWD_M	None
229	2945.85	80.61	221.74	29.09	1015.23	2472.78	-1799.05	-1700.57	2475.59	223.39	0.60	MWD_M	None
230	2975.36	80.16	222.19	29.51	1020.16	2501.87	-1820.69	-1720.03	2504.67	223.37	0.65	MWD_M	None
231	3003.97	80.25	221.72	28.61	1025.03	2530.06	-1841.65	-1738.87	2532.86	223.36	0.50	MWD_M	None
232	3033.50	79.77	222.24	29.53	1030.15	2559.14	-1863.27	-1758.33	2561.93	223.34	0.72	MWD_M	None
233	3062.62	79.77	221.55	29.12	1035.32	2587.79	-1884.60	-1777.46	2590.58	223.32	0.71	MWD_M	None
234	3091.61	79.54	222.28	28.99	1040.53	2616.30	-1905.83	-1796.51	2619.09	223.31	0.79	MWD_M	None
235	3120.91	79.71	222.33	29.30	1045.81	2645.12	-1927.14	-1815.91	2647.91	223.30	0.18	MWD_M	None
236	3149.93	80.58	222.12	29.02	1050.77	2673.71	-1948.31	-1835.13	2676.49	223.29	0.94	MWD_M	None
237	3178.97	80.73	222.47	29.04	1055.49	2702.36	-1969.51	-1854.41	2705.14	223.28	0.40	MWD_M	None
238	3208.02	81.60	222.14	29.05	1059.95	2731.07	-1990.74	-1873.73	2733.84	223.27	0.97	MWD_M	None
239	3237.27	81.02	221.67	29.25	1064.37	2759.98	-2012.26	-1893.04	2762.75	223.25	0.77	MWD_M	None
240	3266.58	80.75	221.14	29.31	1069.01	2788.91	-2033.96	-1912.18	2791.68	223.23	0.61	MWD_M	None
241	3295.91	80.38	220.73	29.33	1073.82	2817.82	-2055.82	-1931.14	2820.59	223.21	0.57	MWD_M	None
242	3324.75	80.81	220.45	28.84	1078.53	2846.25	-2077.43	-1949.65	2849.01	223.18	0.54	MWD_M	None
243	3354.19	80.76	220.25	29.44	1083.25	2875.28	-2099.57	-1968.47	2878.03	223.15	0.21	MWD_M	None
244	3383.34	81.16	220.52	29.15	1087.83	2904.04	-2121.50	-1987.12	2906.79	223.13	0.50	MWD_M	None
245	3411.85	80.90	220.17	28.51	1092.27	2932.17	-2142.97	-2005.35	2934.92	223.10	0.46	MWD_M	None
246	3441.10	80.72	219.86	29.25	1096.94	2961.01	-2165.08	-2023.92	2963.75	223.07	0.37	MWD_M	None
247	3471.00	80.32	220.93	29.90	1101.87	2990.47	-2187.54	-2043.03	2993.21	223.04	1.15	MWD_M	None
248	3499.53	81.08	221.49	28.53	1106.48	3018.62	-2208.72	-2061.58	3021.35	223.03	1.00	MWD_M	None
249	3526.72	80.72	221.36	27.19	1110.78	3045.45	-2228.85	-2079.34	3048.19	223.01	0.43	MWD_M	None
250	3558.23	80.67	220.79	31.51	1115.88	3076.53	-2252.29	-2099.77	3079.26	222.99	0.55	MWD_M	None
251	3586.63	80.64	221.34	28.40	1120.49	3104.54	-2273.42	-2118.18	3107.27	222.98	0.58	MWD_M	None
252	3615.78	80.57	221.37	29.15	1125.25	3133.29	-2295.01	-2137.18	3136.02	222.96	0.08	MWD_M	None
253	3645.77	80.55	221.74	29.99	1130.16	3162.86	-2317.15	-2156.81	3165.59	222.95	0.37	MWD_M	None

254	3673.81	80.08	220.61	28.04	1134.88	3190.49	-2337.95	-2175.00	3193.22	222.93	1.31	MWD_M	None
255	3704.01	76.84	220.68	30.20	1140.92	3220.05	-2360.40	-2194.27	3222.78	222.91	3.27	MWD_M	None
256	3733.39	73.53	220.93	29.38	1148.43	3248.43	-2381.90	-2212.83	3251.16	222.89	3.44	MWD_M	None
257	3762.33	71.06	220.58	28.94	1157.23	3275.98	-2402.78	-2230.83	3278.71	222.87	2.63	MWD_M	None
258	3791.82	68.62	220.92	29.49	1167.40	3303.64	-2423.75	-2248.90	3306.37	222.86	2.54	MWD_M	None
259	3821.50	66.51	220.69	29.68	1178.72	3331.05	-2444.51	-2266.82	3333.79	222.84	2.18	MWD_M	None
260	3849.31	64.23	220.95	27.81	1190.31	3356.32	-2463.64	-2283.35	3359.05	222.82	2.51	MWD_M	None
261	3878.48	61.05	220.70	29.17	1203.72	3382.20	-2483.24	-2300.28	3384.94	222.81	3.33	MWD_M	None
262	3907.65	57.84	220.86	29.17	1218.54	3407.30	-2502.26	-2316.69	3410.04	222.79	3.36	MWD_M	None
263	3936.40	54.67	221.73	28.75	1234.51	3431.19	-2520.22	-2332.46	3433.93	222.78	3.45	MWD_M	None
264	3965.37	51.73	222.11	28.97	1251.86	3454.38	-2537.48	-2347.95	3457.12	222.78	3.11	MWD_M	None
265	3995.09	48.94	222.61	29.72	1270.83	3477.26	-2554.39	-2363.37	3480.00	222.78	2.89	MWD_M	None
266	4016.94	47.73	222.56	21.85	1285.36	3493.58	-2566.41	-2374.41	3496.32	222.77	1.69	MWD_M	None
267	4041.42	47.23	222.59	24.48	1301.90	3511.62	-2579.69	-2386.62	3514.37	222.77	0.62	PUP	None
268	4067.92	45.79	221.18	26.50	1320.14	3530.84	-2594.00	-2399.45	3533.59	222.77	2.03	MWD_M	None
269	4097.13	41.11	219.89	29.21	1341.34	3550.91	-2609.26	-2412.51	3553.65	222.76	4.97	MWD_M	None
270	4126.20	39.29	219.11	29.07	1363.54	3569.64	-2623.74	-2424.45	3572.39	222.74	1.98	MWD_M	None
271	4155.65	37.03	218.71	29.45	1386.70	3587.79	-2637.89	-2435.88	3590.54	222.72	2.35	MWD_M	None
272	4184.64	35.46	219.52	28.99	1410.08	3604.89	-2651.19	-2446.69	3607.65	222.70	1.73	MWD_M	None
273	4214.31	35.68	220.61	29.67	1434.21	3622.13	-2664.40	-2457.80	3624.89	222.69	0.69	MWD_M	None
274	4243.31	35.95	221.23	29.00	1457.73	3639.08	-2677.22	-2468.91	3641.85	222.68	0.48	MWD_M	None
275	4272.77	36.06	220.84	29.46	1481.56	3656.39	-2690.29	-2480.28	3659.16	222.67	0.26	MWD_M	None
276	4301.99	36.16	220.59	29.22	1505.17	3673.60	-2703.34	-2491.52	3676.37	222.67	0.19	MWD_M	None
277	4331.45	36.23	221.07	29.46	1528.94	3690.99	-2716.50	-2502.89	3693.76	222.66	0.30	MWD_M	None
278	4360.49	35.20	221.86	29.04	1552.52	3707.93	-2729.21	-2514.12	3710.71	222.65	1.18	MWD_M	None
279	4389.93	34.64	223.09	29.44	1576.66	3724.78	-2741.64	-2525.49	3727.56	222.65	0.93	MWD_M	None
280	4419.22	34.97	222.89	29.29	1600.71	3741.50	-2753.86	-2536.89	3744.28	222.65	0.36	MWD_M	None
281	4448.36	36.43	221.56	29.14	1624.37	3758.50	-2766.46	-2548.32	3761.28	222.65	1.73	MWD_M	None
282	4477.64	37.00	220.81	29.28	1647.84	3776.00	-2779.63	-2559.84	3778.78	222.64	0.75	MWD_M	None
283	4507.15	35.14	220.89	29.51	1671.70	3793.36	-2792.77	-2571.21	3796.14	222.63	1.92	MWD_M	None
284	4536.39	34.10	223.60	29.24	1695.76	3809.97	-2805.07	-2582.37	3812.75	222.63	1.94	MWD_M	None
285	4565.71	35.32	225.42	29.32	1719.86	3826.66	-2816.97	-2594.07	3829.43	222.64	1.66	MWD_M	None
286	4595.07	35.27	225.01	29.36	1743.83	3843.61	-2828.92	-2606.12	3846.38	222.65	0.25	MWD_M	None
287	4624.34	35.73	224.75	29.27	1767.66	3860.59	-2840.97	-2618.11	3863.37	222.66	0.50	MWD_M	None
288	4653.30	34.67	224.46	28.96	1791.32	3877.28	-2852.85	-2629.83	3880.05	222.67	1.13	MWD_M	None
289	4682.94	34.47	224.25	29.64	1815.73	3894.09	-2864.88	-2641.59	3896.86	222.68	0.24	MWD_M	None
290	4712.04	36.02	222.69	29.10	1839.49	3910.88	-2877.07	-2653.14	3913.65	222.68	1.88	MWD_M	None
291	4741.51	35.33	223.07	29.47	1863.43	3928.07	-2889.66	-2664.83	3930.84	222.68	0.75	MWD_M	None
292	4771.06	35.17	223.40	29.55	1887.56	3945.12	-2902.09	-2676.51	3947.89	222.68	0.26	MWD_M	None
293	4800.37	35.36	223.75	29.31	1911.49	3962.04	-2914.35	-2688.18	3964.81	222.69	0.29	MWD_M	None
294	4829.42	35.12	224.63	29.05	1935.22	3978.80	-2926.36	-2699.86	3981.56	222.69	0.59	MWD_M	None
295	4858.67	35.48	224.20	29.25	1959.09	3995.70	-2938.44	-2711.69	3998.46	222.70	0.46	MWD_M	None
296	4868.24	35.14	223.69	9.57	1966.90	4001.23	-2942.42	-2715.53	4003.99	222.70	1.43	MWD_M	None
297	4888.00	35.13	223.85	19.76	1983.06	4012.60	-2950.63	-2723.40	4015.36	222.71	0.14	Projection to	

Company: **ESSO Australia Pty Ltd**

Schlumberger

Well: **SNA A19A**

Field: **SNAPPER**

Rig: **ISDL 175**

8.50 In. Section

State: **Victoria**

EcoScope* Resistivity
1:500 Measured Depth
Recorded Mode Log