

ASHTON LONGWALL 5 - END OF PANEL SUMMARY REPORT

1 INTRODUCTION

This report has been prepared in conjunction with the SCT Operations Pty Ltd (SCT) Longwall 5 – End of Panel Subsidence Report and the Aquaterra Longwall 5 End of Panel Summary Report.

The combination of these reports were prepared to satisfy the requirements of the Subsidence Management Plan Approval, Ashton Coal Mine Extraction "Longwalls 5-6 & Miniwalls 7-8 only", Clause 17 and the Ashton Coal Project (ACP) Development Consent No. 309-11-2001MOD4i, Clause 3.24.

End of Panel Report

SMP Clause 17: Within 4 months of the completion of each longwall panel, an end of panel report must be prepared to the satisfaction of the Director Environmental Sustainability. The end of panel report must:

- include a summary of the subsidence and environmental monitoring results for the applicable longwall panel;
- b) include an analysis of these monitoring results against the relevant;
 - impact assessment criteria;
 - · monitoring results from previous panels; and
 - predictions in the SMP and EIS;
- c) identify any trends in the monitoring results over the life of the activity; and
- d) describe what actions were taken to ensure adequate management of any potential subsidence impacts due to longwall mining.

Development Consent (DC) (MOD4) Clause 3.24: Within 4 months of the completion of each longwall/miniwall panel, or as otherwise permitted by the Director-General of DII, the Applicant shall, to the satisfaction of the Director-General of DII:

- a) prepare an end-of-panel report:
 - reporting all subsidence effects (both individual and cumulative) for the panel and comparing subsidence effects with predictions;
 - describing in detail all subsidence impacts (both individual and cumulative) for the panel;
 - discussing the environmental consequences for all man-made and natural features impacted by subsidence; and
 - comparing subsidence impacts and environmental consequences with predictions; and
- b) submit the report to DII, and provide copies to the CCC, the Department, DECCW, NoW and any other relevant agency.

2 BACKGROUND

Longwall 5 began extraction on the 4 January 2010 and completed longwall mining on 4 June 2010. Longwall 5 was 1414m long, 205m wide and was mined without any unexpected impact to the surface environment or infrastructure above it.

The effects of subsidence were monitored in accordance with the document Subsidence Management Plan - Longwall Miniwall Panels 5-9"; this included both regular survey monitoring and visual inspection of both land features and infrastructure.

3 Mine Subsidence

The Pikes Gully Seam section mined along the length of Longwalls 1 to 5 at Ashton Underground Mine. Mining height is nominally in the 2.5m to 2.6m range. The seam dips to the southwest at a grade of up to 1 in 10. Overburden ranges in thickness from 158m at the start of the longwall panel to 110m at the take off end. The final extraction void is nominally 216m. This includes the 5.5m width of development drivage either side of the longwall block. Chain pillars are at a centre to centre width and length of 25m and 150m respectively.

Ashton's longwall mining operation commenced in February 2007. Since then 5 panels have been completed with the 6th currently being mined. Longwall 5 was completed in June 2010. The progress of longwall extraction is shown in **Figure 1**.



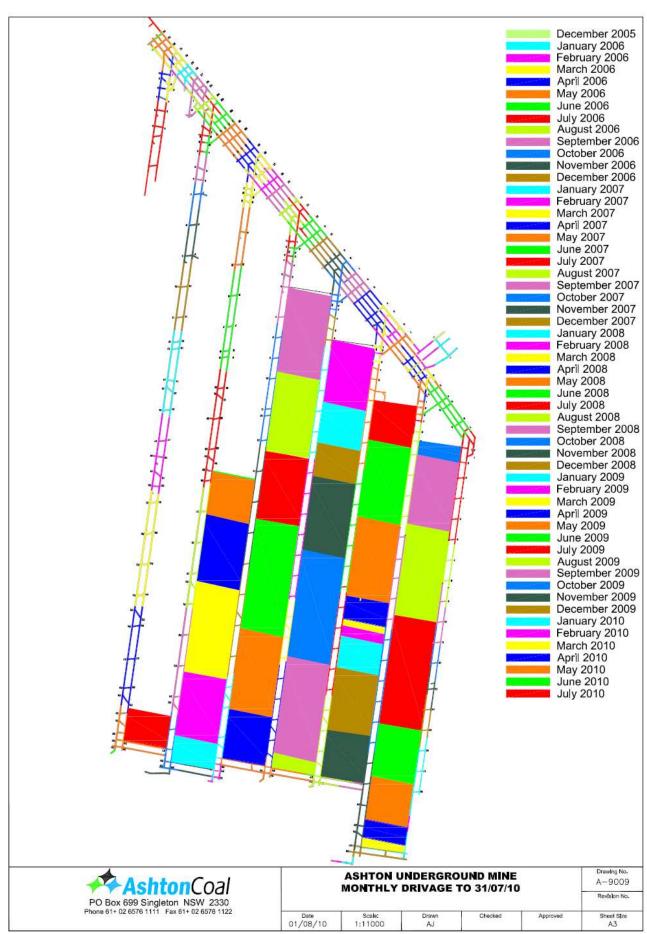


Figure 1: Progression of Longwall Extraction

4 MONITORING

Ashton Coal has monitored the subsidence movement on the surface during the extraction of Longwall's 1-5 using longitudinal subsidence lines. These are located over the start and finish lines of each panel and a main cross line extending over all five panels. All panels have monitoring data for each start and end lines and various cross lines relevant to the panel, surface features or strata features. Several other subsidence lines have been used to monitor the slope leading down to Glennies Creek, closure across the New England Highway, and subsidence across a dyke. These locations can be seen in **Figure 2.**

The following table (**Table 1**) outlines the maximum subsidence parameters predicted and recorded during regular survey of subsidence lines as the longwall passed each location.

Subsidence monitoring over Longwall 5 consisted of regular survey of centreline 1 (CL1), centreline 2 (CL2) and cross line 5 (XL5). The results of this have been maintained per monitoring document 05/1688 *Ashton Mine Subsidence Monitoring Programme Longwall 5-6*. This information was supplied to the Principal Subsidence Engineer.

Visual and survey monitoring of the existing 3 pole 132kV power structure over Longwall 5 is undertaken regularly. **Appendix 1**, **Figure 12** shows the 3 pole structure post stays being fitted. The survey data was recorded and again supplied to the Principal Subsidence Engineer as per the *Ashton Mine Subsidence Monitoring Programme Longwall 5-6*. The effects of subsidence on this structure can be seen in **Appendix 2**. A maximum of 1.051m of subsidence has been recorded on the power poles to date. Monitoring of this power pole set will continue during the first section of Longwall 6 extraction.

Over Longwall 6, the existing 2 pole 132kV power structure will be monitored by survey methods. The results of this will be discussed further in the LW6 End of Panel Report.

Table 1: Subsidence of Mined Longwall Panels - Predicted vs. Actual (SCT End of Panel Subsidence

	Maximum F	Report, 2010) Maximum				
	Predicted EIS	Predicted SMP		Maximum I	Measured	
North End of LW1			CL2		XL8	
Subsidence (mm)	1430	1800	1528		1500	
Tilt (mm/m)	122	244	100		103	
Horizontal Movement (mm)	-	>500	476		500	
Tensile Strain (mm/m)	16	73	40		15	
Compressive Strain (mm/m)	25	98	28		27	
Remainder of LW1			CL1		XL5	
Subsidence (mm)	1690	1700	1318		1436	
Tilt (mm/m)	60	141	60		75	
Horizontal Movement (mm)	-	300-500	480		503	
Tensile Strain (mm/m)	8	42	49		17	
Compressive Strain (mm/m)	12	56	23		24	
Longwall 2			CL1	CL2	х	L5
Subsidence (mm)	1690	1600	1296	1513	12	266
Tilt (mm/m)	91	102	40	82	7	' 8
Horizontal Movement (mm)	-	300-500	440	298	3	90
Tensile Strain (mm/m)	12	30	17	16	1	1
Compressive Strain (mm/m)	18	41	16	32	2	28
Longwall 3			CL1	CL2	х	L5
Subsidence (mm)	1500	1600	1420	1354	14	129
Tilt (mm/m)	65	78	41	48	9	97
Horizontal Movement (mm)	-	300-500	463	345	3	94
Tensile Strain (mm/m)	9	23	10	17	2	22
Compressive Strain (mm/m)	13	31	7	18	2	24
Longwall 4			CL1	CL2	XL5	XL10
Subsidence (mm)	1430	1600	1397	1194	1546	1263
Tilt (mm/m)	46	78	36	40	53	33
Horizontal Movement (mm)	-	300-500	230	560	360	258 ¹
Tensile Strain (mm/m)	6	23	10	18	9	6
Compressive Strain (mm/m)	9	31	9	67	9	10
Longwall 5			CL1	CL2	х	L5
Subsidence (mm)	1430	1600	1266	1326	13	376
Tilt (mm/m)	29	78	23	29	3	35
Horizontal Movement (mm)	-	300-500	399	339	3	60
Tensile Strain (mm/m)	4	23	21	6		5
Compressive Strain (mm/m)	5	31	9	8	1	7

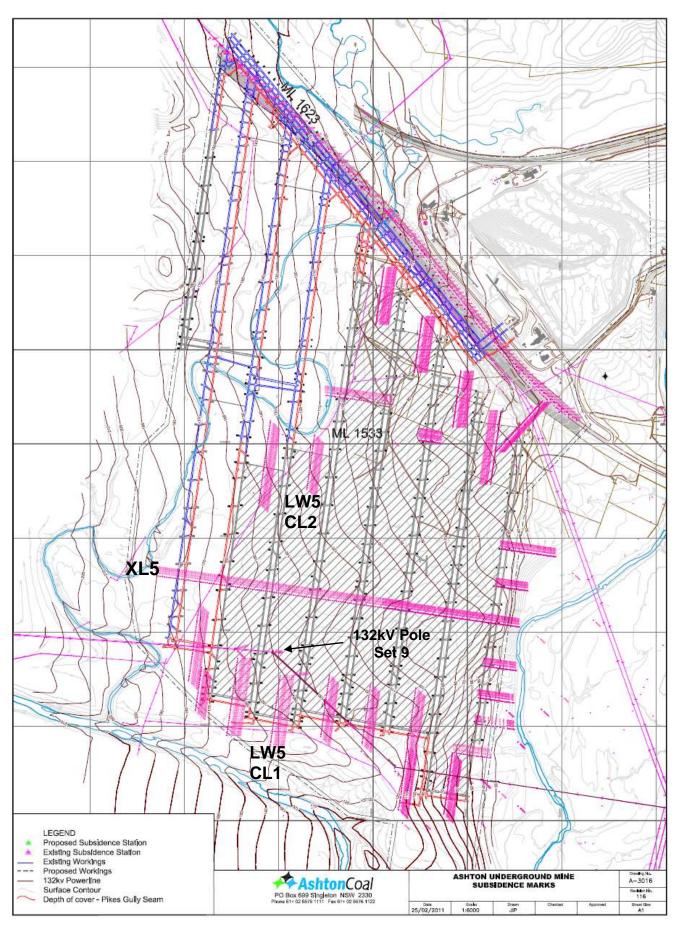


Figure 2: Plan location of Monitoring Cross Lines. Also shown is the 132kV power line monitoring points.



Aboriginal Heritage

Aboriginal Conservation Heritage Management Plan (ACHMP) procedures were followed during mining and prior to remediation commencing. Pre disturbance inspections were conducted over the whole site as part of the remediation process to ensure all known archaeological sites were pegged; with new sites pegged, logged and GPS positions recorded. Two new isolated finds were identified within a known collective site during this pre-remediation inspection. These were added to the ACOL archaeological register, GPS referenced, pegged and new AHIM's cards completed. During mining the Witter (2002) survey site locations were monitored to ensure no disturbance occurred due to mine subsidence.

The implementation of the ACHMP is considered to have been effective to date. The process of assessing the potential impacts on artefact sites based on predictions of crack locations has been positive. One object has been moved in accordance with AHIP 2783 during the mining of Longwall 1. No objects were moved during mining of Longwalls 2, 3, 4 or 5. During mining of LW4 the Oxbow site was undermined. This site is fenced in with authorised access only. Due to the sensitivity of this area and to date no remediation has been carried out. This site has maingate and tailgate associated cracking but is not considered a safety risk due to their size and the limited personnel/stock access to the area. With regard to other sites, ongoing visual monitoring of crack positions has shown no impact to known objects. Due to diligent visual monitoring the need for surface destructive remediation measures has not been required at any known sites post-LW1.

While preservation is the ongoing aim of ACOL, due to the nature of subsidence impacts and the potential for emergency remediation works being required due to safety related issues a submission has been made for a blanket S90 over the entire UG area.

A permit to disturb system operates onsite to take into account a range of issues, including Archaeology, flora and fauna, survey location of boreholes and other surface infrastructure (either buried or otherwise). This has proved successful as it requires systematic investigation of a range of potential issues prior to land disturbance activities. During surface works of LW5, no remediation occurred in the immediate vicinity of any archaeological site. Each site was demarcated with pegs and 'caution tape' to make operators aware of sites within the working area. Each operator was required to undergo an induction reassessment in the ACHMP and shown the locations of sites within the work area prior to commencing work. This level of education and communication proved invaluable in the non disturbance of any archaeological site.

5 Subsidence Impacts

Surface subsidence cracks have developed along each edge of the Longwall panels. These run along the projected gateroad edge. Cracks are particularly evident on the up-hill side of each panel. Note: Photos of subsidence impacts are documented in **Appendix 1: Photos** (Figures 4-12).

In most places, these cracks have been rehabilitated by ripping the surface to reduce surface water ingress and reduce the risk of injury to stock. Cracks through the Voluntary Conservation Area above Longwall 1 were rehabilitated using a small excavator and skid steer loader. Cracked areas in open fields were remediated using a D6 dozer with ripping tines. Once the area was ripped, the ground was smoothed using the blade. The extent of subsidence remediation at the goaf edge for all Longwall's is outlined in **Figure 3**. A typical gateroad crack which developed is shown in **Figure 10**. Remediation of the area after ripping is shown in **Figure 11**. Other remediation works were done using a motor grader. This was primarily tasked with access road repairs. Where subsidence effects were more than small surface cracks the road was ripped by the grader prior to smoothing with the blade.

Initial caving over the start of Longwall 5 was typical of the caving behaviour observed elsewhere at ACOL and consistent with predicted subsidence behaviour. Figure 6 shows the cracking which developed over the Longwall 4 start line. Remediation of this crack was undertaken during Longwall 5 crack remediation with the result being shown in Figure 7. All Longwall 5 cracking was remediated using a D6 bulldozer and was completed on the 26 June 2010. Recently cracking has been found over the Longwall 4 take off roadway. This has been pegged and marked with 'caution tape'. Remediation in this area is planned for the future.

A subsidence hole which was reported in the Longwall 4 EoP Report (see, Figure 4) has been remediated and no longer poses a safety risk. Figure 5 shows this remediation. A cattle yard was undermined during Longwall 5 retreat. No subsidence cracks have been found in the yards and no damage to the yards occurred.

The Diversion Road was cracked during mining. A diversion was put in place during the impact period until the road was repaired. Detours consisted of a detour sign at appropriate forks in the road and another barrier closer to the undermined area. This diversion directed traffic along the normal access road. Remediation of the dirt road occurred on the 11 June 2010 using a grader. Diversions such as that shown in Figure 14 were also put into place while any road was being undermined. This was the case for all roads bar the single access road during the mining of Longwall 4. The single access road required a grader to be permanently on site during mining so that any cracks could be repaired thus allowing the road to remain open and serviceable. This occurred from chainage 590m to 20m. All stakeholders were informed of any road closures before undermining occurred. Figures 8 and 9 in show an example of access road surface cracking and the access road once repaired. The repaired access road is highlighted in brown in Figure 3. All of the access road was graded as part of Longwall 6 remediation (although only an isolated portion was subsidence effected) to keep it serviceable and safe. For the residence residing in the property located over Longwall 6, the only access road to the property was undermined. During undermining the road was visually inspected daily. No subsidence cracking created a safety issue or resulted in a road closure. All necessary repairs were made to the road to keep it serviceable after undermining.

No farm dams were undermined during Longwall 5 extraction. All farm dams in the Longwall 4 area were remediated in line with Longwall 5 subsidence remediation. No loss of water has occurred for these dams and filling continues to occur with even small rain events. Ponding over Longwall 3 (at chainage 530m) has been left as a water storage area. Because of its size and tendency to fill after rain events repair will not occur. Other areas where ponding has become evident is three new zones over Longwall 5. The locations of these are at chainage 1,090m, 400m and 80m. These currently pose no safety or environmental issues however they will need to be pumped out or have natural drains re-established to prevent continual filling and holding. This is planned as future remediation.

No buried cables or overhead lines were disturbed by undermining or repair work of Longwall 5 subsidence cracks. This included an overhead 11kV and 132kV power line and buried Telstra cable. An ACOL owned buried poly pipe used as a water discharge line from the borehole pump was ripped during remediation works. This was promptly repaired with no disturbance to underground operations or the surface. Following this an ACOL incident report was completed and a review of infrastructure locations was undertaken. This aimed to identify any infrastructure that was buried in a location that was different to the indicated survey location.

The maximum subsidence movements detected over Longwall 5 were less than those predicted in the SMP. This occurred for all survey monitoring lines. There is no indication of any significant lateral movement of the steep slope adjacent Glennies Creek or of the New England Highway cutting. Horizontal movement was within predictions for XL5, CL1 and CL2. Horizontal movement has occurred in the upslope direction above each of the Longwall panels. This movement has predominantly occurred over the longwall panels with limited displacement detected outside the panel. This result is consistent with previously mined panels.

Quantitatively horizontal movement, tilt and strains are less than those predicted in the SMP. The results compared to other panels vary slightly due to depth, strata and surface conditions.

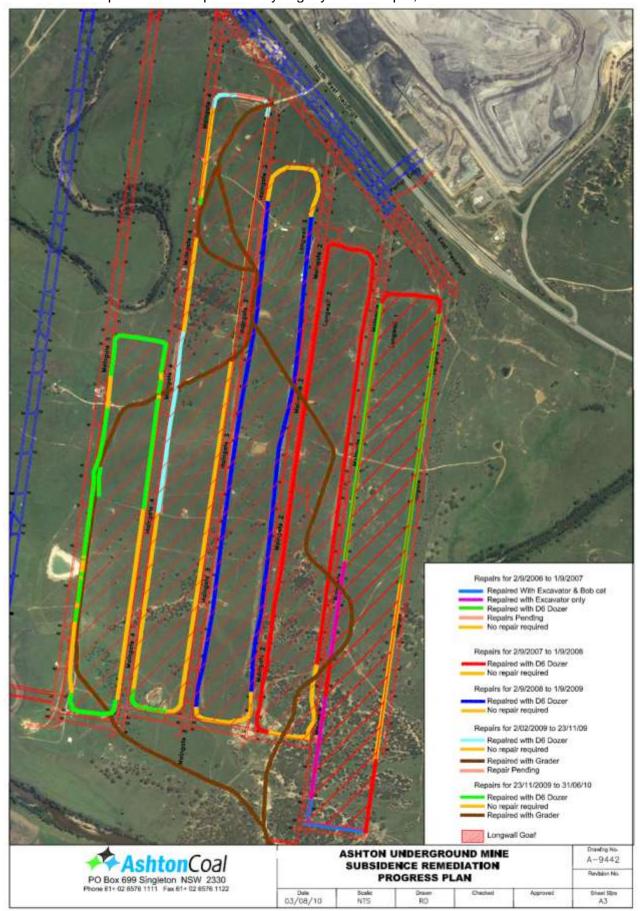


Figure 3: Subsidence remediation progress.

6 APPENDIX 1: PHOTO'S



Figure 4: Subsidence in front of Blue House (Chainage 420m)



Figure 5: Subsidence Remediation of hole in front of Blue House (Ref: **Figure 4**) looking north from 23/06/10.



Figure 6: LW4 start line crack in drained dam looking to the west. This crack has formed under a tree located in the southern side of the dam wall.



Figure 7: LW4 start line crack (Ref: **Figure 6**) remediated on 25/06/10. Dam re-filling after being drained prior to Longwall extraction.

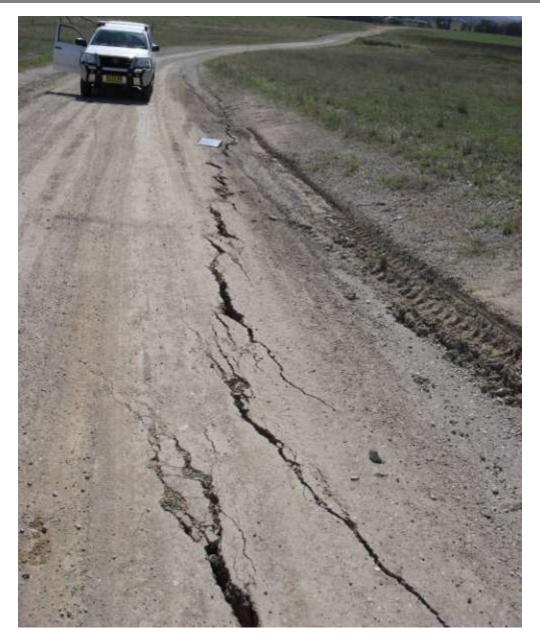


Figure 8: Gateroad cracks in the access road looking north. Remediation required.

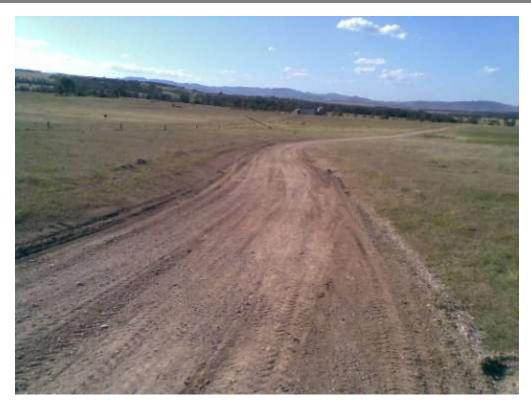


Figure 9: Access road looking north post remediation using a grader with ripping tines on 11/06/10.



Figure 10: Gateroad crack on surface. In the background the 3 pole power line structure can be seen. This image was taken post stays being fitted to the power line on 12/05/10.



Figure 11: Gateroad cracks post remediation. The ripped section runs the length of visible surface cracks. Image taken looking north. Remediation completed on 25/06/10.



Figure 12: 3 pole power line structure (background) and subsided area (foreground) before significant rain events. Image looking north-west on 30/04/10.



Figure 13: Ponding under Longwall 5 3 pole power line structure on 11/08/10 looking north.



Figure 14: Road barrier which blocked road access whilst road was being undermined.



7 APPENDIX 2: SURVEY MONITORING RESULTS

Table 2: Ashton Coal Underground Survey Monitoring of 3 pole 132kV Power line.

++ Ash	tonCoal		Ashton Under	ground - 132k\	/ LW5 SET9 Po	wer Pole	e Monitoring								
TEST01	Original	3:00:00 PM	10/2/2010	1											
	100211P				MG5 Ch	1082	to centre pole								
Point et9_1a	217062 2416	North 6404390.2557	R.L. 62.4876	^h	LW6 Ch	2463	to centre pole								
et9_1a et9_1b		6404390.2557	66.3009	3.8											
et9_1c		6404390.3900	70.6402	4.3	8.1526										
et9_1d		6404390.4880	76.0531	5.4	13.5655										
et9_2a		6404395.0085	62.5918												
et9_2b		6404395.0891	66.8312	4.2											
Set9_2c		6404395.1861 6404395.3211	70.6103 75.9524	3.8 5.3	13.3606										
Set9_2d Set9_3a		6404399.8240	62.6003	5.3	13.3006										
Set9_3b		6404399.8744	66.0364	3.4											
Set9_3c		6404399.9778	70.5322	4.5											
Set9_3d	317967.4475	6404400.0642	75.9933	5.5	13.3930										
Direction of I	ongwall Extrac	9.04.16	(hmc)												
Test-02	ongwall Extract 4:50:00 Pl	8.04 16 M 17/2/2010	(hms) 0m	In	cremental δ				m/day		Total δ				m/day
	100217P1	LW5 Ch=	1082												
	East	North	R.L.	δEast	δNorth	SD I	Hr Bearing	Distance	Velocity	δEast	δNorth	δ R.L. Hr	Posring	Distance	Velocity
Set9_1a		6404390.2373	62.4759	0.009	-0.018		2 # 153.56 07	0.020	0.0029	0.009	-0.018		153.56 07	0.020	0.0029
Set9_1b		6404390.2816	66.2904	0.011	-0.022		0 # 152.10 33	0.024	0.0035	0.011	-0.022		152.10 33	0.024	0.0035
Set9_1c	317963.3463	6404390.3655	70.6296	0.016	-0.024	-0.01	1 # 147.01 02	0.029	0.0041	0.016	-0.024	-0.011 #	147.01 02	0.029	0.0041
Set9_1d	0.0000	0.0000	0.0000	-317963.296	-6404390.488	-76.05	3 # 182.50 32	6412278.704	906151.2595	-317963.296	-6404390.488	-0.011 #	182.50 32	6412278.704	906151.2595
Set9_2a		6404394.9927	62.5833	0.008	-0.016		8 # 152.17 11	0.018	0.0025	0.008	-0.016		152.17 11	0.018	0.0025
Set9_2b Set9_2c		6404395.0709 6404395.1661	66.8236 70.6033	0.012 0.016	-0.018 -0.020		8 # 147.15 53 7 # 141.20 25	0.022 0.026	0.0031 0.0036	0.012 0.016	-0.018 -0.020		147.15 53 141.20 25	0.022 0.026	0.0031 0.0036
Set9_2d		6404395.1661	75.9455	0.016	-0.020		7 # 141.20 25 7 # 128.30 13	0.026	0.0036	0.016	-0.020		128.30 13	0.026	0.0036
			,	3.027	J.U. 1	2.00	00 10			3.027	3.021				
Set9_3a	317967.5290	6404399.8111	62.5937	0.006	-0.013	-0.00	7 # 156.32 02	0.014	0.0020	0.006	-0.013	-0.007 #	156.32 02	0.014	0.0020
Set9_3b		6404399.8599	66.0306	0.008	-0.015		6 # 152.01 49	0.016	0.0023	0.008	-0.015		152.01 49	0.016	0.0023
Set9_3c		6404399.9614	70.5270	0.012	-0.016		5 # 144.02 06	0.020	0.0029	0.012	-0.016		144.02 06	0.020	0.0029
Set9_3d		6404400.0467 M 18/2/2010	75.9879	0.021	-0.018	-0.00	5 # 129.48 20	0.027	0.0039	0.021	-0.018	-0.005 #	129.48 20	0.027	0.0039
Test-03	100218C	LW5 Ch=	7m 1075	I "	cremental δ				m/day		Total δ				m/day
CatO 1a	East	North	R.L. 62.4696	δEast	δNorth	δR.L.	Hr Bearing	Distance 0.006	Velocity	δ East 0.012	δNorth		Bearing	Distance	Velocity
Set9_1a Set9_1b		6404390.2325 6404390.2748	66.2837	0.003 0.002	-0.005 -0.007		6 # 146.18 36 7 # 163.36 38	0.006	0.0055 0.0067	0.012	-0.023 -0.028		152.15 43 154.44 26	0.026 0.031	0.0032
Set9_10 Set9_1c		6404390.2748	70.6231	-0.002	-0.007		7 # 163.36 36 7 # 183.43 53	0.007	0.0087	0.013	-0.026		155.34 54	0.037	0.0039
Set9_1d		6404390.4478	76.0365	317963.317	6404390.448		7 # 105.43 33 7 # 2.50 32			0.020	-0.040		153.05 38	0.045	0.0055
Set9_2a	317965.5665	6404394.9885	62.5794	0.003	-0.004	-0.00	4 # 149.14 14	0.005	0.0047	0.011	-0.020	-0.012 #	151.37 51	0.023	0.0028
Set9_2b	317965.5826	6404395.0647	66.8189	0.001	-0.006	-0.00	5 # 169.02 45	0.006	0.0060	0.013	-0.024	-0.012 #	152.08 06	0.028	0.0034
Set9_2c		6404395.1573	70.5977	0.000	-0.009		6 # 180.39 04	0.009	0.0084	0.016	-0.029		151.05 52	0.033	0.0040
Set9_2d	317965.5755	6404395.2873	75.9403	-0.004	-0.012	-0.00	5 # 197.02 16	0.013	0.0123	0.023	-0.034	-0.012 #	145.39 00	0.041	0.0050
Set9_3a	217067 5216	6404399.8069	62.5906	0.003	-0.004	0.00	3 # 148.14 26	0.005	0.0047	0.008	-0.017	0.010 #	154.22 51	0.019	0.0023
Set9_3b		6404399.8539	66.0269	0.002	-0.004		4 # 161.33 54	0.006	0.0060	0.010	-0.020		154.40 40	0.023	0.0028
Set9_3c		6404399.9528	70.5234	0.000	-0.009		4 # 181.59 52	0.009	0.0082	0.012	-0.025		155.06 31	0.028	0.0034
Set9_3d		6404400.0346	75.9840	-0.004	-0.012		4 # 198.17 34	0.013	0.0121	0.017	-0.030		150.07 49	0.034	0.0042
Test-04		M 19/2/2010	15m	In	cremental δ				m/day		Total δ				m/day
	100218C	LW5 Ch=	1067												
	East	North	R.L.	δEast	δ North	δR.L.	Hr Bearing	Distance	Velocity	δEast	δ North	δ R.L. Hr	Bearing	Distance	Velocity
Set9_1a		6404390.2203	62.4527	0.006	-0.012		7 # 154.11 29	0.014	0.0150	0.018	-0.035	-0.035 #	152.55 10	0.040	0.0044
Set9_1b		6404390.2594	66.2667	0.005	-0.015		7 # 162.00 46	0.016	0.0179	0.018	-0.044		157.12 47	0.048	0.0053
Set9_1c		6404390.3371	70.6060	0.003	-0.019		7 # 172.17 17	0.019	0.0214	0.018	-0.053		161.18 20	0.056	0.0062
Set9_1d	317963.3135	6404390.4244	76.0188	-0.003	-0.023	-0.01	8 # 187.32 47	0.024	0.0261	0.017	-0.064	-0.034 #	164.46 59	0.066	0.0073
Set9_2a	317965 5717	6404394.9776	62.5650	0.005	-0.011	-0.01	4 # 154.29 45	0.012	0.0134	0.016	-0.031	-0.027 #	152.37 30	0.035	0.0039
Set9_2a Set9_2b		6404394.9776	66.8046	0.005	-0.011		4 # 154.29 45 4 # 162.48 37	0.012	0.0134	0.016	-0.031		155.48 57	0.035	0.0039
Set9_2c		6404395.1413	70.5837	0.002	-0.014		4 # 172.31 22	0.016	0.0178	0.018	-0.045		158.06 38	0.042	0.0053
Set9_2d		6404395.2676	75.9256	-0.003	-0.020		5 # 189.30 34	0.020	0.0221	0.020	-0.054		159.41 27	0.057	0.0063
Set9_3a		6404399.7981	62.5795	0.004	-0.009		1 # 155.01 08	0.010	0.0107	0.012	-0.026		154.35 48	0.029	0.0032
Set9_3b		6404399.8430	66.0158	0.003	-0.011		1 # 165.06 05	0.011	0.0125	0.013	-0.031		158.08 09	0.034	0.0037
Set9_3c		6404399.9398 6404400.0186	70.5114	0.001	-0.013		2 # 176.28 43	0.013	0.0144	0.012	-0.038		161.55 40	0.040	0.0044
Set9_3d Test-05		VI 20/2/2010	75.9726 15m	-0.005	-0.016	-0.01	1 # 198.00 15	0.017	0.0186 m/day	0.012	-0.046 Total δ	-0.021 #	165.29 30	0.047	0.0052 m/day
	19P - Rd7 - 20/2		1067		oremental o				muay		Total				ilivaay
				e	Chi	٠	U- B :	Di-4	Water 25	٠	Chi	en.	B :	Di-4	W-1 "
Set9_1a	East 317963 3598	North 6404390.2157	R.L. 62.4490	δEast 0.000	δ North -0.005		Hr Bearing 4 # 178.45 17	Distance 0.005	Velocity 0.0046	δ East 0.018	δ North -0.040	δR.L. Hr	Bearing 155.32 04	Distance 0.044	Velocity 0.0044
Set9_1a Set9_1b		6404390.2523	66.2635	0.000	-0.005		4 # 1 /8.45 1 / 3 # 155.04 17	0.005	0.0046	0.018	-0.040		155.32 04	0.044	0.0044
Set9_1c		6404390.3251	70.6036	0.003	-0.007		2 # 140.45 45	0.005	0.0078	0.022	-0.065		156.53 12		0.0033
Set9_1d	0.0000	0.0000	0.0000		-6404390.424				6354907.9448		-6404390.488				638655.5080
_															
Set9_2a		6404394.9738	62.5637	0.000	-0.004		1 # 184.30 50	0.004	0.0038	0.016	-0.035		155.39 20	0.038	0.0038
Set9_2b		6404395.0444	66.8042	0.003	-0.006		0 # 158.39 47	0.007	0.0068	0.020	-0.045		156.12 58	0.049	0.0049
Set9_2c		6404395.1315	70.5840	0.008	-0.010		0 # 141.28 59	0.013	0.0124	0.026	-0.055		154.42 29	0.060	0.0060
Set9_2d	317965.5909	6404395.2510	75.9271	0.019	-0.017	0.00	1 # 131.35 44	0.025	0.0248	0.039	-0.070	-0.025 #	151.13 25	0.080	0.0080
Set9_3a	317967 5352	6404399.7944	62.5793	-0.001	-0.004	0.00	0 # 187.41 46	0.004	0.0037	0.012	-0.030	-0.021 #	158.15 55	0.032	0.0032
Set9_3b		6404399.8385	66.0162	0.001	-0.004		0 # 167.41 40 0 # 162.43 07	0.004	0.0037	0.012	-0.036		158.41 44	0.032	0.0032
Set9_3c		6404399.9327	70.5131	0.007	-0.007		2 # 136.14 11	0.010	0.0097	0.019	-0.045		156.56 22	0.049	0.0049
		6404400.0058	75.9745	0.018	-0.013		2 # 126.10 58	0.022	0.0215	0.029	-0.058		153.21 23	0.065	0.0065



Test-06 100219	3:18:00 PM 21/2/2010 9P - Rd 12 - 21/ LW5 Ch=	15m 1067	Inc	cremental δ			m/day		Total δ			m/day
	East North	R.L.	δEast	δ North	δR.L. Hr Bearing	Distance	Velocity	δEast	δ North	δR.L. Hr Bearing	Distance	Velocity
Set9_1a Set9_1b	317963.3586 6404390.2156 317963.3673 6404390.2518	62.4480 66.2617	-0.001 -0.002	0.000 -0.001	-0.001 # 265.14 1 1 -0.002 # 255.15 2 3		0.0012 0.0020	0.017 0.020	-0.040 -0.051	-0.040 # 157.01 33 -0.039 # 158.55 57	0.044 0.055	0.0040 0.0050
Set9_1c	317963.3547 6404390.3255	70.6022	-0.002	0.000	-0.002 # 233.13 25		0.0035	0.024	-0.064	-0.038 # 159.21 23	0.069	0.0063
Set9_1d	0.0000 0.0000	0.0000	0.000	0.000	0.000 # #DIV/0!	0.000	0.0000	-317963.296	-6404390.488	-0.038 # 182.50 32	6412278.704	582272.7541
Set9_2a	317965.5704 6404394.9737	62.5613	-0.001	0.000	-0.002 # 264.17 2 2	0.001	0.0010	0.015	-0.035	-0.030 # 157.06 00	0.038	0.0034
Set9_2b Set9_2c	317965.5876 6404395.0445 317965.5871 6404395.1319	66.8017 70.5818	-0.002 -0.003	0.000	-0.002 # 273.10 47 -0.002 # 276.31 1 1		0.0019 0.0036	0.018 0.022	-0.045 -0.054	-0.029 # 158.07 56 -0.028 # 157.38 09	0.048 0.059	0.0044 0.0053
Set9_2d	317965.5834 6404395.2521	75.9246	-0.003	0.001	-0.002 # 278.20 38		0.0038	0.022	-0.069	-0.028 # 155.48 24	0.039	0.0069
Set9_3a	317967.5339 6404399.7949	62.5770	-0.001	0.001	-0.002 # 291.02 1 5	0.001	0.0014	0.010	-0.029	-0.023 # 160.09 33	0.031	0.0028
Set9_3b	317967.5233 6404399.8390	66.0136	-0.001	0.001	-0.002 # 281.02 13		0.0014	0.010	-0.025	-0.023 # 161.07 45	0.037	0.0028
Set9_3c Set9_3d	317967.4945 6404399.9331 317967.4697 6404400.0074	70.5107 75.9727	-0.004 -0.007	0.000 0.002	-0.002 # 276.00 32 -0.002 # 282.41 58		0.0039 0.0075	0.015 0.022	-0.045 -0.057	-0.022 # 160.59 25 -0.021 # 158.39 08	0.047 0.061	0.0043 0.0055
Test-07	7:22:00 AM 22/2/2010	18m		remental δ	0.002 // 202141 00	0.001	m/day	U.ULL	Total δ	0.021 // 100.00 00	0.001	m/day
100219	9P - last rd 22/2 LW5 Ch=	1064										
Set9_1a	East North 317963.3633 6404390.2147	R.L. 62.4381	δEast 0.005	δ North -0.001	δR.L. Hr Bearing -0.010 # 100.50 25	Distance 0.005	Velocity 0.0071	δ East 0.022	δ North -0.041	δR.L. Hr Bearing -0.050 # 152.06 33	Distance 0.046	Velocity 0.0040
Set9_1b	317963.3689 6404390.2518	66.2500	0.002	0.000	-0.012 # 90.00 00	0.002	0.0024	0.021	-0.051	-0.051 # 157.23 45	0.056	0.0048
Set9_1c Set9_1d	317963.3501 6404390.3278 0.0000 0.0000	70.5887 0.0000	-0.005 0.000	0.002 0.000	-0.013 # 296.33 5 4 0.000 # #DIV/0!	0.005 0.000	0.0077 0.0000	0.020 -317963.296	-0.062 -6404390.488	-0.051 # 162.25 33 -0.051 # 182.50 32	0.065 6412278.704	0.0056 548905.0847
Set9_2a	317965.5750 6404394.9722	62.5528	0.005	-0.002	-0.009 # 108.03 38	0.005	0.0072	0.019	-0.036	-0.039 # 152.00 05	0.041	0.0035
Set9_2b	317965.5904 6404395.0430	66.7904	0.003	-0.002	-0.009 # 108.03 36 -0.011 # 118.10 43		0.0072	0.019	-0.036	-0.039 # 152.00 05 -0.041 # 155.49 08	0.041	0.0033
Set9_2c	317965.5860 6404395.1321 317965.5744 6404395.2576	70.5687 75.9113	-0.001 -0.009	0.000 0.005	-0.013 # 280.18 17 -0.013 # 301.25 4 6		0.0017 0.0158	0.021 0.022	-0.054 -0.064	-0.042 # 158.33 55 -0.041 # 160.53 28	0.058 0.067	0.0050 0.0058
Set9_2d	317903.3744 0404393.2370	73.9113	-0.009	0.003	-0.013 # 301.23 40	0.011	0.0138	0.022	-0.004	-0.041 # 100.33 20	0.007	0.0036
Set9_3a Set9_3b	317967.5384 6404399.7938 317967.5264 6404399.8366	62.5696 66.0043	0.005 0.003	-0.001 -0.002	-0.007 # 103.44 1 1 -0.009 # 127.44 4 8		0.0069 0.0059	0.015 0.015	-0.030 -0.038	-0.031 # 153.35 13 -0.032 # 158.05 39	0.034 0.041	0.0029 0.0035
Set9_3c	317967.4930 6404399.9316	70.5000	-0.001	-0.002	-0.011 # 224.59 6 0	0.002	0.0032	0.014	-0.046	-0.032 # 163.15 19	0.048	0.0041
Set9_3d Test-08	317967.4591 6404400.0098 3:35:00 PM 23/2/2010	75.9599 51m	-0.011	0.002 cremental δ	-0.013 # 282.45 2 7	0.011	0.0162 m/day	0.012	-0.054 Total δ	-0.033 # 167.57 46	0.056	0.0048 m/day
	2P - rnd 14 23/2 LW5 Ch=	1031					,					,
C-1C 1	East North	R.L.	δEast	δNorth	δR.L. Hr Bearing	Distance	Velocity	δEast	δNorth	δR.L. Hr Bearing	Distance	Velocity
Set9_1a Set9_1b	317963.4390 6404390.1273 317963.4630 6404390.1313	62.2283 66.0417	0.076 0.094	-0.087 -0.121	-0.210 # 139.06 1 1 -0.208 # 142.00 4 8		0.0861 0.1139	0.097 0.116	-0.128 -0.172	-0.259 # 142.49 02 -0.259 # 146.06 10	0.161 0.207	0.0124 0.0159
Set9_1c	317963.4653 6404390.1700	70.3815	0.115	-0.158	-0.207 # 143.52 0 9		0.1455	0.135	-0.220	-0.259 # 148.29 03	0.258	0.0198
Set9_1d	0.0000 0.0000	0.0000	0.000	0.000	0.000 # #DIV/0!	0.000	0.0000	-317963.296	-6404390.488	-0.259 # 182.50 32	6412278.704	492331.7160
Set9_2a	317965.6397 6404394.8844	62.3741	0.065	-0.088	-0.179 # 143.36 48		0.0812	0.084	-0.124 -0.170	-0.218 # 145.54 25	0.150 0.198	0.0115
Set9_2b Set9_2c	317965.6723 6404394.9194 317965.6839 6404394.9765	66.6137 70.3933	0.082 0.098	-0.124 -0.156	-0.177 # 146.28 15 -0.175 # 147.49 2 2		0.1105 0.1369	0.103 0.119	-0.170	-0.218 # 148.50 35 -0.217 # 150.23 37	0.198	0.0152 0.0185
Set9_2d	317965.6955 6404395.0556	75.7366	0.121	-0.202	-0.175 # 149.03 2 6	0.236	0.1755	0.143	-0.266	-0.216 # 151.40 34	0.302	0.0232
Set9_3a	317967.5907 6404399.7109	62.4223	0.052	-0.083	-0.147 # 147.45 1 1	0.098	0.0730	0.067	-0.113	-0.178 # 149.14 43	0.132	0.0101
Set9_3b Set9_3c	317967.5885 6404399.7277 317967.5676 6404399.7877	65.8586 70.3548	0.062 0.075	-0.109 -0.144	-0.146 # 150.18 22 -0.145 # 152.35 4 9		0.0934 0.1207	0.077 0.089	-0.147 -0.190	-0.178 # 152.12 51 -0.177 # 155.02 09	0.166 0.210	0.0127 0.0161
Set9_3d	317967.5491 6404399.8231	75.8158	0.073	-0.187	-0.144 # 154.15 48		0.1544	0.102	-0.190	-0.177 # 155.02 09 -0.178 # 157.08 58	0.262	0.0201
Test-09 100224	6:48:00 AM 24/2/2010 4P - rnd 1 24/2 LW5 Ch=	69m 1013	Inc	remental δ			m/day		Total δ			m/day
	East North	R.L.	δEast	δNorth	δR.L. Hr Bearing	Distance	Velocity	δEast	δNorth	δR.L. Hr Bearing	Distance	Velocity
Set9_1a	317963.5222 6404390.1207	62.0049	0.083	-0.007	-0.223 # 94.32 08	0.083	0.1316	0.181	-0.135	-0.483 # 126.46 42	0.225	0.0165
Set9_1b Set9_1c	317963.5667 6404390.1158 317963.5883 6404390.1456	65.8168 70.1559	0.104 0.123	-0.015 -0.024	-0.225 # 98.30 04 -0.226 # 101.13 1 3	0.105 0.125	0.1654 0.1978	0.219 0.258	-0.187 -0.244	-0.484 # 130.31 41 -0.484 # 133.27 38	0.288 0.355	0.0211 0.0260
Set9_1d	0.0000 0.0000	0.0000	0.000	0.000	0.000 # #DIV/0!	0.000	0.0000	-317963.296	-6404390.488	-0.484 # 182.50 32	6412278.704	469477.3914
Set9_2a	317965.7210 6404394.8639	62.1535	0.081	-0.020	-0.221 # 104.09 0 8	0.084	0.1322	0.165	-0.145	-0.438 # 131.10 43	0.220	0.0161
Set9_2b Set9_2c	317965.7779 6404394.8842 317965.8092 6404394.9287	66.3919 70.1708	0.106 0.125	-0.035 -0.048	-0.222 # 108.26 06 -0.222 # 110.52 52		0.1756 0.2115	0.208 0.244	-0.205 -0.257	-0.439 # 134.32 32 -0.439 # 136.29 02	0.292 0.355	0.0214 0.0260
Set9_2d	317965.8473 6404394.9916	75.5134	0.125	-0.046	-0.223 # 112.51 38		0.2115	0.244	-0.257	-0.439 # 138.10 18	0.355	0.0260
Set9_3a	317967.6688 6404399.6779	62.2120	0.078	-0.033	-0.210 # 112.54 2 1	0.085	0.1337	0.145	-0.146	-0.388 # 135.08 15	0.206	0.0151
Set9_3b	317967.6833 6404399.6811	65.6468	0.095	-0.047	-0.212 # 116.10 3 7	0.106	0.1666	0.172	-0.193	-0.390 # 138.19 14	0.259	0.0189
Set9_3c Set9_3d	317967.6802 6404399.7252 317967.6795 6404399.7435	70.1425 75.6032	0.113 0.130	-0.063 -0.080	-0.212 # 119.01 5 9 -0.213 # 121.24 0 4		0.2031 0.2410	0.201 0.232	-0.253 -0.321	-0.390 # 141.28 34 -0.390 # 144.07 03	0.323	0.0236 0.0290
Test-10	12:52:00 PM 24/2/2010	69m		remental δ	0.210 // 121124 04	000		0.202		0.000 11 144101 00		
100224	4P - rnd 4 24/2 LW5 Ch=						m/day		Total δ		0.396	m/day
1		1013					-					m/day
Set9 1a	East North	R.L.	δ East 0.006	δNorth	δR.L. Hr Bearing	Distance 0.006	Velocity	δ East 0.187	δNorth	δR.L. Hr Bearing -0.502 # 126.01 12	Distance	m/day Velocity
Set9_1a Set9_1b	East North 317963.5281 6404390.1201 317963.5754 6404390.1147	R.L. 61.9856 65.7988	0.006 0.009	δ North -0.001 -0.001	-0.019 # 95.48 24 -0.018 # 97.12 22	0.006 0.009	Velocity 0.0235 0.0347	0.187 0.228	δ North -0.136 -0.189	-0.502 # 126.01 12 -0.502 # 129.35 41	Distance 0.231 0.296	m/day Velocity 0.0166 0.0213
	East North 317963.5281 6404390.1201	R.L. 61.9856	0.006	δ North -0.001	-0.019 # 95.48 24	0.006	Velocity 0.0235	0.187	δ North -0.136	-0.502 # 126.01 12	Distance 0.231 0.296 0.366	m/day Velocity 0.0166 0.0213 0.0263
Set9_1b Set9_1c Set9_1d	East North 317963.5281 6404390.1201 317963.5754 6404390.1147 317963.6005 6404390.1435 0.0000 0.0000	R.L. 61.9856 65.7988 70.1388 0.0000	0.006 0.009 0.012 0.000	δ North -0.001 -0.001 -0.002 0.000	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 0.000 # #DIV/0!	0.006 0.009 0.012 0.000	Velocity 0.0235 0.0347 0.0490 0.0000	0.187 0.228 0.270 -317963.296	δ North -0.136 -0.189 -0.246 -6404390.488	-0.502 # 126.01 12 -0.502 # 129.35 41 -0.501 # 132.23 04 -0.501 # 182.50 32	Distance 0.231 0.296 0.366 6412278.704	m/day Velocity 0.0166 0.0213 0.0263 460946.5522
Set9_1b Set9_1c	East North 317963.5281 6404390.1201 317963.5754 6404390.1147 317963.6005 6404390.1435	R.L. 61.9856 65.7988 70.1388	0.006 0.009 0.012	δ North -0.001 -0.001 -0.002	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00	0.006 0.009 0.012 0.000	Velocity 0.0235 0.0347 0.0490	0.187 0.228 0.270	δ North -0.136 -0.189 -0.246	-0.502 # 126.01 12 -0.502 # 129.35 41 -0.501 # 132.23 04	Distance 0.231 0.296 0.366	m/day Velocity 0.0166 0.0213 0.0263
Set9_1b Set9_1c Set9_1d Set9_2a Set9_2b Set9_2c	East North 317963.5281 6404390.1201 317963.5754 6404390.1147 317963.6005 6404390.1435 0.0000 0.0000 317965.7270 6404394.8626 317965.7860 6404394.8822 317965.8187 6404394.9255	R.L. 61.9856 65.7988 70.1388 0.0000 62.1346 66.3744 70.1537	0.006 0.009 0.012 0.000 0.006 0.008 0.009	δNorth -0.001 -0.002 0.000 -0.001 -0.002 -0.002 -0.003	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 0.000 # #DIV/0! -0.019 # 102.13 34 -0.018 # 103.52 11 -0.017 # 108.36 56	0.006 0.009 0.012 0.000 0.006 0.008 0.010	Velocity 0.0235 0.0347 0.0490 0.0000 0.0243 0.0330 0.0397	0.187 0.228 0.270 -317963.296 0.171 0.216 0.254	δ North -0.136 -0.189 -0.246 -6404390.488 -0.146 -0.207 -0.261	-0.502 # 126.01 12 -0.502 # 129.35 41 -0.501 # 132.23 04 -0.501 # 182.50 32 -0.457 # 130.25 18 -0.457 # 133.43 39 -0.457 # 135.44 46	Distance 0.231 0.296 0.366 6412278.704 0.225 0.299 0.364	w/day Velocity 0.0166 0.0213 0.0263 460946.5522 0.0162 0.0215 0.0262
Set9_1b Set9_1c Set9_1d Set9_2a Set9_2b Set9_2c Set9_2c	East North 317963.5281 6404390.1201 317963.6754 6404390.1147 317963.6005 6404390.1435 0.0000 0.0000 317965.7270 6404394.8626 317965.8187 6404394.9255 317965.8593 6404394.9870	R.L. 61.9856 65.7988 70.1388 0.0000 62.1346 66.3744 70.1537 75.4964	0.006 0.009 0.012 0.000 0.006 0.008 0.009 0.012	8North -0.001 -0.001 -0.002 0.000 -0.001 -0.002 -0.003 -0.003	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 .000 # #DIV/0! -0.019 # 102.13 30 -0.018 # 103.52 11 -0.017 # 108.36 56 -0.017 # 110.58 25	0.006 0.009 0.012 0.000 0.006 0.008 0.010 0.013	Velocity 0.0235 0.0347 0.0490 0.0000 0.0243 0.0330 0.0397 0.0508	0.187 0.228 0.270 -317963.296 0.171 0.216 0.254 0.307	8North -0.136 -0.189 -0.246 -6404390.488 -0.146 -0.207 -0.261 -0.334	-0.502 # 126.01 12 -0.502 # 129.35 41 -0.501 # 132.23 04 -0.501 # 182.50 32 -0.457 # 130.25 18 -0.457 # 133.43 39 -0.457 # 135.44 46 -0.456 # 137.25 47	Distance 0.231 0.296 0.366 6412278.704 0.225 0.299 0.364 0.454	m/day Velocity 0.0166 0.0213 0.0263 460946.5522 0.0162 0.0215 0.0262 0.0326
Set9_1b Set9_1c Set9_1d Set9_2a Set9_2b Set9_2c Set9_2c Set9_2d Set9_3a	East North 317963.5281 6404390.1201 317963.6075 6404390.1147 317963.6005 6404390.1435 0.0000 0.0000 317965.7270 6404394.8626 317965.7860 6404394.8822 317965.8187 6404394.9870 317967.6739 6404399.6756	R.L. 61.9856 65.7988 70.1388 0.0000 62.1346 66.3744 70.1537 75.4964	0.006 0.009 0.012 0.000 0.006 0.008 0.009 0.012	8North -0.001 -0.001 -0.002 0.000 -0.001 -0.002 -0.003 -0.005	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 .000 # #DIV/01 -0.019 # 102.13 30 -0.018 # 103.52 11 -0.017 # 108.36 56 -0.017 # 110.58 25 -0.019 # 114.16 28	0.006 0.009 0.012 0.000 0 0.006 0 0.008 0 0.010 0 0.013	Velocity 0.0235 0.0347 0.0490 0.0000 0.0243 0.0330 0.0397 0.0508	0.187 0.228 0.270 -317963.296 0.171 0.216 0.254 0.307	8North -0.136 -0.189 -0.246 -6404390.488 -0.146 -0.207 -0.261 -0.334 -0.148	-0.502 # 126.0112 -0.502 # 129.35 41 -0.501 # 132.23 04 -0.501 # 182.25 02 -0.457 # 130.25 18 -0.457 # 135.44 46 -0.456 # 137.25 47 -0.407 # 134.35 51	Distance 0.231 0.296 0.366 6412278.704 0.225 0.299 0.364 0.454	m/day Velocity 0.0166 0.0213 0.0263 460946.5522 0.0162 0.0215 0.0262 0.0326 0.0152
Set9_1b Set9_1c Set9_1d Set9_2a Set9_2b Set9_2c Set9_2d Set9_3a Set9_3b Set9_3c	East North 317963.5281 6404390.1201 317963.6754 6404390.1147 317963.6005 6404390.1435 0.0000 0.0000 317965.7270 6404394.8626 317965.8187 6404394.9255 317965.8593 6404394.9870 317967.6739 6404399.6756 317967.6904 6404399.6782 317967.6908 6404399.7209	R.L. 61.9856 65.7988 70.1388 0.0000 62.1346 66.3744 70.1537 75.4964 62.1930 65.6297 70.1261	0.006 0.009 0.012 0.000 0.006 0.008 0.009 0.012	8North -0.001 -0.001 -0.002 0.000 -0.001 -0.002 -0.003 -0.005 -0.002 -0.003 -0.004	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 0.000 # #DIV/0! -0.019 # 102.13 31 -0.018 # 103.52 11 -0.017 # 110.58 25 -0.019 # 1114.16 22 -0.017 # 112.13 03 -0.016 # 116.02 31	0.006 0.009 0.012 0.000 0.006 0.008 0.010 0.013 0.006 0.008 0.008	Velocity 0.0235 0.0347 0.0490 0.0000 0.0243 0.0330 0.0397 0.0508 0.0221 0.0303 0.0387	0.187 0.228 0.270 -317963.296 0.171 0.216 0.254 0.307 0.150 0.179	8North -0.136 -0.189 -0.246 -6404390.488 -0.146 -0.207 -0.261 -0.334 -0.148 -0.196 -0.257	-0.502 # 128.0112 -0.502 # 129.35 41 -0.501 # 132.23 04 -0.501 # 182.50 32 -0.457 # 130.25 18 -0.457 # 135.44 46 -0.456 # 137.25 47 -0.407 # 134.35 51 -0.407 # 137.35 34 -0.406 # 140.44 58	Distance 0.231 0.296 0.366 6412278.704 0.225 0.299 0.364 0.454 0.211 0.266 0.332	m/day Velocity 0.0166 0.0213 0.0263 460946.5522 0.0162 0.0215 0.0262 0.0326 0.0152 0.0191 0.0238
Set9_1b Set9_1c Set9_1d Set9_2a Set9_2b Set9_2c Set9_2c Set9_2d Set9_3a Set9_3b	East North 317963.5281 6404390.1201 317963.5754 6404390.1143 317965.000 6404390.1435 0.0000 0.0000 317965.7270 6404394.8626 317965.7860 6404394.8822 317965.8187 6404394.9375 317967.6739 6404399.6756 317967.6739 6404399.6756 317967.6904 6404399.6782	R.L. 61.9856 65.7988 70.1388 0.0000 62.1346 66.3744 70.1537 75.4964 62.1930 65.6297	0.006 0.009 0.012 0.000 0.006 0.008 0.009 0.012 0.005 0.007 0.009	8North -0.001 -0.001 -0.002 0.000 -0.001 -0.002 -0.003 -0.005 -0.002 -0.003	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 0.000 # #DIV/01 -0.019 # 102.13 30 -0.018 # 103.52 11 -0.017 # 108.36 55 -0.017 # 112.13 00	0.006 0.009 0.012 0.000 0.006 0.008 0.010 0.013 0.006 0.008 0.008	Velocity 0.0235 0.0347 0.0490 0.0000 0.0243 0.0330 0.0397 0.0508	0.187 0.228 0.270 -317963.296 0.171 0.216 0.254 0.307 0.150 0.179	8North -0.136 -0.189 -0.246 -6404390.488 -0.146 -0.207 -0.261 -0.334 -0.148 -0.196	-0.502 # 128.0112 -0.502 # 129.35 41 -0.501 # 132.23 04 -0.501 # 182.50 32 -0.457 # 130.25 18 -0.457 # 133.43 39 -0.457 # 135.44 46 -0.456 # 137.25 47 -0.407 # 134.35 51 -0.407 # 137.35 34	Distance 0.231 0.296 0.366 6412278.704 0.225 0.299 0.364 0.454 0.211	m/day Velocity 0.0166 0.0213 0.0263 460946.5522 0.0162 0.0215 0.0262 0.0326 0.0152 0.0152 0.0191
Set9_1b Set9_1c Set9_1d Set9_21 Set9_2b Set9_2c Set9_2d Set9_3a Set9_3b Set9_3c Set9_3d Test-11	East North 317963.5281 6404390.1201 317963.6754 6404390.1147 317963.6005 6404390.1435 0.0000 0.0000 317965.7270 6404394.8626 317965.8187 6404394.8822 317965.8187 6404394.9255 317967.6739 6404399.6756 317967.6930 6404399.6782 317967.6890 6404399.7203 317967.6890 6404399.7376	R.L. 61.9856 65.7988 70.1388 0.0000 62.1346 66.3744 70.1537 75.4964 62.1930 65.6297 70.1261 75.5872	0.006 0.009 0.012 0.000 0.006 0.008 0.009 0.012 0.005 0.007 0.009	8North -0.001 -0.002 0.000 -0.001 -0.002 -0.003 -0.005 -0.002 -0.003 -0.004 -0.004	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 0.000 # #DIV/0! -0.019 # 102.13 31 -0.018 # 103.52 11 -0.017 # 110.58 25 -0.019 # 1114.16 22 -0.017 # 112.13 03 -0.016 # 116.02 31	0.006 0.009 0.012 0.000 0.006 0.008 0.010 0.013 0.006 0.008 0.008	Velocity 0.0235 0.0347 0.0490 0.0000 0.0243 0.0330 0.0397 0.0508 0.0221 0.0303 0.0387 0.0497	0.187 0.228 0.270 -317963.296 0.171 0.216 0.254 0.307 0.150 0.179	8North -0.136 -0.189 -0.246 -6404390.488 -0.146 -0.207 -0.261 -0.334 -0.148 -0.196 -0.257 -0.327	-0.502 # 128.0112 -0.502 # 129.35 41 -0.501 # 132.23 04 -0.501 # 182.50 32 -0.457 # 130.25 18 -0.457 # 135.44 46 -0.456 # 137.25 47 -0.407 # 134.35 51 -0.407 # 137.35 34 -0.406 # 140.44 58	Distance 0.231 0.296 0.366 6412278.704 0.225 0.299 0.364 0.454 0.211 0.266 0.332	m/day Velocity 0.0166 0.0213 0.0263 460946.5522 0.0162 0.0215 0.0262 0.0326 0.0152 0.0191 0.0238 0.0293
Set9_1b Set9_1c Set9_1d Set9_2d Set9_2b Set9_2c Set9_2c Set9_2d Set9_3a Set9_3b Set9_3c Set9_3c	East North 317963.5281 6404390.1201 317963.6754 6404390.1147 317963.6005 6404390.1435 0.0000 0.0000 317965.7270 6404394.8626 317965.7860 6404394.8822 317965.8593 6404394.9870 317967.6739 6404399.6756 317967.6904 6404399.762 317967.6906 6404399.7209 317967.6906 6404399.7376 2.16:00 PM 25/22010 cmd 25/02/10 1 LW5 Ch= East North	R.L. 61.9856 65.7988 70.1388 70.0000 62.1346 66.3744 70.1537 75.4964 62.1930 65.6297 70.1261 75.5872 94m 988	0.006 0.009 0.012 0.000 0.006 0.008 0.009 0.012 0.005 0.007 0.009 0.011	δNorth -0.001 -0.002 -0.002 -0.001 -0.002 -0.003 -0.005 -0.002 -0.003 -0.004 -0.006 cremental δ	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 0.000 # #DIV/0! -0.019 # 102.13 31 -0.018 # 103.52 11 -0.017 # 108.36 55 -0.017 # 110.58 25 -0.019 # 1114.15 25 -0.016 # 116.02 31 -0.016 # 117.59 31	0.006 0.009 0.012 0.000 0 0.006 0.008 0.010 0 0.013 0 0.013 0 0.006 0 0.008 0 0.010	Velocity 0.0235 0.0347 0.0490 0.0000 0.0243 0.0330 0.0397 0.0508 0.0221 0.0303 0.0387 0.0497 m/day Velocity	0.187 0.228 0.270 -317963.296 0.171 0.216 0.254 0.307 0.150 0.179 0.210 0.243	8North -0.136 -0.189 -0.246 -6404390.488 -0.146 -0.207 -0.261 -0.334 -0.148 -0.196 -0.257 -0.327 Total 8	-0.502 # 126.0112 -0.502 # 129.3541 -0.501 # 132.23 04 -0.501 # 182.50 32 -0.457 # 130.25 18 -0.457 # 135.4446 -0.456 # 137.25 47 -0.407 # 134.35 51 -0.406 # 140.44 58 -0.406 # 143.20 18	Distance 0.231 0.296 0.296 6412278.704 0.225 0.299 0.364 0.454 0.211 0.266 0.332 0.407	m/day Velocity 0.0166 0.0213 0.0263 460946.5522 0.0162 0.0215 0.0262 0.0326 0.0152 0.0193 0.0293 m/day Velocity
Set9_1b Set9_1c Set9_1d Set9_21 Set9_2b Set9_2c Set9_2d Set9_3a Set9_3b Set9_3c Set9_3d Test-11	East North 317963.5281 6404390.1201 317963.6754 6404390.1143 0.0000 6404390.1435 0.0000 0.0000 317965.7270 6404394.8626 317965.7860 6404394.8822 317965.8187 6404394.9870 317967.6739 6404399.6756 317967.6890 6404399.703 317967.6890 6404399.736 21600 PM 25/2/2010 21600 PM 25/2/2010 rnd 25/02/10 1 LW5 Che	R.L. 61.9856 65.7988 70.1388 0.0000 62.1346 66.3744 70.1537 75.4964 62.1930 65.6297 70.1261 94m 988	0.006 0.009 0.012 0.000 0.006 0.008 0.009 0.012 0.005 0.007 0.009 0.011	8North -0.001 -0.001 -0.002 0.000 -0.001 -0.002 -0.003 -0.005 -0.005 -0.002 -0.003 -0.004 -0.004 -0.006 cremental 8	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 0.000 # #DIV/0! -0.019 # 102.13 31 -0.018 # 103.52 11 -0.017 # 108.36 55 -0.017 # 110.58 25 -0.016 # 116.02 31 -0.016 # 117.59 31 8R.L. Hr Bearing -0.204 # 50.58 35 -0.204 # 52.47 40	0.006 0.009 0.012 0.000 0.006 0.008 0.010 0.013 0.006 0.008 0.000 0.010	Velocity 0.0235 0.0347 0.0490 0.0000 0.0243 0.0330 0.0397 0.0508 0.0221 0.0303 0.0387 0.0497 m/day	0.187 0.228 0.270 -317963.296 0.171 0.216 0.254 0.307 0.150 0.179 0.210	8North -0.136 -0.189 -0.246 -6404390.488 -0.146 -0.207 -0.261 -0.334 -0.148 -0.196 -0.257 -0.327	-0.502 # 128.0112 -0.502 # 129.35 41 -0.501 # 132.23 04 -0.501 # 182.50 32 -0.457 # 133.43 39 -0.457 # 133.43 39 -0.457 # 135.44 46 -0.456 # 137.25 47 -0.407 # 134.35 51 -0.407 # 140.44 58 -0.406 # 140.44 58	Distance 0.231 0.296 0.366 6412278.704 0.225 0.299 0.364 0.454 0.211 0.266 0.332 0.407	m/day Velocity 0.0166 0.0213 0.0263 460946.5522 0.0162 0.0215 0.0262 0.0326 0.0152 0.0152 0.0238 0.0293 m/day
Set9_1b Set9_1c Set9_1d Set9_2d Set9_2b Set9_2c Set9_2c Set9_2d Set9_3a Set9_3b Set9_3c Set9_3c Set9_1a Set9_1a Set9_1a Set9_1a Set9_1b Set9_1c	East North 317963.5281 6404390.1201 317963.6754 6404390.1147 317963.6005 6404390.1435 0.0000 0.0000 317965.7270 6404394.8626 317965.7860 6404394.822 317965.8187 6404394.9870 317967.6739 6404399.6756 317967.6904 6404399.6752 317967.6906 6404399.7209 317967.6907 6404399.7209 317967.6908 6404399.7201 2.16:00 PM 25/22010 LW5 Che East North 317963.5988 6404930.1774 317963.6651 6404390.1782 317963.7108 6404390.1724	R.L. 61.9856 65.7988 70.1388 0.0000 62.1346 66.3744 70.1537 75.4964 62.1930 65.6297 70.1261 75.5872 94m 988 R.L. 61.7816 65.5951 69.9352	0.006 0.009 0.012 0.000 0.006 0.008 0.009 0.012 0.005 0.007 0.009 0.011 8East 0.071 0.090 0.1110	8North -0.001 -0.002 -0.001 -0.002 -0.001 -0.002 -0.003 -0.005 -0.002 -0.003 -0.004 -0.006 8North -0.057 -0.068 -0.080	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 0.000 # #DIV/0! -0.019 # 102.13 31 -0.018 # 103.52 11 -0.017 # 110.58 25 -0.019 # 114.16 22 -0.016 # 116.02 31 -0.016 # 117.59 31	0.006 0.009 0.012 0.000 0.006 0.008 0.010 0.013 0.006 0.008 0.010 0.013	Velocity 0.0235 0.0347 0.0490 0.0000 0.0243 0.0337 0.0508 0.0221 0.0303 0.0387 0.0497 m/day Velocity 0.0860 0.1064 0.1285	0.187 0.228 0.270 -317963.296 0.171 0.216 0.254 0.307 0.150 0.210 0.243 8East 0.257 0.318	8North -0.136 -0.189 -0.246 -6404390.488 -0.146 -0.207 -0.261 -0.334 -0.148 -0.196 -0.257 -0.327 Total 8 8North -0.078 -0.120 -0.167	-0.502 # 128.0112 -0.502 # 129.35 41 -0.501 # 132.23 04 -0.501 # 182.50 32 -0.457 # 130.25 18 -0.457 # 133.43 39 -0.457 # 135.44 46 -0.456 # 137.25 47 -0.407 # 134.35 51 -0.406 # 140.44 58 -0.406 # 140.44 58 -0.706 # 106.55 55 -0.706 # 106.55 55 -0.706 # 110.45 41 -0.705 # 113.41 22	Distance 0.231 0.296 0.366 6412278.704 0.225 0.299 0.364 0.454 0.211 0.266 0.332 0.407 Distance 0.269 0.340 0.415	m/day Velocity 0.0166 0.0213 0.0263 460946.5522 0.0162 0.0215 0.0262 0.0326 0.0152 0.0193 m/day Velocity 0.0180 0.0227
Set9_1b Set9_1c Set9_1d Set9_2a Set9_2b Set9_2c Set9_2d Set9_3a Set9_3a Test-11 100225P -last	East North 317963.5281 6404390.1201 317963.5754 6404390.1143 317965.7270 6404391.435 0.0000 0.0000 317965.7270 6404394.8626 317965.7860 6404394.8822 317965.8593 6404394.957 317967.6739 6404399.6756 317967.6890 6404399.6782 317967.6906 6404399.7209 317967.6906 6404399.7201 2:16:00 PM 25/2/2010 LWS Che East North 317963.5988 6404390.1774 317963.5988 6404390.1774 317963.6961 6404390.1828	R.L. 61.9856 65.7988 70.1388 0.0000 62.1346 66.3744 70.1537 75.4964 62.1930 65.6297 70.1261 75.5872 94m 988 R.L. 61.7816 65.5951	0.006 0.009 0.012 0.000 0.006 0.008 0.009 0.012 0.005 0.007 0.009 0.011 Inc 8East 0.071 0.090	8North -0.001 -0.001 -0.002 -0.000 -0.001 -0.002 -0.003 -0.005 -0.002 -0.003 -0.004 -0.006 8North -0.057 -0.068	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 0.000 # #DIV/0! -0.019 # 102.13 31 -0.018 # 103.52 11 -0.017 # 108.36 55 -0.017 # 110.58 25 -0.016 # 116.02 31 -0.016 # 117.59 31 8R.L. Hr Bearing -0.204 # 50.58 35 -0.204 # 52.47 40	0.006 0.009 0.012 0.000 0.006 0.008 0.0013 0.0016 0.003 0.0013	Velocity 0.0235 0.0347 0.0490 0.0000 0.0243 0.0330 0.0397 0.0508 0.0221 0.0303 0.0387 0.0497 m/day Velocity 0.0860 0.1064	0.187 0.228 0.270 -317963.296 0.171 0.216 0.254 0.307 0.150 0.210 0.243 8East 0.257 0.318	8North -0.136 -0.189 -0.246 -6404390.488 -0.146 -0.207 -0.261 -0.334 -0.148 -0.196 -0.257 -0.327 Total 8 8North -0.078 -0.120	-0.502 # 128.0112 -0.502 # 129.35 41 -0.501 # 132.23 04 -0.501 # 182.50 32 -0.457 # 133.43 39 -0.457 # 133.43 39 -0.457 # 133.43 49 -0.456 # 137.25 47 -0.407 # 134.35 51 -0.407 # 140.45 88 -0.406 # 140.45 88 -0.406 # 140.45 88 -0.706 # 106.55 55 -0.706 # 106.55 55	Distance 0.231 0.296 0.366 6412278.704 0.225 0.299 0.364 0.454 0.211 0.266 0.332 0.407 Distance 0.269 0.340 0.415	m/day Velocity 0.0166 0.0213 0.0263 460946.5522 0.0162 0.0215 0.0262 0.0326 0.0152 0.0193 m/day Velocity 0.0180 0.0227
Set9_1b Set9_1c Set9_1d Set9_2d Set9_2b Set9_2c Set9_2d Set9_3a Set9_3b Set9_3c Set9_3d Test-11 100225P-last Set9_1a Set9_1a Set9_1c Set9_1d Set9_1c Set9_1d Set9_1d Set9_1d	East North 317963.5281 6404390.1201 317963.6754 6404390.1147 317963.6005 6404390.1435 0.0000 0.0000 317965.7270 6404394.8626 317965.7860 6404394.822 317965.8593 6404394.9870 317967.6739 6404399.6756 317967.6904 6404399.762 317967.6906 6404399.7209 317967.6907 6404399.7376 2.16:00 PM 25/22010 1.W5 Che East North 317963.6651 6404390.1774 317963.6651 6404390.1724 317963.708 6404390.1724 317963.0651 6404390.1724 317965.8052 6404390.1745	R.L. 61.9856 65.7988 70.1388 0.0000 62.1346 66.3744 70.1537 75.4964 62.1930 65.6297 70.1261 75.5872 94m 988 R.L. 61.7816 65.5951 69.9352 0.0000 61.9033	0.006 0.009 0.012 0.000 0.008 0.009 0.012 0.005 0.007 0.009 0.011 8East 0.071 0.090 0.111 0.090 0.110 0.000	δNorth -0.001 -0.002 -0.001 -0.002 -0.001 -0.002 -0.003 -0.005 -0.002 -0.003 -0.006 -0.006 -0.006 -0.006 -0.006 -0.006 -0.006 -0.006	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 0.000 # #DIV/0! -0.019 # 102.13 31 -0.018 # 103.52 11 -0.017 # 108.36 55 -0.017 # 110.58 25 -0.019 # 114.16 22 -0.016 # 116.02 31 -0.016 # 117.59 31 8R.L. Hr Bearing -0.204 # 55.58 35 -0.204 # 55.58 35 -0.204 # 55.24 740 -0.204 # 54.10 60 0.000 # #DIV/0! -0.231 # 55.25 23	0.006 0.009 0.012 0.000 0.006 0.008 0.010 0.013 0.013 0.006 0.008 0.010 0.013	Velocity 0.0235 0.0347 0.0490 0.0000 0.0243 0.0337 0.0508 0.0221 0.0303 0.0387 0.0497 m/day Velocity 0.0860 0.1064 0.1285 0.0000 0.0897	0.187 0.228 0.270 -317963.296 0.171 0.216 0.254 0.307 0.159 0.210 0.243 8East 0.257 0.318 0.380 -317963.296	8North -0.136 -0.189 -0.246 -6404390.488 -0.146 -0.207 -0.261 -0.334 -0.148 -0.196 -0.257 -0.327 Total 8 8North -0.078 -0.120 -0.167 -6404390.488	-0.502 # 126.0112 -0.502 # 129.35 41 -0.501 # 132.23 04 -0.501 # 182.50 32 -0.457 # 130.25 18 -0.457 # 133.43 39 -0.457 # 135.44 46 -0.456 # 137.25 47 -0.407 # 134.35 51 -0.406 # 140.44 58 -0.406 # 140.44 58 -0.706 # 106.55 55 -0.706 # 106.55 55 -0.706 # 110.45 41 -0.705 # 182.50 32 -0.688 # 110.14 27	Distance 0.231 0.296 0.296 6412278.704 0.225 0.299 0.364 0.454 0.211 0.266 0.332 0.407 Distance 0.269 0.340 0.415 6412278.704	m/day Velocity 0.0166 0.0213 0.0263 460946.5522 0.0162 0.0215 0.0262 0.0326 0.0152 0.0193 m/day Velocity 0.0180 0.0227 0.0278 428357.8277 0.0178
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Set9_1b Set9_1c Set9_1d Set9_2a Set9_2b Set9_2c Set9_2d Set9_3a Set9_3c Set9_3d Test-11 100225P-last Set9_1c Set9_1c Set9_1c Set9_1c Set9_1c Set9_1d Set9_1c Set9_1d Set9_1d Set9_1d Set9_1d Set9_2a Set9_2a Set9_2a	East North 317963.5281 6404390.1201 317963.5754 6404390.11435 0.0000 6004390.11435 0.0000 0.0000 317965.7270 6404394.8822 317965.8187 6404394.9873 317965.8593 6404399.955 317967.6739 6404399.6756 317967.6890 6404399.762 216.00 PM 25/2/2010 LW5 Ch= East North 317963.5988 6404390.1774 317963.5988 6404390.1774 317963.7108 6404390.1828 317965.8052 6404390.1231 0.0000 0.0000 317965.8054 6404394.9165 317965.8054 6404394.9165 317965.8054 6404394.9165 317965.8054 6404394.9165 317965.8054 6404394.9165 317965.8064 6404394.9165 317965.7058 6404395.0743 317967.7585 6404399.7221	R.L. 61.9856 65.7988 70.1388 70.1388 70.1387 66.3744 70.1537 75.4964 62.1930 65.6297 70.1261 75.5872 94m 988 R.L. 61.55951 69.9352 0.0000 61.9033 66.1448 69.9237 75.2670 61.9385	0.006 0.009 0.012 0.000 0.006 0.008 0.009 0.012 0.005 0.007 0.009 0.011 Inc 8East 0.071 0.090 0.110 0.000 0.078 0.102 0.125 0.157	8North -0.001 -0.002 -0.001 -0.002 -0.003 -0.005 -0.002 -0.003 -0.006 -0.006 8North -0.057 -0.068 -0.069 -0.057 -0.068 -0.069 -0.057 -0.068 -0.069 -0.057 -0.068 -0.069 -0.057 -0.068 -0.069 -0.059 -0	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 -0.000 # #DIV/01 -0.019 # 102.13 31 -0.018 # 103.52 11 -0.017 # 108.36 55 -0.017 # 110.58 22 -0.016 # 114.16 22 -0.016 # 116.02 31 -0.016 # 117.59 31 8R.L. Hr Bearing -0.204 # 50.58 35 -0.204 # 54.10 60 -0.000 # #DIV/01 -0.231 # 55.25 23 -0.230 # 57.33 15 -0.230 # 57.33 15 -0.230 # 50.05 88 -0.229 # 60.52 38 -0.255 # 61.12 17	0.006 0.009 0.012 0.000 0.006 0.008 0.0013 0.0013 0.0013 0.010 0.013	Velocity 0.0235 0.0347 0.0490 0.0000 0.0243 0.0330 0.0397 0.0508 0.0221 0.0303 0.0387 0.0497 m/day Velocity 0.0860 0.1064 0.1285 0.0000 0.0897 0.1147 0.1382 0.1695	0.187 0.228 0.270 -317963.296 0.171 0.216 0.254 0.307 0.150 0.210 0.243 8East 0.257 0.318 0.380 -317963.296 0.319 0.319	8North -0.136 -0.189 -0.246 -6404390.488 -0.146 -0.207 -0.261 -0.334 -0.148 -0.196 -0.257 -0.327 Total δ 8North -0.078 -0.120 -0.167 -6404390.488 -0.092 -0.142 -0.185 -0.247 -0.102	-0.502 # 128.0112 -0.502 # 129.35 41 -0.501 # 132.23 04 -0.501 # 182.50 32 -0.457 # 133.43 39 -0.457 # 133.43 39 -0.457 # 133.43 35 -0.407 # 137.35 34 -0.406 # 140.44 58 -0.406 # 143.20 18 BR.L. Hr Bearing -0.706 # 106.55 55 -0.706 # 104.54 12 -0.705 # 182.50 32 -0.688 # 110.14 27 -0.688 # 110.14 27 -0.688 # 118.50 13 -0.685 # 118.01 44	Distance 0.231 0.296 0.366 6412278.704 0.225 0.299 0.364 0.454 0.211 0.266 0.332 0.407 Distance 0.269 0.340 0.415 6412278.704 0.266 0.349 0.402	m/day Velocity 0.0166 0.0213 0.0263 460946.5522 0.0162 0.0215 0.0262 0.0326 0.0152 0.0191 0.0238 0.0293 m/day Velocity 0.0182 0.0227 0.0278 428357.8277 0.0178 0.0232 0.02351
Set9_1b Set9_1c Set9_1c Set9_1d Set9_2a Set9_2b Set9_2c Set9_2d Set9_3b Set9_3b Set9_3c Set9_3d Test-11 100225P-last Set9_1a Set9_1b Set9_1c Set9_1c Set9_1c Set9_2c Set9_2d Set9_2d	East North 317963.5281 6404390.1201 317963.5754 6404390.1143 0.0000 6404390.1435 0.0000 0.0000 317965.7270 6404394.8626 317965.7860 6404394.852 317965.8187 6404394.957 317967.6739 6404399.6756 317967.6890 6404399.7203 317967.6890 6404399.7203 317967.6890 6404399.7205 2:16:00 PM 25/2/2010 rmd 25/02/10 1 LVK 5 Che LWS Che East North 317965.8988 6404390.1228 317965.8980 6404390.2231 0.0000 0.0000 317965.8052 6404394.9165 317965.8984 6404394.9473 317965.9441 6404395.0008 317966.0160 6404395.0743	R.L. 61.9856 65.7988 70.1388 0.0000 62.1346 66.3744 70.1537 75.4964 62.1930 65.6297 70.1261 75.5872 94m 988 R.L. 61.7816 65.5951 69.9352 0.0000 61.9033 66.1448 69.9237 75.2670	0.006 0.009 0.012 0.000 0.006 0.008 0.009 0.012 0.005 0.007 0.009 0.011 Inc 8East 0.071 0.090 0.110 0.000 0.078 0.102 0.125 0.157	8North -0.001 -0.002 -0.001 -0.002 -0.003 -0.005 -0.002 -0.003 -0.006 8North -0.057 -0.068 -0.080 -0.006 -0.0065 -0.005 -0.0068 -0.006	-0.019 # 95.48 24 -0.018 # 97.12 22 -0.017 # 99.46 00 -0.000 # #DIV/01 -0.019 # 102.13 31 -0.018 # 103.52 11 -0.017 # 108.36 56 -0.017 # 110.58 22 -0.016 # 114.16 26 -0.016 # 116.02 31 -0.016 # 117.59 31 8R.L. Hr Bearing -0.204 # 50.58 35 -0.204 # 55.47 40 -0.204 # 54.10 60 -0.204 # 54.10 60 -0.203 # 55.25 23 -0.230 # 57.33 15 -0.230 # 55.05 88 -0.229 # 60.52 38	0.006 0.009 0.012 0.000 0.006 0.008 0.0013 0.0016 0.008 0.010 0.013 0.010 0.013 Distance 0.091 0.113 0.136 0.000 0.095 0.121 0.146 0.179	Velocity 0.0235 0.0347 0.0490 0.0000 0.0243 0.0330 0.0397 0.0508 0.0221 0.0303 0.0387 0.0497 m/day Velocity 0.0860 0.1064 0.1285 0.0000 0.0897 0.1147 0.1382 0.1695	0.187 0.228 0.270 -317963.296 0.171 0.216 0.254 0.307 0.150 0.210 0.243 8East 0.257 0.318 0.390 -317963.296 0.390 -317963.296	8North -0.136 -0.189 -0.246 -6404390.488 -0.146 -0.207 -0.261 -0.334 -0.148 -0.196 -0.257 Total δ 8North -0.078 -0.120 -0.167 -6404390.488 -0.092 -0.167 -6404390.488 -0.092 -0.142 -0.185 -0.247	-0.502 # 128.0112 -0.502 # 129.35 41 -0.501 # 132.23 04 -0.501 # 182.50 32 -0.457 # 133.43 39 -0.457 # 133.43 39 -0.457 # 133.43 39 -0.457 # 133.43 35 -0.406 # 137.25 47 -0.406 # 140.44 58 -0.406 # 140.44 58 -0.706 # 106.55 55 -0.706 # 110.45 27 -0.705 # 113.43 12 -0.686 # 110.14 27 -0.688 # 110.14 27 -0.686 # 115.9 19 -0.687 # 116.02 13 -0.685 # 118.01 44	Distance 0.231 0.296 0.366 6412278.704 0.225 0.299 0.364 0.454 0.211 0.266 0.332 0.407 Distance 0.269 0.340 0.415 6412278.704 0.266 0.349 0.422 0.525	m/day Velocity 0.0166 0.0213 0.0263 460946.5522 0.0162 0.0215 0.0262 0.0326 0.0152 0.0191 0.0238 0.0293 m/day Velocity 0.0180 0.0227 0.0278 428357.8277 0.078 0.0783 0.0282 0.0351



East March East
19-21 19-22 19-2
Sept. 1779-1774 Goldstart (1779-1774
Sept 1
Per 20 377965289 POLSTON P
Per 20 377965289 POLSTON P
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Section Sect
See 3 37997827 6624930787 662493277 66249 66240 6624 6625 66249
Secolar 317987 9859 64649093455 697490 0.006 0.017 0.018 3.006 9 0.005 0.005 0.005 0.007 0.018 0.0077 0.018 0.0077 0.018 0.0077 0.018 0.0077 0.018 0.0077 0.018 0.0077 0.018 0.0077 0.018 0.0078 0.008 0.0078 0.008 0.0078 0.008 0.0
Fig. 1
Sep 13 3779618670 6469031176 647974
Seg 1 317962/3926 (SASSIGNOVE) 69.7116 71.314 178.016 (SASSIGNOVE) 64.925
Sept 1979 317903 300 40049 4014 3005 5005
Serg 22 317968 303 644935 0054 0.0081 0.008 0.014 3.04.30 0.129 0.0221 0.418 0.008 0.004 0.008 0.008 0.010 0.014 3.04.30 0.022 0.025 0.025 0.007 0.008 0.004 0.008 0
Sept 2 317966 303 0 64045 65045 65045 65045 66773 60670 6078 60773 6068 60773 60773 6068 60773 60
Employ 24 317680 0.028 0.028
Serig 3a 317987_3846 6401998.8542 616.654 0.049 0.089 0.164 28.0417 0.100 0.0222 0.321 0.030 0.955 84.3743 0.323 0.569 317987_3826 6401998.8889 640198.88897 640198.8897 640198.88897 640198.8897 64019
Serg 3 317987.78208 640-1098.888 66.0810 0.056 0.102 0.016 2.024 0.016 0.0252 0.052 0.052 0.004 0.005 0.007 0.055 0.002 0.057 0.023 0.007 0.057 0.003 0.007 0.
Serg 3 377987/2802 6004998/889 60.6010 0.005 0.102 0.106 2.28.14 07 0.116 0.0224 0.362 0.014 0.365 2.78.92 0.382 0.014 0.365 2.78.92 0.382 0.015 0.365 0.005 0.107 0.106 2.28.92 0.005 0.505 0.005 0.005 0.005 0.107 0.006 0.005 0.107 0.006 0.005
Sep 3 31967 3922 31967 3922 3927 3922 3927 3923 3927 3922 3923 3924 3922 3924 3922 3924 3924 3922 3922 3924 3922
Test-14
East North R.L. SEast Section Sect
Set 1.0 317950.8888 (64-04390.3284 61.5251 0.022 0.044 0.042 27.36 f.4 0.049 0.0032 0.048 0.073 0.9682 78.12 f.2 0.356 0.5819.1 0.0587.78756 (640-050.485) 61.6535 0.005 0.0043 0.040 2.040 27.15 f.4 0.050 0.0033 0.049 0.026 0.0625 0.0622 0.051 0.0622 0.051 0.052 0.050 0.000 0.0000 0
Set 1.0 317963.7896 640-930.3541 65.3934 0.026 0.043 0.040 0.046 0.047 0.715 24.0055 0.0033 0.452 0.056 0.062 0.862 0.868 0.568 0.050 0.055 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0033 0.059 0.0035 0.059 0.0033 0.059 0.0059 0.0035 0.059 0.0035 0.059 0.0035 0.0059 0.0035 0.0059 0.0035 0.0059 0.0059 0.0035 0.0059
Set 1
Set9_2_8 317965.0746 F404580.548 61.055
Set 2.5 37966.0816 5404395.2146 66.8462 0.029
Set 2
Set9_3.8 3 17967.8786 6404399.942 61.95932 0.026 0.050 -0.052 # 27.39 16 0.056 0.0337 0.347 0.080 -1.007 # 77.00 02 0.357 0.52 19.3 3 17967.8786 640400.0867 0.6528 0.029 0.029 0.009 0.0090 0.0040 0.467 0.047 0.066 -1.007 # 80.53 03 0.416 0.055 19.3 24 37769.6816.40400.0867 74.9870 0.041 0.045 -0.050 # 34.2 44.5 0.061 0.0040 0.576 0.022 -1.006 # 87.45.45 0.576 0.021 0.0416 0.045 0.050 # 34.2 44.5 0.061 0.0040 0.576 0.022 -1.006 # 87.45.45 0.576 0.021 0.0416 0.045 0.050 # 42.24.45 0.061 0.0040 0.576 0.022 -1.006 # 87.45.45 0.576 0.021 0.0416 0.045 0.050 # 42.24.45 0.061 0.0040 0.576 0.022 -1.006 # 87.45.45 0.576 0.021 0.0416 0.045 0.050 # 42.24.45 0.061 0.0040 0.576 0.022 -1.006 # 87.45.45 0.576 0.021 0.0416 0.005 0.00
Set 3
Set 3
Serign 31 37968.0224 6014400.0887 74.9870 0.041 0.045 0.050 # 42.24 45 0.061 0.0040 0.576 0.022 -1.006 # 87.45 45 0.576 0.016 1.00416 0.005 0.0000 0.0041 0.005 0.0000 0.006 0.006 0.005
Test-15
Fast North R.L. SEast SNorth SR.L. Hr Bearing Distance Velocity Seast SNorth SR.L. Hr Bearing
Set 9_1a 317986.8934 6404390.3417 61.5134 0.004 0.013 -0.012 115.08 45 0.014 0.005 0.352 0.086 -0.974 7.515 47 0.362 0.055 0.055 0.029 -0.014 10.274 0.029 0.0010 0.427 0.080 -0.975 79.26 51 0.435 0.555 0.055 0.005 0.005 0.005 0.005 0.005 0.0020 0.506 0.085 -0.976 80.3010 0.513 0.055 0.016 0.035 0.010 0.513 0.055 0.016 0.085 0.976 80.3010 0.513 0.055 0.016 0.085 0.976 80.3010 0.513 0.055 0.016 0.085 0.099 7.52.95 79.26 51 0.355 0.055 0.016 0.085 0.099 7.52.95 79.26 51 0.355 0.055 0.016 0.085 0.016 0.085 0.016 0.085 0.016 0.016 0.017 0.017 0.005 0.005 0.0003 0.506 0.106 0.099 7.52.95 0.056 0.005 0
Set 1.0 317963.7748 \$6404390.3328 \$65.3255 0.005 0.022 0.014 \$10.2746 0.029 0.0010 0.427 0.080 0.0975 \$79.25 51 0.435 0.513 0.513 0.513 0.714 0.014 0.127 0.0014 0.127 0.002 0.002 0.000 0.005 0.0976 8.0301 0.513 0.0513 0.0513 0.0513 0.0513 0.0514 0.003 0.058 0.004 0.014 0.005 0.0071 0.004 0.012 0.0071 1.59 59 0.0112 0.0039 0.0003 0.596 0.005 0.0976 8.0301 0.513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0514 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0514 0.0513 0.0513 0.0513 0.0513 0.0513 0.0513 0.0514 0.0
Set9_12 317963.8926 6404390.5941 75.0751 0.004 0.112 -0.017 # 1.59 59 0.112 0.0039 0.596 0.106 -0.978 # 79.54 45 0.606 0.556 0.556 0.106 -0.978 # 79.54 45 0.606 0.556 0.106 -0.978 # 79.54 45 0.606 0.556 0.106 -0.978 # 79.54 45 0.606 0.556 0.106 -0.978 # 79.54 45 0.606 0.556 0.008 0.003 0.353 0.085 -0.999 # 76.29 42 0.364 0.056 0.056 0.056 0.005 0.007 -0.014 # 323.23 35 0.009 0.0003 0.437 0.062 -1.000 # 81.52 45 0.441 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.052 1.000 # 81.52 45 0.441 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.052 0.057 0.056 0.056 0.056 0.056 0.024 -1.002 # 85.717 0.507 0.507 0.056 0.
Set9_2a 317965.9092 6404395.0934 61.5933 0.002 0.009 -0.012 # 11.49 17 0.009 0.0003 0.353 0.085 -0.999 # 76.29 42 0.364 0.365 0.364 0.365 0.36
Seto 2c
Set
Setg_3a 317967.8725 6404399.9130 61.5788 0.002 0.009 -0.014 10.56 02 0.009 0.0003 0.349 0.089 -1.022 75.41 51 0.360 0.551 0.360 0.551 0.360 0.551 0.360 0.0002 0.407 0.0071 -1.022 80.02 02 0.413 0.0005 0.458 0.046 -1.023 84.21 17 0.471 0.0005 0.458 0.046 -1.023 84.21 17 0.471 0.0005 0.0006 0.468 0.046 -1.023 84.21 17 0.471 0.0005 0.0006 0.468 0.046 -1.023 84.21 17 0.471 0.0005 0.0006 0.468 0.046 -1.023 84.21 17 0.471 0.0006 0.0009 0.018 259.31 18 0.047 0.0016 0.529 0.014 -1.025 88.29 46 0.530 0.000076 0.0006 0.0009 0.018 259.31 18 0.047 0.0016 0.529 0.014 -1.025 88.29 46 0.530 0.000076 0.0006 0.0009 0.018 0.0009 0.018 0.0009 0.018 0.0009 0.018 0.0009
Set9_3b 317967.9181 6404399.9459 65.0149 -0.004 -0.006 -0.015 # 325.50 25 0.007 0.0002 0.407 0.071 -1.022 # 80.02 02 0.413 0.519 0.519 0.006 0.515 0.007 0.0006 0.468 0.046 -1.023 # 84.21 17 0.471 0.518 0.046 -0.009 -0.018 # 259.31 18 0.047 0.0016 0.529 0.014 -1.025 # 84.21 17 0.471 0.006 0.529 0.014 -1.025 # 88.29 46 0.530 0.014 -1.025 # 88.29 46 0.028 # 134.47 49 0.040 0.0005 0.380 0.058 -1.002 # 81.20 20 0.384 0.05 0.058 -1.002 # 81.20 20 0.384 0.05 0.058 0.058 -1.002 # 81.20 20 0.384 0.05 0.058 0.058 -1.002 # 81.20 20 0.384 0.058 0.058 -1.002 # 81.20 20 0.384 0.058 0.058 0.058 -1.002 # 81.20 20 0.384 0.058
Set 9 3 317967.9476 6404400.0741 69.5092 -0.019 -0.001 -0.017 268.27 37 0.019 0.0006 0.468 0.046 -1.023 84.21 17 0.471 0.5
Seto 3d 317967.9769 6404400.0781 74.9688 -0.046 -0.009 -0.018 # 259.31 18 0.047 0.0016 0.529 0.014 -1.025 # 88.29 46 0.530 0.078
Total 6
East North R.L. 8East 8North R.L. 0.028 -0.028 -0.028 -0.028 134.47 49 0.040 0.0005 0.380 0.058 -1.002 81.20 20 0.384 0.058 0.058 -1.002 81.20 20 0.384 0.058 0.058 -1.002 81.20 20 0.384 0.058 0.058 0.058 -1.002 81.20 20 0.384 0.058 0.058 0.058 -1.002 81.20 20 0.384 0.058 0.
Set9_1a 317963.7217 6404390.3136 61.4852 0.028 -0.028 -0.028 134.47 49 0.040 0.0005 0.380 0.058 -1.002 # 81.20 20 0.384 0.058 0.059 -0.029 0.027 # 135.29 60 0.040 0.0005 0.380 0.058 -1.002 # 81.20 20 0.384 0.058 0.059 0.058 -1.002 # 81.20 20 0.384 0.058 0.042 0.0005 0.456 0.051 -1.003 # 83.39 06 0.459 0.058 0.058 -0.059 -0.028 # 135.711 6 0.042 0.0005 0.535 0.055 -1.004 # 84.103 8 0.538 0.538 0.538 0.538 0.538 0.538 0.538 0.538 0.538 0.538 0.555 -0.055 -1.004 # 84.103 8 0.538 0.538 0.555 -0.055 -1.004 # 84.103 8 0.538 0.538 0.589 0.004 0.006 0.630 0.075 -1.006 # 83.112 4 0.634 0.0 0.007 0.008 0.007 -1.007 # 84.134 0.0 0.007 0.008 0.075 -1
Set9_1b 317963.8032 6404390.3539 65.2982 0.028 -0.029 -0.027 # 135.29 60 0.041 0.0005 0.456 0.051 -1.003 # 83.39 06 0.459 0.588 0.51 -1.003 # 83.39 06 0.459 0.588 0.0005 0.535 0.055 -1.004 # 84.410 38 0.538 0.058 0.075 -1.006 # 83.11 24 0.634 0.538 0.055 0.0006 0.630 0.075 -1.006 # 83.11 24 0.634 0.538 0.055 0.055 -1.007 # 81.41 48 0.634 0.055 5.555 0.055 -1.006 # 83.11 24 0.634 0.006 0.630 0.075 -1.006 # 83.11 24 0.634 0.005 0.535 0.055 -1.006 # 83.11 24 0.634 0.005 0.006 0.630 0.075 -1.006 # 83.11 24 0.634 0.005 0.006 0.005 0.383 0.066 -1.027 # 81.414 0.387 0.005 0.383 0.065 0.031 0.005 <th< td=""></th<>
Set9_1d 317963.9259 6404390.5632 75.0470 0.033 -0.031 -0.028 # 132.51 33 0.045 0.0006 0.630 0.075 -1.006 # 83.11 24 0.634 0.634 0.650 Set9_2a 317965.9387 6404395.0644 61.5649 0.030 -0.029 -0.028 # 134.30 37 0.041 0.0005 0.383 0.066 -1.027 # 81.41 46 0.387 0.05 0.94 0.0005 0.468 0.031 -1.028 # 86.08 58 0.469 0.05 0.468 0.031 -1.028 # 86.08 58 0.469 0.05 0.468 0.031 -1.028 # 86.08 58 0.469 0.05 0.468 0.031 -1.028 # 86.08 58 0.469 0.05 0.468 0.031 -1.028 # 86.08 58 0.469 0.05 0.468 0.031 -1.028 # 86.08 58 0.469 0.05 0.468 0.031 -1.028 # 86.08 58 0.469 0.05 0.468 0.031 -1.028 # 86.08 58 0.469 0.05 0.468 0.031 -1.028 # 80.433 0.539 0.09 -1.029 # 80.433 0.539 0.007
Set9_2a
Set9_2b 317966.0377 6404395.1206 65.8032 0.031 -0.031 -0.028 # 134.26 50 0.044 0.0005 0.468 0.031 -1.028 # 86.08 58 0.469 0.05 0.09 -1.029 # 89.04 33 0.539 0.09 -1.029 # 89.04 33 0.539 0.09 -1.029 # 89.04 33 0.539 0.05 0.09 -1.029 # 89.04 33 0.539 0.06 0.0007 0.637 -0.033 -1.028 # 92.57 56 0.638 0.0 Set9_3a 317967.9463 6404399.8339 61.515 0.028 -0.029 -0.027 # 135.53 59 0.041 0.0005 0.377 0.060 -1.049 # 80.58 45 0.382 0.0 Set9_3b 317967.9463 6404399.9157 64.9866 0.028 -0.030 -0.028 # 136.57 41 0.041 0.0005 0.435 0.041 -1.050 # 88.18 34 0.488 Set9_3c 317967.9772 6404399.925 69.4821 0.030 -0.032 -0.027 # 136.46 31 0.0
Set9_2c 317966.1041 6404395.1948 69.5812 0.034 -0.033 -0.027 # 134.29 02 0.047 0.0006 0.539 0.009 -1.029 # 88.04 33 0.539 0.05 Set9_2d 317966.1894 6404395.2881 74.9246 0.039 -0.045 -0.025 # 139.11 29 0.060 0.0007 0.637 -0.033 -1.028 # 82.57 56 0.638 0. Set9_3a 317967.9007 6404399.8339 61.5515 0.028 -0.029 -0.027 # 135.53 59 0.041 0.0005 0.377 0.060 -1.049 # 80.58 45 0.382 0. Set9_3b 317967.9463 6404399.9157 64.9866 0.028 -0.030 -0.028 # 136.57 41 0.041 0.0005 0.435 0.041 -1.050 # 84.134 40 0.437 0. Set9_3c 317967.9772 6404399.9925 69.4821 0.030 -0.022 * -0.027 # 136.46 31 0.043 0.0005 0.498 0.015 * -1.050 # 88.18 34 0.498
Set9_3a 317967.9007 6404399.8839 61.5515 0.028 -0.029 -0.027 # 135.53 59 0.041 0.0005 0.377 0.060 -1.049 # 80.58 45 0.382 0.5519_3b 317967.9463 6404399.9157 64.9866 0.028 -0.030 -0.028 # 136.57 41 0.041 0.0005 0.435 0.041 -1.050 # 84.34 40 0.437 0.5519_3c 317967.9772 6404399.9925 69.4821 0.030 -0.032 -0.027 # 136.46 31 0.043 0.0005 0.498 0.015 -1.050 # 88.18 34 0.
Set9_3b 317967.9463 6404399.9157 64.9866 0.028 -0.030 -0.028 # 136.57 41 0.041 0.0005 0.435 0.041 -1.050 # 84.34 40 0.437 0.0 Set9_3c 317967.9772 6404399.9925 69.4821 0.030 -0.032 -0.027 # 136.46 31 0.043 0.0005 0.498 0.015 -1.050 # 88.18 34 0.498 0.0
Set9_3c 317967.9772 6404399.9925 69.4821 0.030 -0.032 -0.027 # 136.46.31 0.043 0.005 0.498 0.015 -1.050 # 88.18.34 0.498 0.
Set9_3d 317968.0107 6404400.0450 74.9422 0.034 -0.033 -0.027 # 134.24 02 0.047 0.0006 0.563 -0.019 -1.051 # 91.57 09 0.564 0.0000 0.563
Test-17 11:00:00 AM 29/7/2010 -123m Incremental δ m/day Total δ m 100729 LW6 Ch= 2586 <
East North R.L. SEast SNorth SR.L. Hr Bearing Distance Velocity Seast SN
Set9_1b 317963.8127 6404390.3520 65.3005 0.009 -0.002 0.002 # 101.18 36 0.010 0.0004 0.465 0.049 -1.000 # 84.00 41 0.468 0.0004
Set9_1c 317963.8739 6404390.4449 69.6383 0.008 0.000 0.002 # 87.52 44 0.008 0.0003 0.544 0.055 -1.002 # 84.13 55 0.546 0.0 Set9_1d 317963.9321 6404390.5676 75.0498 0.006 0.004 0.003 # 54.38 15 0.008 0.0003 0.636 0.080 -1.003 # 82.51 54 0.641 0.0
Set9_2a 317965.9483 6404395.0620 61.5685 0.010 -0.002 0.004 104.0210 0.010 0.0004 0.393 0.053 -1.023 # 82.14 24 0.396 0.1 Set9_2b 317966.0471 6404395.1191 65.8060 0.009 -0.002 0.003 # 99.03 59 0.010 0.0004 0.477 0.030 -1.025 # 86.24 15 0.478 0.0
Set9_2c 317966.1127 6404395.1947 69.5838 0.009 0.000 0.003 # 90.39 58 0.009 0.0004 0.548 0.009 -1.027 # 89.06 03 0.548 0.
Set9_2d 317966.1966 6404395.2933 74,9297 0.007 0.005 0.005 # 54.09 44 0.009 0.0004 0.644 -0.028 -1.023 # 92.28 16 0.645 0.1
Set9_3a 317967.9102 6404399.8819 61.5552 0.009 -0.002 0.004 # 101.53 19 0.010 0.0004 0.387 0.058 -1.045 # 81.29 12 0.391 0.
Set9_3b 317967.9560 6404399.9144 64.9897 0.010 -0.001 0.003 # 97.37 60 0.010 0.0004 0.445 0.040 -1.047 # 84.51 41 0.447 0.1 Set9_3c 317967.9864 6404399.9924 69.4844 0.009 0.000 0.002 # 90.37 22 0.009 0.0004 0.507 0.015 -1.048 # 88.21 05 0.508 0.0