

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:

- a) 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**.

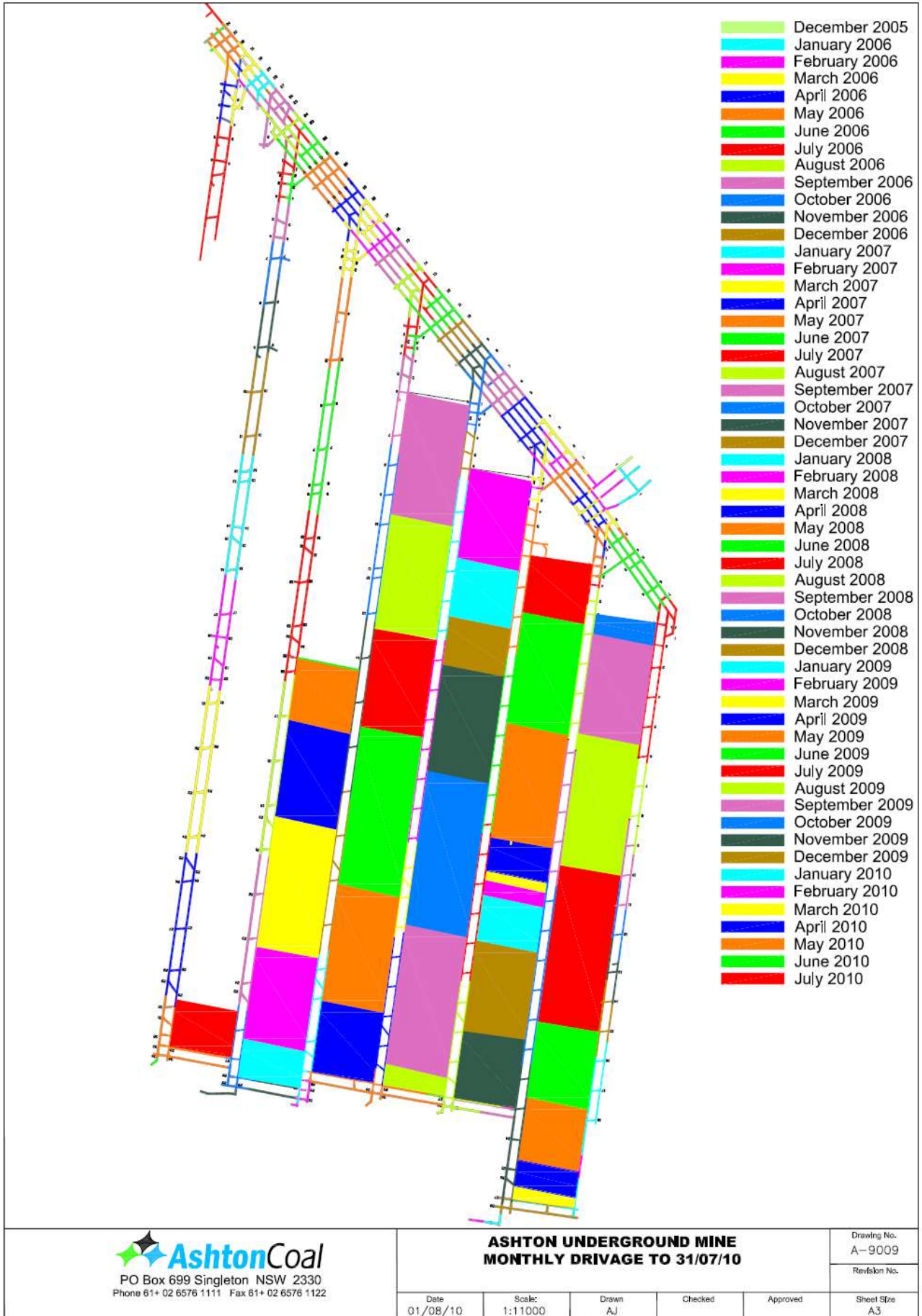


Figure 1: Progression of Longwall Extraction

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.

UNDERGROUND COAL MINE

Table 1: Subsidence of Mined Longwall Panels - Predicted vs. Actual (SCT End of Panel Subsidence Report, 2010)

	Maximum Predicted EIS	Maximum Predicted SMP	Maximum 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	XL5	
Subsidence (mm)	1690	1600	1296	1513	1266	
Tilt (mm/m)	91	102	40	82	78	
Horizontal Movement (mm)	-	300-500	440	298	390	
Tensile Strain (mm/m)	12	30	17	16	11	
Compressive Strain (mm/m)	18	41	16	32	28	
Longwall 3			CL1	CL2	XL5	
Subsidence (mm)	1500	1600	1420	1354	1429	
Tilt (mm/m)	65	78	41	48	97	
Horizontal Movement (mm)	-	300-500	463	345	394	
Tensile Strain (mm/m)	9	23	10	17	22	
Compressive Strain (mm/m)	13	31	7	18	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	XL5	
Subsidence (mm)	1430	1600	1266	1326	1376	
Tilt (mm/m)	29	78	23	29	35	
Horizontal Movement (mm)	-	300-500	399	339	360	
Tensile Strain (mm/m)	4	23	21	6	5	
Compressive Strain (mm/m)	5	31	9	8	17	

UNDERGROUND COAL MINE

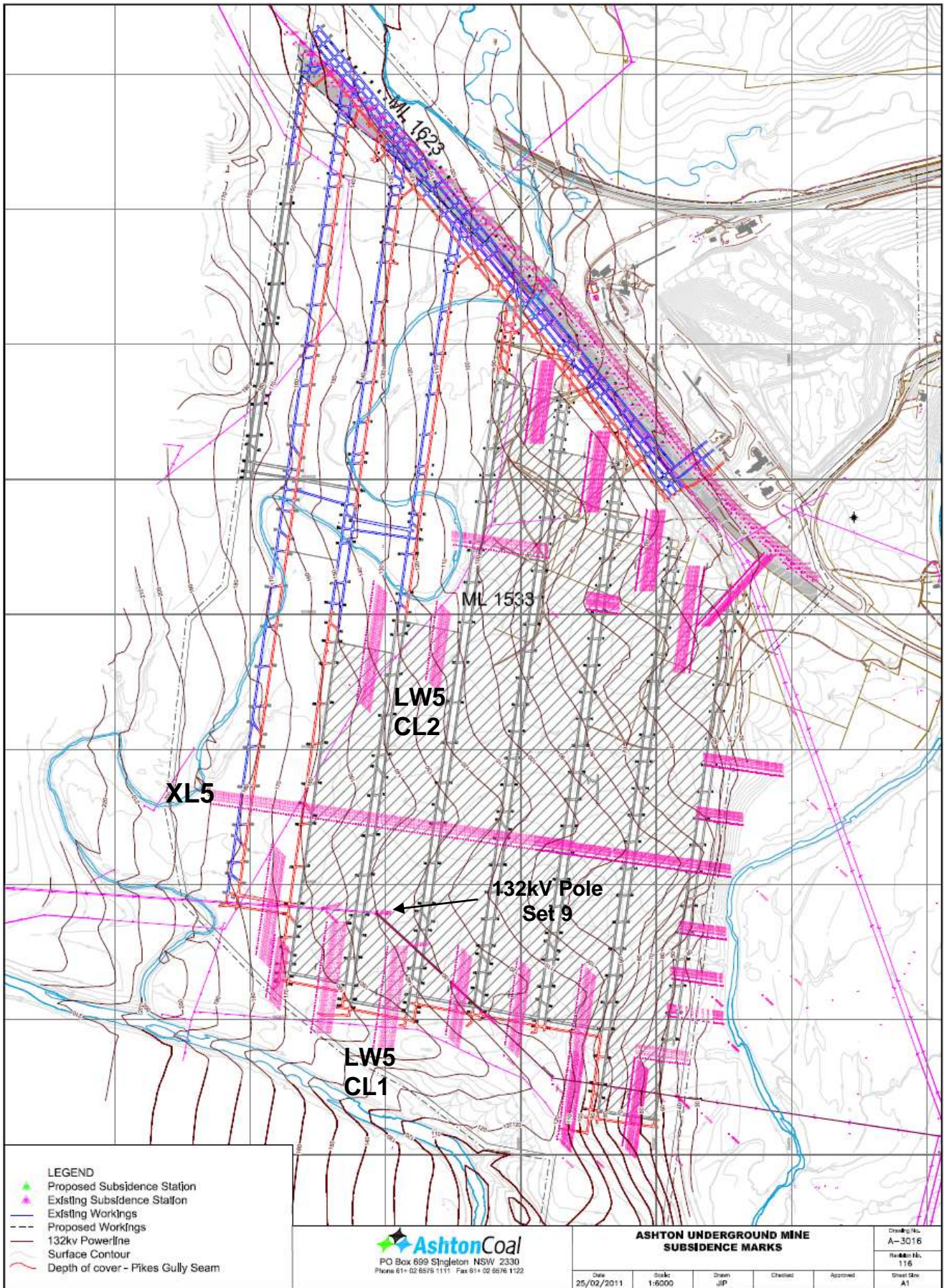


Figure 2: Plan location of Monitoring Cross Lines. Also shown is the 132kV power line monitoring points.

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.

UNDERGROUND COAL MINE

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.

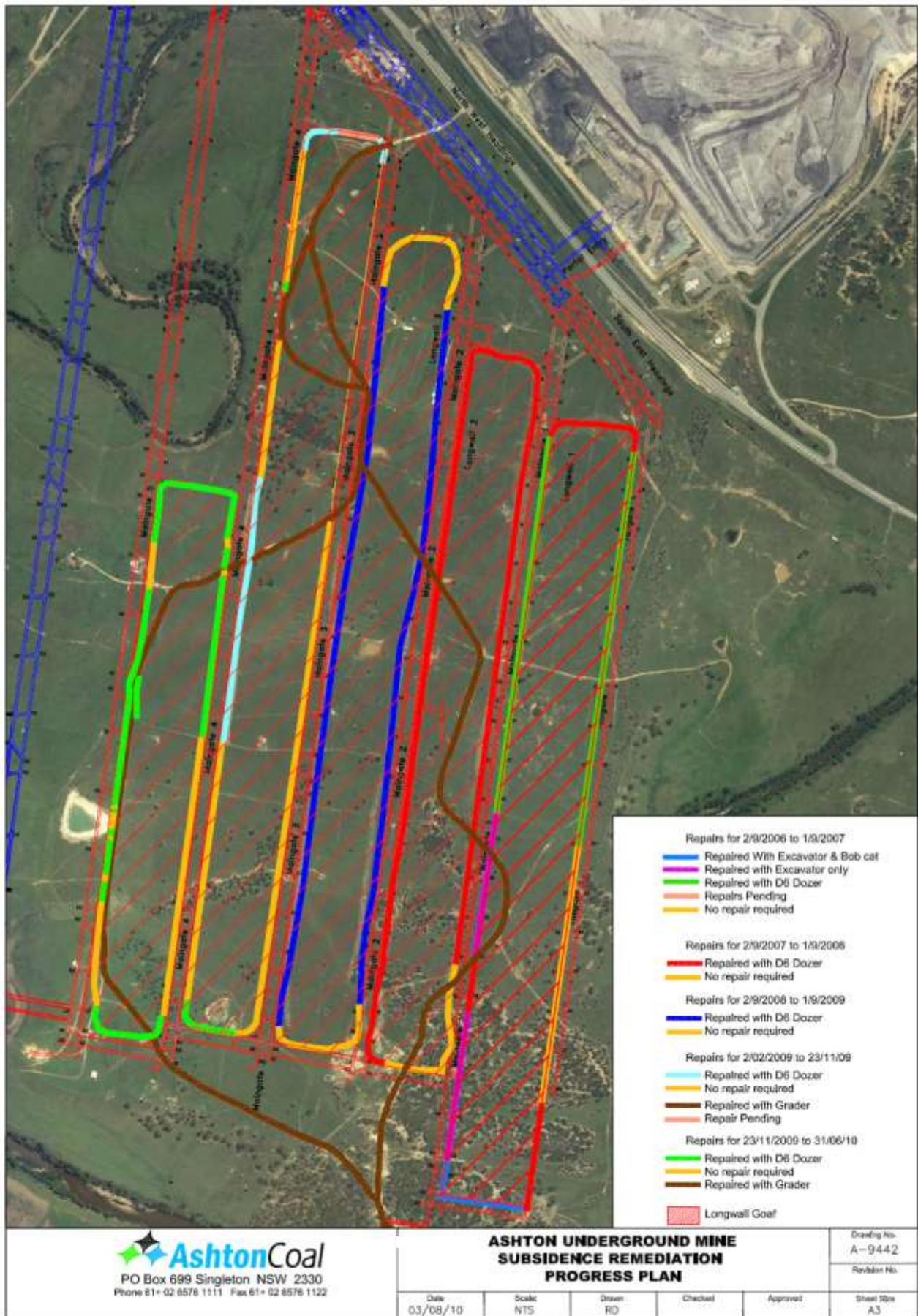


Figure 3: Subsidence remediation progress.

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.

UNDERGROUND COAL MINE



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.

UNDERGROUND COAL MINE



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.

UNDERGROUND COAL MINE



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.

UNDERGROUND COAL MINE

7 APPENDIX 2: SURVEY MONITORING RESULTS

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

Ashton Underground - 132kV LW5 SET9 Power Pole Monitoring																	
TEST01	Original	3:00:00 PM 10/2/2010															
Point	East	North	R.L.	^h	MG5 Ch	1082	to centre pole										
Set9_1a	317963.3416	6404390.2557	62.4876		LW6 Ch	2463	to centre pole										
Set9_1b	317963.3475	6404390.3032	66.3009	3.8													
Set9_1c	317963.3304	6404390.3900	70.6402	4.3	8.1526												
Set9_1d	317963.2962	6404390.4880	76.0531	5.4	13.5655												
Set9_2a	317965.5557	6404395.0085	62.5918														
Set9_2b	317965.5697	6404395.0891	66.8312	4.2													
Set9_2c	317965.5648	6404395.1861	70.6103	3.8													
Set9_2d	317965.5524	6404395.3211	75.9524	5.3	13.3606												
Set9_3a	317967.5234	6404399.8240	62.6003														
Set9_3b	317967.5112	6404399.8744	66.0364	3.4													
Set9_3c	317967.4791	6404399.9778	70.5322	4.5													
Set9_3d	317967.4475	6404400.0642	75.9933	5.5	13.3930												
Direction of Longwall Extrac 8.04 16 (hms)																	
Test-02	4:50:00 PM 17/2/2010		0m														
	100217P1		LW5 Ch=	1082													
	East	North	R.L.	Incremental δ				Total δ									
	δEast	δNorth	δR.L.	Hr	Bearing	Distance	Velocity	δEast	δNorth	δR.L.	Hr	Bearing	Distance	Velocity			
Set9_1a	0.009	-0.018	-0.012	#	153.56 07	0.020	0.0029	0.009	-0.018	-0.012	#	153.56 07	0.020	0.0029			
Set9_1b	0.011	-0.022	-0.010	#	152.10 33	0.024	0.0035	0.011	-0.022	-0.010	#	152.10 33	0.024	0.0035			
Set9_1c	0.016	-0.024	-0.011	#	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	-76.053	#	182.50 32	6412278.704	906151.2595	-317963.296	-6404390.488	-0.011	#	182.50 32	6412278.704	906151.2595
Set9_2a	0.008	-0.016	-0.008	#	152.17 11	0.018	0.0025	0.008	-0.016	-0.008	#	152.17 11	0.018	0.0025			
Set9_2b	0.012	-0.018	-0.008	#	147.15 53	0.022	0.0031	0.012	-0.018	-0.008	#	147.15 53	0.022	0.0031			
Set9_2c	0.016	-0.020	-0.007	#	141.20 25	0.026	0.0036	0.016	-0.020	-0.007	#	141.20 25	0.026	0.0036			
Set9_2d	0.027	-0.021	-0.007	#	128.30 13	0.034	0.0049	0.027	-0.021	-0.007	#	128.30 13	0.034	0.0049			
Set9_3a	0.006	-0.013	-0.007	#	156.32 02	0.014	0.0020	0.006	-0.013	-0.007	#	156.32 02	0.014	0.0020			
Set9_3b	0.008	-0.015	-0.006	#	152.01 49	0.016	0.0023	0.008	-0.015	-0.006	#	152.01 49	0.016	0.0023			
Set9_3c	0.012	-0.016	-0.005	#	144.02 06	0.020	0.0029	0.012	-0.016	-0.005	#	144.02 06	0.020	0.0029			
Set9_3d	0.021	-0.018	-0.005	#	129.48 20	0.027	0.0039	0.021	-0.018	-0.005	#	129.48 20	0.027	0.0039			
Test-03	6:03:00 PM 18/2/2010		7m														
	100218C		LW5 Ch=	1075													
	East	North	R.L.	Incremental δ				Total δ									
	δEast	δNorth	δR.L.	Hr	Bearing	Distance	Velocity	δEast	δNorth	δR.L.	Hr	Bearing	Distance	Velocity			
Set9_1a	0.003	-0.005	-0.006	#	146.18 36	0.006	0.0055	0.012	-0.023	-0.018	#	152.15 43	0.026	0.0032			
Set9_1b	0.002	-0.007	-0.007	#	163.36 38	0.007	0.0067	0.013	-0.028	-0.017	#	154.44 26	0.031	0.0039			
Set9_1c	-0.001	-0.009	-0.007	#	183.43 53	0.009	0.0088	0.015	-0.034	-0.017	#	155.34 54	0.037	0.0046			
Set9_1d	317963.317	6404390.448	76.037	#	2.50 32	6412278.665	6102895.7553	0.020	-0.040	-0.017	#	153.05 38	0.045	0.0055			
Set9_2a	0.003	-0.004	-0.004	#	149.14 14	0.005	0.0047	0.011	-0.020	-0.012	#	151.37 51	0.023	0.0028			
Set9_2b	0.001	-0.006	-0.005	#	169.02 45	0.006	0.0060	0.013	-0.024	-0.012	#	152.08 06	0.028	0.0034			
Set9_2c	0.000	-0.009	-0.007	#	183.43 53	0.009	0.0084	0.016	-0.029	-0.013	#	151.05 52	0.033	0.0040			
Set9_2d	-0.004	-0.012	-0.005	#	197.02 16	0.013	0.0123	0.023	-0.034	-0.012	#	145.39 00	0.041	0.0050			
Set9_3a	0.003	-0.004	-0.003	#	148.14 26	0.005	0.0047	0.008	-0.017	-0.010	#	154.22 51	0.019	0.0023			
Set9_3b	0.002	-0.006	-0.004	#	161.33 54	0.006	0.0060	0.010	-0.020	-0.010	#	154.40 40	0.023	0.0028			
Set9_3c	0.000	-0.009	-0.004	#	181.59 52	0.009	0.0082	0.012	-0.025	-0.009	#	155.06 31	0.028	0.0034			
Set9_3d	-0.004	-0.012	-0.004	#	198.17 34	0.013	0.0121	0.017	-0.030	-0.009	#	150.07 49	0.034	0.0042			
Test-04	3:45:00 PM 19/2/2010		15m														
	100218C		LW5 Ch=	1067													
	East	North	R.L.	Incremental δ				Total δ									
	δEast	δNorth	δR.L.	Hr	Bearing	Distance	Velocity	δEast	δNorth	δR.L.	Hr	Bearing	Distance	Velocity			
Set9_1a	0.006	-0.012	-0.017	#	154.11 29	0.014	0.0150	0.018	-0.035	-0.035	#	152.55 10	0.040	0.0044			
Set9_1b	0.005	-0.015	-0.017	#	162.00 46	0.016	0.0179	0.018	-0.044	-0.034	#	157.12 47	0.048	0.0053			
Set9_1c	0.003	-0.019	-0.017	#	172.17 17	0.019	0.0214	0.018	-0.053	-0.034	#	161.18 20	0.056	0.0062			
Set9_1d	-0.003	-0.023	-0.018	#	187.32 47	0.024	0.0261	0.017	-0.064	-0.034	#	164.46 59	0.066	0.0073			
Set9_2a	0.005	-0.011	-0.014	#	154.29 45	0.012	0.0134	0.016	-0.031	-0.027	#	152.37 30	0.035	0.0039			
Set9_2b	0.004	-0.014	-0.014	#	162.48 37	0.015	0.0161	0.017	-0.038	-0.027	#	155.48 57	0.042	0.0046			
Set9_2c	0.002	-0.016	-0.014	#	172.31 22	0.016	0.0178	0.018	-0.045	-0.027	#	158.06 38	0.048	0.0053			
Set9_2d	-0.003	-0.020	-0.015	#	189.30 34	0.020	0.0221	0.020	-0.054	-0.027	#	159.41 27	0.057	0.0063			
Set9_3a	0.004	-0.009	-0.011	#	155.01 08	0.010	0.0107	0.012	-0.026	-0.021	#	154.35 48	0.029	0.0032			
Set9_3b	0.003	-0.011	-0.011	#	165.06 05	0.011	0.0125	0.013	-0.031	-0.021	#	158.08 09	0.034	0.0037			
Set9_3c	0.001	-0.013	-0.012	#	176.28 43	0.013	0.0144	0.012	-0.038	-0.021	#	161.55 40	0.040	0.0044			
Set9_3d	-0.005	-0.016	-0.011	#	198.00 15	0.017	0.0186	0.012	-0.046	-0.021	#	165.29 30	0.047	0.0052			
Test-05	3:58:00 PM 20/2/2010		15m														
	100219P - Rd7 - 20/2		LW5 Ch=	1067													
	East	North	R.L.	Incremental δ				Total δ									
	δEast	δNorth	δR.L.	Hr	Bearing	Distance	Velocity	δEast	δNorth	δR.L.	Hr	Bearing	Distance	Velocity			
Set9_1a	0.000	-0.005	-0.004	#	178.45 17	0.005	0.0046	0.018	-0.040	-0.039	#	155.32 04	0.044	0.0044			
Set9_1b	0.003	-0.007	-0.003	#	155.04 17	0.008	0.0078	0.022	-0.051	-0.037	#	156.54 37	0.055	0.0055			
Set9_1c	0.010	-0.012	-0.002	#	140.45 45	0.015	0.0154	0.028	-0.065	-0.037	#	156.53 12	0.071	0.0070			
Set9_1d	0.0000	0.0000	0.0000	-317963.314	-6404390.424	-76.019	#	182.50 32	6412278.642	6354907.9448	-317963.296	-6404390.488	-0.037	#	182.50 32	6412278.704	638655.5080
Set9_2a	0.000	-0.004	-0.001	#	184.30 50	0.004	0.0038	0.016	-0.035	-0.028	#	155.39 20	0.038	0.0038			
Set9_2b	0.003	-0.006	0.000	#	158.39 47	0.007	0.0068	0.020	-0.045	-0.027	#	156.12 58	0.049	0.0049			
Set9_2c	0.008	-0.010	0.000	#	141.28 59	0.013	0.0124	0.026	-0.055	-0.026	#	154.42 29	0.060	0.0060			
Set9_2d	0.019	-0.017	0.001	#	131.35 44	0.025	0.0248	0.039	-0.070	-0.025	#	151.13 25	0.080	0.0080			
Set9_3a	-0.001	-0.004	0.000	#	187.41 46	0.004	0.0037	0.012	-0.030	-0.021	#	158.15 55	0.032	0.0032			
Set9_3b	0.001	-0.005	0.000	#	162.43 07	0.005	0.0047	0.014	-0.036	-0.020	#	158.41 44	0.039	0.0038			
Set9_3c	0.007	-0.007	0.002	#	136.14 11	0.010	0.0097	0.019	-0.045	-0.019	#	156.56 22	0.049	0.0049			
Set9_3d	0.018	-0.013	0.002	#	126.10 58	0.022	0.0215	0.029	-0.058	-0.019	#	153.21 23	0.065	0.0065			

UNDERGROUND COAL MINE

Test-06 100219P - Rd 12 - 21/ LWS Ch=				Incremental δ							Total δ						
3:18:00 PM 21/2/2010 15m 1067				m/day							m/day						
	East	North	R.L.	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity
Set9_1a	317963.3586	6404390.2156	62.4480	-0.001	0.000	-0.001	#	265.14 11	0.001	0.0012	0.017	-0.040	-0.040	#	157.01 33	0.044	0.0040
Set9_1b	317963.3673	6404390.2518	66.2617	-0.002	-0.001	-0.002	#	273.10 23	0.002	0.0020	0.020	-0.051	-0.039	#	158.55 57	0.055	0.0050
Set9_1c	317963.3547	6404390.3255	70.6022	-0.003	0.000	-0.001	#	276.42 35	0.003	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 22	0.001	0.0010	0.015	-0.035	-0.030	#	157.06 00	0.038	0.0034
Set9_2b	317965.5876	6404395.0445	66.8017	-0.002	0.000	-0.002	#	273.10 47	0.002	0.0019	0.018	-0.045	-0.029	#	158.07 56	0.048	0.0044
Set9_2c	317965.5871	6404395.1319	70.5818	-0.003	0.000	-0.002	#	276.31 11	0.004	0.0036	0.022	-0.064	-0.028	#	157.38 09	0.059	0.0053
Set9_2d	317965.5834	6404395.2521	75.9246	-0.008	0.001	-0.002	#	278.20 38	0.008	0.0078	0.031	-0.059	-0.028	#	155.48 24	0.076	0.0069
Set9_3a	317967.5339	6404399.7949	62.5770	-0.001	0.001	-0.002	#	291.02 15	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	-0.002	0.001	-0.003	#	284.44 37	0.002	0.0020	0.012	-0.035	-0.023	#	161.07 45	0.037	0.0034
Set9_3c	317967.4945	6404399.9331	70.5107	-0.004	0.000	-0.002	#	276.00 32	0.004	0.0039	0.015	-0.045	-0.022	#	160.59 25	0.047	0.0043
Set9_3d	317967.4697	6404400.0074	75.9727	-0.007	0.002	-0.002	#	282.41 58	0.007	0.0075	0.022	-0.057	-0.021	#	158.39 08	0.061	0.0055
Test-07 100219P - last rd 22/2 LWS Ch=				Incremental δ							Total δ						
7:22:00 AM 22/2/2010 18m 1064				m/day							m/day						
	East	North	R.L.	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity
Set9_1a	317963.3633	6404390.2147	62.4381	0.005	-0.001	-0.010	#	100.50 25	0.005	0.0071	0.022	-0.041	-0.050	#	152.06 33	0.046	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	317963.3501	6404390.3278	70.5887	-0.005	0.002	-0.013	#	296.33 54	0.005	0.0077	0.020	-0.062	-0.051	#	162.25 33	0.065	0.0056
Set9_1d	0.0000	0.0000	0.0000	0.000	0.000	0.000	#	#DIV/0!	0.000	0.0000	-317963.296	-6404390.488	-0.051	#	182.50 32	6412278.704	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	-0.011	#	118.10 43	0.003	0.0047	0.021	-0.046	-0.041	#	155.49 08	0.051	0.0043
Set9_2c	317965.5860	6404395.1321	70.5687	-0.001	0.000	-0.013	#	280.18 17	0.001	0.0017	0.021	-0.054	-0.042	#	158.33 55	0.058	0.0050
Set9_2d	317965.5744	6404395.2576	75.9113	-0.009	0.005	-0.013	#	301.25 46	0.011	0.0158	0.022	-0.064	-0.041	#	160.53 28	0.067	0.0058
Set9_3a	317967.5384	6404399.7938	62.5696	0.005	-0.001	-0.007	#	103.44 11	0.005	0.0069	0.015	-0.030	-0.031	#	153.35 13	0.034	0.0029
Set9_3b	317967.5264	6404399.8366	66.0043	0.003	-0.002	-0.009	#	127.44 48	0.004	0.0059	0.015	-0.038	-0.032	#	158.05 39	0.041	0.0035
Set9_3c	317967.4930	6404399.9316	70.5000	-0.001	0.000	-0.011	#	224.59 60	0.002	0.0032	0.014	-0.046	-0.032	#	163.15 19	0.048	0.0041
Set9_3d	317967.4591	6404400.0098	75.9599	-0.011	0.002	-0.013	#	282.45 27	0.011	0.0162	0.012	-0.054	-0.033	#	167.57 46	0.056	0.0048
Test-08 100222P - rd 14 23/2 LWS Ch=				Incremental δ							Total δ						
3:35:00 PM 23/2/2010 51m 1031				m/day							m/day						
	East	North	R.L.	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity
Set9_1a	317963.4390	6404390.1273	62.2283	0.076	-0.087	-0.210	#	139.06 11	0.116	0.0861	0.097	-0.128	-0.259	#	142.49 02	0.161	0.0124
Set9_1b	317963.4630	6404390.1313	66.0417	0.094	-0.121	-0.208	#	142.00 48	0.153	0.1139	0.116	-0.172	-0.259	#	146.06 10	0.207	0.0159
Set9_1c	317963.4653	6404390.1700	70.3815	0.115	-0.158	-0.207	#	143.52 09	0.195	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	0.109	0.0812	0.084	-0.124	-0.218	#	145.54 25	0.150	0.0115
Set9_2b	317965.6723	6404394.9194	66.6137	0.082	-0.124	-0.177	#	146.28 15	0.148	0.1105	0.103	-0.170	-0.218	#	148.50 35	0.198	0.0152
Set9_2c	317965.6839	6404394.9765	70.3933	0.098	-0.156	-0.175	#	147.49 22	0.184	0.1369	0.119	-0.210	-0.217	#	150.23 37	0.241	0.0185
Set9_2d	317965.6955	6404395.0556	75.7366	0.121	-0.202	-0.175	#	149.03 26	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 11	0.098	0.0730	0.067	-0.113	-0.178	#	149.14 43	0.132	0.0101
Set9_3b	317967.5885	6404399.7277	65.8586	0.062	-0.109	-0.146	#	150.18 22	0.125	0.0934	0.072	-0.147	-0.178	#	152.12 51	0.166	0.0127
Set9_3c	317967.5676	6404399.7877	70.3548	0.075	-0.144	-0.145	#	152.35 49	0.162	0.1207	0.089	-0.190	-0.177	#	155.02 09	0.210	0.0161
Set9_3d	317967.5491	6404399.8231	75.8158	0.090	-0.187	-0.144	#	154.15 48	0.207	0.1544	0.102	-0.241	-0.178	#	157.08 58	0.262	0.0201
Test-09 100224P - rd 1 24/2 LWS Ch=				Incremental δ							Total δ						
8:48:00 AM 24/2/2010 69m 1013				m/day							m/day						
	East	North	R.L.	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity	δ East	δ North	δ R.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	317963.5667	6404390.1168	65.8168	0.104	-0.015	-0.225	#	98.30 04	0.105	0.1654	0.219	-0.187	-0.484	#	129.31 41	0.288	0.0211
Set9_1c	317963.5883	6404390.1456	70.1559	0.123	-0.024	-0.226	#	101.13 13	0.125	0.1978	0.258	-0.244	-0.484	#	133.27 38	0.355	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 08	0.084	0.1322	0.165	-0.145	-0.438	#	131.10 43	0.220	0.0161
Set9_2b	317965.7779	6404394.8842	66.3919	0.106	-0.035	-0.222	#	108.26 06	0.111	0.1756	0.208	-0.205	-0.439	#	134.32 32	0.292	0.0214
Set9_2c	317965.8092	6404394.9287	70.1708	0.125	-0.048	-0.223	#	110.52 52	0.134	0.2115	0.244	-0.257	-0.439	#	136.29 02	0.355	0.0260
Set9_2d	317965.8473	6404394.9916	75.5134	0.152	-0.064	-0.222	#	115.51 38	0.165	0.2598	0.295	-0.329	-0.439	#	138.10 18	0.442	0.0324
Set9_3a	317967.6688	6404399.6779	62.2120	0.078	-0.033	-0.210	#	112.54 21	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 37	0.106	0.1666	0.172	-0.193	-0.390	#	138.19 14	0.259	0.0189
Set9_3c	317967.6802	6404399.7252	70.1425	0.113	-0.063	-0.212	#	119.01 59	0.129	0.2031	0.201	-0.253	-0.390	#	141.28 34	0.323	0.0236
Set9_3d	317967.6795	6404399.7435	75.6032	0.130	-0.080	-0.213	#	121.24 04	0.153	0.2410	0.232	-0.321	-0.390	#	144.07 03	0.396	0.0290
Test-10 100224P - rd 4 24/2 LWS Ch=				Incremental δ							Total δ						
12:52:00 PM 24/2/2010 69m 1013				m/day							m/day						
	East	North	R.L.	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity
Set9_1a	317963.5221	64043															

UNDERGROUND COAL MINE

Test-12		11:56:00 AM 26/2/2010		107m		Incremental δ							Total δ						
100225P1 - last rnd 26/2/10 1		LW5 Ch=		975		m/day							m/day						
	East	North	R.L.	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity		
Set9_1a	317963.6275	6404390.2156	61.6854	0.029	0.038	-0.096	#	36.55 04	0.048	0.0529	0.286	-0.040	-0.802	#	97.59 03	0.289	0.0182		
Set9_1b	317963.6970	6404390.2298	65.5006	0.032	0.047	-0.094	#	34.09 56	0.057	0.0629	0.350	-0.073	-0.800	#	101.51 38	0.357	0.0225		
Set9_1c	317963.7418	6404390.2797	69.8406	0.031	0.057	-0.095	#	28.42 35	0.065	0.0715	0.411	-0.110	-0.800	#	105.00 31	0.426	0.0268		
Set9_1d	0.0000	0.0000	0.0000	0.000	0.000	0.000	#	#DIV/0!	0.000	0.0000	-317963.296	-6404390.488	-0.800	#	182.50 32	6412278.704	403993.7581		
Set9_2a	317965.8384	6404394.9585	61.7939	0.033	0.042	-0.109	#	38.19 32	0.054	0.0593	0.283	-0.050	-0.798	#	100.01 48	0.287	0.0181		
Set9_2b	317965.9269	6404395.0010	66.0321	0.039	0.054	-0.113	#	35.38 19	0.066	0.0732	0.357	-0.088	-0.799	#	103.51 18	0.368	0.0232		
Set9_2c	317965.9844	6404395.0637	69.8117	0.040	0.063	-0.112	#	32.38 52	0.075	0.0827	0.420	-0.122	-0.799	#	106.15 44	0.437	0.0275		
Set9_2d	317966.0561	6404395.1509	75.1539	0.040	0.077	-0.113	#	27.37 55	0.086	0.0958	0.504	-0.170	-0.799	#	108.40 12	0.532	0.0335		
Set9_3a	317967.7959	6404399.7666	61.8090	0.037	0.044	-0.130	#	40.02 43	0.058	0.0644	0.273	-0.057	-0.791	#	101.53 42	0.278	0.0175		
Set9_3b	317967.8371	6404399.7871	65.2459	0.044	0.055	-0.130	#	38.08 20	0.070	0.0780	0.326	-0.087	-0.790	#	104.59 45	0.337	0.0213		
Set9_3c	317967.8638	6404399.8525	69.7420	0.045	0.067	-0.130	#	34.00 17	0.081	0.0895	0.385	-0.125	-0.790	#	108.02 27	0.405	0.0255		
Set9_3d	317967.8934	6404399.8942	75.2030	0.044	0.082	-0.131	#	28.06 58	0.093	0.1025	0.446	-0.170	-0.790	#	110.52 10	0.477	0.0301		
Test-13		11:00:00 AM 3/3/2010		154m		Incremental δ							Total δ						
100330P		LW5 Ch=		928		m/day							m/day						
	East	North	R.L.	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity		
Set9_1a	317963.6870	6404390.2848	61.5675	0.040	0.069	-0.118	#	29.43 05	0.080	0.016060803	0.325	0.029	-0.920	#	84.53 23	0.327	0.0157		
Set9_1b	317963.7435	6404390.3113	65.3794	0.046	0.082	-0.121	#	29.42 25	0.094	0.0189	0.396	0.008	-0.921	#	88.49 42	0.396	0.0190		
Set9_1c	317963.7992	6404390.3762	69.7187	0.057	0.096	-0.122	#	30.44 42	0.112	0.0226	0.469	-0.014	-0.921	#	91.41 10	0.469	0.0225		
Set9_1d	317963.8505	6404390.4497	75.1314	317963.851	6404390.450	75.131	#	2.50 32	6412278.693	1292508.5832	0.554	-0.038	-0.922	#	93.57 09	0.556	0.0267		
Set9_2a	317965.8830	6404395.0369	61.6525	0.045	0.078	-0.141	#	29.38 04	0.090	0.0182	0.327	0.028	-0.939	#	85.02 27	0.329	0.0158		
Set9_2b	317965.9830	6404395.0954	65.8911	0.056	0.094	-0.141	#	30.43 20	0.110	0.0221	0.413	-0.006	-0.940	#	89.07 36	0.413	0.0198		
Set9_2c	317966.0526	6404395.1736	69.6703	0.068	0.110	-0.141	#	31.49 20	0.129	0.0261	0.488	0.012	-0.940	#	91.28 04	0.488	0.0234		
Set9_2d	317966.1471	6404395.2839	75.0124	0.091	0.133	-0.141	#	34.22 49	0.161	0.0325	0.595	-0.037	-0.940	#	93.34 46	0.596	0.0286		
Set9_3a	317967.8446	6404399.8542	61.6454	0.049	0.088	-0.164	#	29.04 17	0.100	0.0202	0.321	0.030	-0.955	#	84.37 43	0.323	0.0155		
Set9_3b	317967.8928	6404399.8889	65.0810	0.056	0.102	-0.165	#	28.41 07	0.116	0.0234	0.382	0.014	-0.955	#	87.49 26	0.382	0.0183		
Set9_3c	317967.9331	6404399.9743	69.5758	0.069	0.122	-0.166	#	29.38 18	0.140	0.0282	0.454	-0.004	-0.956	#	90.26 30	0.454	0.0218		
Set9_3d	317967.9822	6404400.0416	75.0366	0.089	0.147	-0.166	#	31.03 60	0.172	0.0347	0.535	-0.023	-0.957	#	92.25 13	0.535	0.0257		
Test-14		3:00:00 PM 18/3/2010		382m		Incremental δ							Total δ						
100318P1		LW5 Ch=		700		m/day							m/day						
	East	North	R.L.	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity		
Set9_1a	317963.6898	6404390.3284	61.5251	0.023	0.044	-0.042	#	27.36 24	0.049	0.0032	0.348	0.073	-0.962	#	78.12 24	0.356	0.0099		
Set9_1b	317963.7695	6404390.3541	65.3394	0.026	0.043	-0.040	#	31.16 40	0.050	0.0033	0.422	0.051	-0.962	#	83.07 21	0.425	0.0118		
Set9_1c	317963.8297	6404390.4163	69.6783	0.030	0.040	-0.040	#	37.15 24	0.050	0.0033	0.499	0.026	-0.962	#	86.59 05	0.500	0.0139		
Set9_1d	317963.8887	6404390.4824	75.0918	0.038	0.033	-0.040	#	49.26 09	0.050	0.0033	0.593	-0.006	-0.961	#	90.32 29	0.593	0.0165		
Set9_2a	317965.9074	6404395.0848	61.6056	0.024	0.048	-0.047	#	26.59 39	0.054	0.0035	0.352	0.076	-0.986	#	77.45 34	0.360	0.0100		
Set9_2b	317966.0115	6404395.1444	65.8452	0.029	0.049	-0.046	#	30.11 01	0.057	0.0037	0.422	0.055	-0.986	#	82.51 55	0.445	0.0124		
Set9_2c	317966.0863	6404395.2215	69.6245	0.034	0.048	-0.046	#	35.07 42	0.059	0.0039	0.522	0.035	-0.986	#	86.06 60	0.523	0.0145		
Set9_2d	317966.1891	6404395.3270	74.9667	0.042	0.043	-0.046	#	44.15 34	0.060	0.0040	0.637	0.006	-0.986	#	89.28 09	0.637	0.0177		
Set9_3a	317967.8708	6404399.9042	61.5932	0.026	0.050	-0.052	#	27.39 16	0.056	0.0037	0.347	0.080	-1.007	#	77.00 02	0.357	0.0099		
Set9_3b	317967.9219	6404399.9403	65.0298	0.029	0.051	-0.051	#	29.30 59	0.059	0.0039	0.411	0.066	-1.007	#	80.53 03	0.419	0.0116		
Set9_3c	317967.9661	6404400.0246	69.5258	0.033	0.050	-0.050	#	33.16 03	0.060	0.0040	0.487	0.047	-1.006	#	84.30 39	0.489	0.0136		
Set9_3d	317968.0234	6404400.0867	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	0.0160		
Test-15		8:00:00 AM 16/4/2010		702m		Incremental δ							Total δ						
100416		LW5 Ch=		380		m/day							m/day						
	East	North	R.L.	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity		
Set9_1a	317963.6934	6404390.3417	61.5134	0.004	0.013	-0.012	#	15.08 45	0.014	0.0005	0.352	0.086	-0.974	#	76.15 47	0.362	0.0056		
Set9_1b	317963.7748	6404390.3828	65.3255	0.005	0.029	-0.014	#	10.27 46	0.029	0.0010	0.427	0.080	-0.975	#	79.26 51	0.435	0.0067		
Set9_1c	317963.8361	6404390.4746	69.6640	0.006	0.058	-0.014	#	6.15 53	0.059	0.0020	0.506	0.085	-0.976	#	80.30 10	0.513	0.0079		
Set9_1d	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	0.0094		
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	0.0056		
Set9_2b	317966.0063	6404395.1514	65.8311	-0.005	0.007	-0.014	#	323.23 35	0.009	0.0003	0.437	0.062	-1.000	#	81.52 45	0.441	0.0068		
Set9_2c	317966.0705	6404395.2278	69.6086	-0.016	0.006	-0.016	#	291.44 20	0.017	0.0006	0.506	0.042	-1.002	#	85.17 10	0.507	0.0078		
Set9_2d	317966.1502	6404395.3335	74.9499	-0.039	0.007	-0.017	#	279.29 10	0.039	0.0014	0.598	0.012	-1.003	#	88.48 42	0.598	0.0092		
Set9_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	0.0056		
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	0.0064		
Set9_3c	317967.9475	6404400.0241	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	0.0073		
Set9_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	0.0082		
Test-16		2:00:00 PM 5/7/2010		1082m		Incremental δ							Total δ						
100705		LW5 Ch=		0		m/day							m/day						
	East	North	R.L.	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity	δ East	δ North	δ R.L.	Hr	Bearing	Distance	Velocity		