MINING OPERATIONS PLAN
FOR
SPRINGVALE COLLIERY

Titles / Mining Leases	**CL 377** **ML 1303** **ML 1323** **ML 1326** **ML 1352** **ML 1448** **ML 1537** **ML 1588** **MPL 314** **EL 6974** **A 460** **CCL 733**
MOP Commencement Date	**November 2009**
MOP End Date	**November 2016**
Name of leaseholder	**Centennial Springvale Pty Limited** **ACN 052 096 812** **Springvale SK Kores Pty Limited** **ACN 051 015 402**
Name of Mine Operator	**Springvale Coal Pty Limited** **ACN 052 096 769**
Reporting Officer	**Daryn Railey**
Title	**Environmental Co-ordinator** **Springvale Mine**
Signature	**……**
Date	**……**

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1 INTRODUCTION

This Mining Operations Plan covers the Springvale Mine and Coal Services facilities for the period November 2009 to November 2016. This MOP replaces the existing 2006 MOP and all subsequent variations.

Springvale Colliery is an underground coal mine located within the Western Coalfield of NSW, approximately 15 kilometres north-west of Lithgow, **(Figure 1 & 2)**. Springvale Colliery extracts coal from the Lithgow seam using longwall mining techniques. The principal coal output is extracted from a 305m wide longwall face with an average extraction height of 3.2m. The extraction blocks vary in length from around 1,800m for the first 11 longwalls, the remaining blocks varying in length to a maximum of 3,500m within the area of the planned extraction. The mine layout is constrained by the lease boundary and subsidence protection zones designed to protect sensitive surface escarpment areas.

Springvale has previously submitted Mining Operation Plans (MOP) in 2000 and 2006. A variation to the 2006 MOP was submitted in January 2009. This variation was submitted due to amendments to the mine plan and associated surface infrastructure caused by a combination of geological conditions, resulting in potential roof control issues, and changes in seam grades that have resulted in the need to install a dewatering borehole (Bore 6) in a revised location, to control mine water.

The principal components of Springvale Colliery operations are an underground longwall mine and associated surface infrastructure (Pit Top), Coal Services Site (including a Coal Preparation Plant) and Newnes Plateau infrastructure, consisting of mine dewatering bores and ventilation/mine services shaft (No. 3 Shaft Site). A system to transfer mine water to Wallerawang Power Station was completed in early 2006, known as the 'Springvale-Delta Water Transfer Scheme'.

The Pit Top is located approximately 15km north west of Lithgow on the Castlereagh Highway. The Coal Services Site is located adjacent the village of Blackmans Flat on the Castlereagh highway, approximately 6.5km to the north west of the Springvale pit top and is within the Cox's River Catchment. The Mining Lease area (ML 1326), contains the current longwall mining area and straddles both the Cox's and Hawkesbury-Nepean Catchments.

The mine currently employs 261 personnel and produces 2.5 – 3.4Mtpa of thermal coal from the Lithgow coal seam. Springvale Colliery has contracts with Delta Electricity to supply thermal coal domestically for up to twenty years (2013). Springvale Colliery on occasions also exports coal overseas. The coal is crushed and sized at the Pit Top and transported by overland conveyor to Mt Piper Power Station, Wallerawang Power Station or stockpiled and washed at the Springvale Coal Services Site. Coal for export can be diverted from the Overland Conveyor System for washing and then transport to Lidsdale Rail Siding

Springvale Coal Services is comprised of an overland conveyor system, a coal preparation plant, capable of processing 300t/hr, raw and clean coal stockpiles, coal reject dams for the storage / recovery of washery tailings and reject emplacement area for the disposal of course washery reject.

This Mining Operations Plan nominally covers the period November 2009 to November 2016. Mining proposed in this MOP period includes the development of main headings and LWs 414 – 418 inclusive and the extraction of LW 413 (October 2010), LW 414 (November 2011), LW 415 (January 2013), LW 416 (April 2014), LW 417 (June 2015) and LW 418 (September 2016).

1.1 History of Operations

Springvale Coal Joint Venture (Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited) operates Springvale Colliery, an underground coal mine and Lambert's Gully, an open cut mine which commenced operation during November 2004. The mines operate under the one Environment Protection Licence (EPL 3607) but have separate Mining Lease areas, development consents and MOPs.

Development Consent for Springvale Colliery was granted in July 1992 to produce up to 3.4 million tonnes per year. Subsequent Section 102 modifications to the Development Consent have been approved and are shown in **Table 4.** These modifications were primarily associated with modifications to the pit top, shaft sites, mine layout and surface coal conveyor installations.

The Springvale Colliery underground mine is accessed through ML1303. Longwall mining is currently undertaken in ML1326. ML1588 is located to the east of ML1326. Exploration License 6974 overlies ML1326, ML1588 and the area to the south, previously known as ALA5.

Springvale Coal acquired the operation in October 1994 from Clutha Coal Pty Limited, who, under the original planning consent and modifications relating to Springvale Mine, constructed the overland conveyor, coal stockpile facilities, reject disposal facilities and rebuilt the existing Coal Preparation Plant.

The Coal Services Site and Overland Conveyor Route are located within CCL733 and MPL314 and ML1352 respectively. Historically, the Coal Services site has been used for the following activities:

- Underground extraction from Western Main and Eastern Main Collieries (Both collieries are abandoned);
- Open cut coal extraction;
- Coal preparation and handling;
- Reject disposal;
- Coal stockpiling;
- Export coal handling; and
- Control of coal feed from the Springvale Underground mine to the Mount Piper Power Station and maintenance of the related conveyor system

1.2 Proposed and Future Operations

1.2.1 Underground Operations - Longwall

Springvale Colliery employs some 261 people, of which, 232 are full time employees and 29 are on fixed term contracts. Springvale has completed the extraction of the thirteenth (13^{th}) longwall panel. The mine produces thermal coal from the Lithgow coal seam **(Table 1)**. Springvale Coal has a 20-year contract with Mt Piper Power Station to supply a nominal 2.0Mtpa of coal, expiring in 2013, a contract with Delta Electricity for 700Ktpa of coal, expiring in June 2010 with the remainder of coal production supplied to the export market.

TABLE 1: Springvale ROM Coal Production Figures During Previous 10 Years

Calendar Year	Production Underground (Mt)
1999	1.82
2000	1.99
2001	2.30
2002	2.33
2003	2.40
2004	2.41
2005	2.78
2006	2.69
2007	2.91
2008	3.55

It is proposed to continue extracting the Lithgow Seam using longwall retreat methods. The depth of cover of the Lithgow seam, in the current longwall mining area which consists of eight (8) longwall panels ranges from 300 to 420m in width and the mining seam thickness averages 3.1m (being the basal section of the seam). The extraction of Longwalls 411 and 412 has been completed, with the extraction of Longwall 413 commencing on 7 August 2009. The proposed production for the MOP period is listed below in **Table 2.**

TABLE 2: Springvale Coal Production 2009-2016

2009					
Production	**Shifts**	**Metres**	**Tonnes**	**MPUS**	**TPS**
Mains Development	122	301	6,415	2.47	52.6
Gate Road Development	1,311	6,953	148,182	5.3	113
Development Total	1,433	7,254	154,597	5.06	107.9
Longwall Total	742	1,648	2,423,944	2.22	3267
		7254	**2,578,541**		

2010					
Production	**Shifts**	**Metres**	**Tonnes**	**MPUS**	**TPS**
Mains Development	514	2,766	58,949	5.38	114.7
Gate Road Development	1,166	5,621	119,795	4.82	102.7
Development Total	1,680	8,387	178,744	4.99	106.4
Longwall Total	718	1,747	2,569,557	2.43	3579
		8387	**2,748,301**		

2011					
Production	**Shifts**	**Metres**	**Tonnes**	**MPUS**	**TPS**
Mains Development	584	3,103	66,131	5.31	113.2
Gate Road Development	1,446	7,937	169,153	5.49	117
Development Total	2,030	11,040	235,284	5.44	115.9
Longwall Total	821	2,424	3,565,316	2.95	4343
		11040	**3,800,600**		

2012					
Production	**Shifts**	**Metres**	**Tonnes**	**MPUS**	**TPS**
Mains Development	440	2,339	49,849	5.32	113.3
Gate Road Development	2,263	9,548	203,487	4.22	89.9
Development Total	2,703	11,887	253,336	4.4	93.7
Longwall Total	970	2,554	3,756,525	2.63	3873
		11887	**4,009,861**		

2013					
Production	**Shifts**	**Metres**	**Tonnes**	**MPUS**	**TPS**
Mains Development	394	2,650	56,477	6.73	143.3
Gate Road Development	1,801	6,125	130,536	3.4	72.5
Development Total	2,195	8,775	187,013	4	85.2
Longwall Total	811	2,401	3,53,1487	2.96	4354
		8775	**3,718,500**		

2014					
Production	**Shifts**	**Metres**	**Tonnes**	**MPUS**	**TPS**
Mains Development	691	3,440	73,313	4.98	106.1
Gate Road Development	1,249	6,176	131,623	4.94	105.4
Development Total	1,940	9,616	204,936	4.96	105.6
Longwall Total	810	2,462	3,621,208	3.04	4,471
		9616	**3,826,144**		

2015					
Production	**Shifts**	**Metres**	**Tonnes**	**MPUS**	**TPS**
Mains Development	594	2,948	62,828	4.96	105.8
Gate Road Development	1,527	6,488	138,272	4.25	90.6
Development Total	2,121	9,436	201,100	4.45	94.8
Longwall Total	617	2,392	3,518,249	3.88	5,702
		9,436	**3,719,349**		

2016					
Production	**Shifts**	**Metres**	**Tonnes**	**MPUS**	**TPS**
Mains Development	608	2,990	63,723	4.92	104.8
Gate Road Development	1,312	6,634	141,384	5.06	107.8
Development Total	1,920	9,624	205,107	5.01	106.8
Longwall Total	790	2,373	3,490,303	3	4,418
		9,624	**3,695,410**		

As mining progresses to the east there will be continuous improvements in overall efficiency in terms of energy reduction schemes and process control improvements. In addition, communication improvements will be ongoing.

1.2.2 Future Operations – Longwalls 413 - 418 and Other

A further six (6) longwall panels within Springvale's existing Subsidence Management Plan (SMP) Approval Area are proposed for future extraction commencing with Longwall 413 extraction. Development of these panels is currently in progress.

1.3 Consents, Leases and Licences

Springvale underground mine is accessed through ML1303. Longwall mining is currently undertaken in ML1326. The Coal Services Site and Overland Conveyor Route are leased and operated under CCL733, ML1352 and MPL 314 respectively. SMP Approval is held for LWs 413 – 418 and Clause 88 Approval held for LWs 413 and 414. A list of all abbreviations is shown in **Table 3**, with all leases, licences, consents and approvals provided in **Table 4**.

TABLE 3: Abbreviations

CCL	Consolidated Coal Lease	DoP	Department of Planning
CL	Coal Lease	DWE	Department of Water and Energy Now part of I & I NSW-ME and DECCW – NSW Office of Water
ML	Mining Lease	LCC	Lithgow City Council
MPL	Mining Purposes Lease	MOP	Mining Operations Plan
EL	Exploration Licence	EPL	Environmental Protection Licence
MLA	Mining Lease Application	PCA	Pollution Control Approval
A	Authorisation	PCL	Pollution Control Licence
DPI-MR Now I & I NSW - ME	Department of Primary Industries - Mineral Resources Department of Industry and Investment – Minerals and Energy	EP & A	Environmental Protection & Assessment Act 1979
DECC Now DECCW	Department of Environment and Climate Change Department of Environment, Climate Change and Water	SPCCA	State Pollution Control Commission Act 1970
CMRA	Coal Mines Regulation Act 1982	CMH & SR	Coal Mine Health & Safety Regulation 2006
CMH & SA	Coal Mine Health & Safety Act 2002	SMP	Subsidence Management Plan
ROM	Run of Mine	AEMR	Annual Environmental Management Report
EMS	Environmental Management System	CCC	Community Consultative Committee

TABLE 4: Springvale Leases, Licences Consents and Approvals

Type	Regulatory Authority	File / Approval Number	Holder	Issue Date	Expiry / Review Date	Scope
Development Consent	DoP	591/06569/001	Springvale Coal Pty Limited	27/07/1992	Consent limited to 21 years from granting of Coal Lease (ML1303) 15-Dec-2013	Original Development Consent-Section 102 of the EP & A Act (1979) for the construction and operation of an underground coal mine, overland conveyor and coal washery
	DoP	S91/06569/Z01	Springvale Coal Pty Limited	29/06/1993	15-Dec-2013	Section 102 EP & A Act (1979)-modification to original consent (27/06/1992) to include modifications: • Pit Top layout • Storm Water Control • New of mine entry • Relocation of ventilation shafts • Extension of road access to shafts • Utilisation of existing Western Main washery • Relocation of overland conveyor route

Type	Regulatory Authority	File / Approval Number	Holder	Issue Date	Expiry / Review Date	Scope
Development Consent	DoP	S91/06569/Z01	Springvale Coal Pty Limited	11/04/1994	15-Dec-2013	Section 102 EP & A Act (1979)-modification to original consent (27/06/1992) by the replacement of Attachment "A" (The Land Description) with Attachment 1 (Schedule of Land and Tenements)
	LCC	326/02	Springvale Coal Pty Limited	20/09/2002	20/09/2007 (If not Commenced)	Section 96 (2) EP & A Act (1979)-for the construction and operation of a coal conveyor the Castlereagh Highway to Wallerawang Power Station
	LCC	461/02	Springvale Coal Pty Limited	23/01/2003	23/01/2008 (If not Commenced)	Section 96 (2) EP & A Act (1979)-for the construction and operation of a ventilation shaft facility on the Newnes Plateau in the Newnes State Forest
Environmental Protection Licence	DECCW	3607	Clutha Coal Pty Limited	14/05/1991		Pollution Control Approval (PCA) under Section 17(k) of the SPCCA 1970
	DECCW	3607	Clutha Coal Pty Limited	14/05/1992	14/05/1993	Pollution Control Licence (PCL) under Section 17(d) of the SPCCA 1970
	DECCW	3607	Clutha Coal Pty Limited & Samsung Development (Aust) Pty Limited	14/05/1993	14/05/1994	Pollution Control Licence (PCL) under Section 17(d) of the SPCCA 1970

Type	Regulatory Authority	File / Approval Number	Holder	Issue Date	Expiry / Review Date	Scope
Environmental Protection Licence (Protection of the Environment Operations Act 1997)	DECCW	3607	Springvale Coal Pty Limited	14/05/1994	08/07/2000	Pollution Control Licence (PCL) under Section 17(d) of the SPCCA 1970
	DECCW	3607	Springvale Coal Pty Limited	08/07/2000	10/09/2014	Licence varied by notice V/M upgrade
	DECCW	3607	Springvale Coal Pty Limited	24/09/2001	10/09/2014	Licence varied by notice 1008839
	DECCW	3607	Springvale Coal Pty Limited	29/09/2002	10/09/2014	Licence varied by notice 1020230
	DECCW	3607	Springvale Coal Pty Limited	07/04/2003	10/09/2014	Licence varied by notice 1025883
	DECCW	3607	Springvale Coal Pty Limited	13/01/2004	10/09/2014	Licence varied by notice 1028983
	DECCW	3607	Springvale Coal Pty Limited	28/09/2004	10/09/2014	Licence varied by notice 1034311
	DECCW	3607	Springvale Coal Pty Limited	11/10/2004	10/09/2014	Licence varied by notice 1041194
	DECCW	3607	Springvale Coal Pty Limited	08/08/2005	10/09/2014	Licence varied by notice 1046241
	DECCW	3607	Springvale Coal Pty Limited	26/04/2006	10/09/2014	Licence varied by notice 1052295
	DECCW	3607	Springvale Coal Pty Limited	03/10/2006	10/09/2014	Licence varied by notice 1063851
	DECCW	3607	Springvale Coal Pty Limited	21/08/2007	10/09/2014	Licence varied by notice 1077081
Mining Operations Plan	I & I NSW - Mineral Resources	File No. L99/0390 MR Reference 67767000	Springvale Coal Pty Limited	10/07/2000	31/03/2005	MOP for Springvale Colliery

Type	Regulatory Authority	File / Approval Number	Holder	Issue Date	Expiry / Review Date	Scope
Mining Operations Plan	I & I NSW - Mineral Resources	MR Reference 06/7442	Springvale Coal Pty Limited	02/11/2006	02/11/2013	MOP for Springvale Colliery
	I & I NSW - Mineral Resources	MR Reference 06/7442	Springvale Coal Pty Limited	24/03/2009	02/11/2013	Variation Approval for MOP for Springvale Colliery
Mining Leases	I & I NSW - Mineral Resources	Coal Lease CL 377 (Mining Act 1973) MR Reference C01-0638	Centennial Springvale Pty Ltd & Springvale SK Kores Pty Ltd	24/02/1992	09/03/2004 Renewal 09/03/2025	Mining Entitlement Parish of Marangaroo and Lidsdale Area: 1105 Hectares Excepts the surface and land below to a depth of 15.24m
	I & I NSW - Mineral Resources	Authorisation A 460 (Mining Act 1973) C92-0349	Pacific Power Transfer of Authorisation Centennial Springvale Pty Ltd & Springvale SK Kores Pty Ltd	07/07/1992 05/11/1998	07/07/1997 Renewal 05/06/2002 Renewal 05/06/2007 Renewal 05/06/2010	Exploration Entitlement Parish of Marangaroo and Lidsdale Area: 1105 Hectares Embraces the surface and soil below to a depth of 15.24m
	I & I NSW - Mineral Resources	Mining Lease ML 1303 (Mining Act 1992) MR Reference C91-0217	Centennial Springvale Pty Ltd & Springvale SK Kores Pty Ltd	15/12/1992	15/12/2013	Mining Entitlement Parish of Marangaroo and Lidsdale Area: 713 Hectares Excepts the surface and land below to a depth of 20.0m Inclusion of “prescribed dam “condition on 01/03/2001

Type	Regulatory Authority	File / Approval Number	Holder	Issue Date	Expiry / Review Date	Scope
Mining Leases	I & I NSW - Mineral Resources	Mining Lease ML 1323 (Mining Act 1992) MR Reference C92-0815	Centennial Springvale Pty Ltd & Springvale SK Kores Pty Ltd	03/08/1993	03/08/2014	Mining Entitlement Parish of Marangaroo and Lidsdale Area: 30.24 Hectares in 2 parts **Various depth restrictions** Embraces the surface and land below to a depth of 20.0m Embraces the surface and land below to a depth of 5.0m Inclusion of “prescribed dam “ condition on 01/03/2001
	I & I NSW - Mineral Resources	Mining Lease MPL 314 (Mining Act 1973) MR Reference C91-0764	Centennial Springvale Pty Ltd & Springvale SK Kores Pty Ltd	03/08/1993	03/08/2014	Mining Entitlement Parish of Cook and Lidsdale Area: 96.4 Hectares in 2 parts **Various depth restrictions** Embraces the surface and land below to a depth of 20.0m Embraces the surface and land below to a depth of 15.24m Embraces the surface and land below to a depth of 5.0m

Type	Regulatory Authority	File / Approval Number	Holder	Issue Date	Expiry / Review Date	Scope
Mining Leases	I & I NSW - Mineral Resources	Mining Lease ML 1326 (Mining Act 1992) MR Reference C01-0631	Centennial Springvale Pty Ltd & Springvale SK Kores Pty Ltd	28/09/1993	18/08/2003 Renewal 18/08/2024	Mining Entitlement Part transfer of CL239 (Act 1973) Parish of Cox, Cook and Marangaroo Area: 2157 Hectares Excepts the surface and land below to a depth of 20.0m
	I & I NSW - Mineral Resources	Mining Lease ML 1588 (Mining Act 1992) MR Reference C95-1006	Centennial Springvale Pty Ltd & Springvale SK Kores Pty Ltd	19/10/2006	19/10/2027	Mining Entitlement Parish of Cook and Clwydd Area: 976 Hectares Excepts the surface and land below to a depth of 50.0m
	I & I NSW - Mineral Resources	Mining Lease for Mining Purposes No.3 Ventilation Shaft ML 1537 (Mining Act 1992) MR Reference C01-0171	Centennial Springvale Pty Ltd & Springvale SK Kores Pty Ltd	16/06/2003	16/06/2024	Mining Entitlement Parish of Marangaroo Area: 4.13 Hectares Embraces the surface and land below to a depth of 20.0m (ML 1326)

Type	Regulatory Authority	File / Approval Number	Holder	Issue Date	Expiry / Review Date	Scope
Mining Lease	I & I NSW - Mineral Resources	Mining Lease ML 1352 (Mining Act 1992) MR Reference C93-0235	Centennial Springvale Pty Ltd & Springvale SK Kores Pty Ltd	23/06/1994	23/06/2015	Mining Entitlement Parish of Cox and Lidsdale Area: 8.16 Hectares in 2 parts Embraces the surface and land below to a depth of 2.0m
	I & I NSW - Mineral Resources	Exploration Licence EL 6974 (Mining Act 1992) MR Reference C02-0420	Centennial Springvale Pty Ltd & Springvale SK Kores Pty Ltd	13/12/2007	13/12/2012	Exploration Entitlement Parish of Cox, Cook, Clwydd and Marangaroo Area: 4385 Hectares **Various depth restrictions** Embraces the surface and land below to a depth of 20.0m (ML1326) Embraces the surface and land below to a depth of 50.0m (ML1588)
	I & I NSW - Mineral Resources	Mining Lease ML 1448 (Mining Act 1992) MR Reference C98-0294	Centennial Springvale Pty Ltd & Springvale SK Kores Pty Ltd	31/05/1992	31/05/2013	Mining Entitlement Parish of Lidsdale Area: 95.16 Hectares Embraces the surface and land below to an unlimited depth)

Type	Regulatory Authority	File / Approval Number	Holder	Issue Date	Expiry / Review Date	Scope
Mining Lease	I & I NSW - Mineral Resources	Mining Lease CCL 733 (Mining Act 1973) MR Reference 07-8673	Centennial Springvale Pty Ltd & Springvale SK Kores Pty Ltd	23/05/1990	13/12/2008 Renewal 03/07/2027	Mining Entitlement Parish of Cox and Lidsdale Area: 946.4 Hectares 1990 Area: 939.4 Hectares 1998 Area: 733.2 Hectares 2001 Area: 723.5 Hectares 2002 **Various depth restrictions** Embraces the surface and land below to an unlimited depth (1990-2008) Embraces the surface and land below to a depth of 900m (2008-2027) Embraces the strata between the depth of 6.096m & 45.72m below the surface Excepts the surface and land below to a depth of 4.572m Excepts the surface and land below to a depth of 6.096m Excepts the surface and land below to a depth of 7.62m Excepts the surface and land below to a depth of 9.144m

Type	Regulatory Authority	File / Approval Number	Holder	Issue Date	Expiry / Review Date	Scope
Mining Lease	I & I NSW - Mineral Resources	Mining Lease CCL 733 (Mining Act 1973) MR Reference 07-8673	Centennial Springvale Pty Ltd & Springvale SK Kores Pty Ltd	13/12/2008	Renewal 03/07/2027	Excepts the surface and land below to a depth of 15.24m Excepts the surface and land below to a depth of 20.0m Excepts the surface and land below to a depth of 5.0m
Groundwater Licences (Water Act 1912)	DWE	10B601861	Springvale Coal Pty Limited	05/09/2007	04/09/2012	Parish of Marangaroo Bore No.2 Groundwater Dewatering
	DWE	10B601863	Springvale Coal Pty Limited	04/09/2007	03/09/2012	Parish of Marangaroo Bore at No.3 Shaft Groundwater Dewatering
	DWE	10B602017	Springvale Coal Pty Limited	04/09/2007	03/09/2012	Parish of Lidsdale Collector System Groundwater Dewatering
	DWE	10BL601908	Springvale Coal Pty Limited	04/09/2007	03/09/2012	Parish of Cook Bore No.5a Groundwater Dewatering
	DWE	10BL601909	Springvale Coal Pty Limited	05/09/2007	04/09/2012	Parish of Cook Bore No.5b Groundwater Dewatering
	DWE	10BL603192	Springvale Coal Pty Limited	08/09/2009	08/09/2012	Parish of Cook SSPR5A – Bore No.6 Site Test Bore Approval

Type	Regulatory Authority	File / Approval Number	Holder	Issue Date	Expiry / Review Date	Scope
Groundwater Licences (Water Act 1912)	DWE		Springvale Coal Pty Limited	Application Submitted 30/07/2009 Approval Pending		Parish of Cook Bore No.6 NW2 Groundwater Dewatering
	DWE		Springvale Coal Pty Limited	Application Submitted 30/07/2009 Approval Pending		Parish of Cook Bore No.6 SE2 Groundwater Dewatering
	DWE		Springvale Coal Pty Limited	Application Submitted 30/07/2009 Approval Pending		Parish of Cook Bore No.6 SW2 Groundwater Dewatering
SMP Approval	I & I NSW - Mineral Resources	04/1673	Springvale Coal Pty Limited	07/03/2006	01/03/2013 or Upon the expiry of ML 1326, whichever occurs earliest	Approval for the development and extraction of LW411-LW418
	I & I NSW - Mineral Resources	04/1673	Springvale Coal Pty Limited	12/11/2008	01/03/2013 or Upon the expiry of ML 1326, whichever occurs earliest	Variation approval for the development and extraction of LW411-LW418
	I & I NSW - Mineral Resources	08/8497	Springvale Coal Pty Limited	05/02/2009	01/03/2013 or Upon the expiry of ML 1326, whichever occurs earliest	Variation approval for the development and extraction of LW411-LW418
	I & I NSW - Mineral Resources	08/8497	Springvale Coal Pty Limited	10/09/2009	01/03/2013 or Upon the expiry of ML 1326, whichever occurs earliest	Variation approval for the development and extraction of LW411-LW418

Type	Regulatory Authority	File / Approval Number	Holder	Issue Date	Expiry / Review Date	Scope
Section 138 Approval	I & I NSW - Mineral Resources	Section 138 (1) CMRA 1982 C05/6330	Springvale Coal Pty Limited	04/01/2006	31/10/2009	Approval to longwall mine Panels LW411 and LW412 within the Lithgow seam
Clause 88 Approval	I & I NSW - Mineral Resources	Part 4 Subdivision 5 Clause 88 (1) CMH & SR 2006 CMH & SA 2002 09/2010	Springvale Coal Pty Limited	25/03/2009	01/10/2012 Upon expiry, date can be extended by request to the Chief Inspector	Approval to longwall mine Panels LW413 and LW414 within the Lithgow seam
	I & I NSW - Mineral Resources	Part 4 Subdivision 5 Clause 88 (1) CMH & SR 2006 CMH & SA 2002 09/2010	Springvale Coal Pty Limited	27/10/2009	01/10/2012 Upon expiry, date can be extended by request to the Chief Inspector	Variation approval to longwall mine Panels LW413 and LW414 within the Lithgow seam
Occupation Permit (Forestry Act 1916)	Forests NSW	Occupation Permit 2349 Forests NSW Ref. 664/862 DK	Springvale Coal Pty Limited	26/11/2009		Permit to occupy Newnes State Forest for mining related purposes Area: 26.5 Hectares
Aknowledgement of Notification of Dangerous Goods on Premises	Workcover NSW	Acknowledgement Number 07-100091-001	Springvale Coal Pty Limited	22/01/2007	17/01/2012	Licence to store explosives

1.4 Mine Contacts

Personnel responsible for managing the operation and its environmental aspects are listed in **Table 5**.

Table 5: Mine Contacts

Name	Position	Phone	Email
Terry O'Brien	**Manager of Mining Engineering**	**63 50 1613**	**terry.o'brien@centennialcoal.com.au**
Peter Corbett	**Technical Services Manager**	**63 54 8723**	**peter.corbett@centennialcoal.com.au**
Daryn Railey	**Environmental Co-ordinator**	**63 50 1604**	**daryn.railey @centennialcoal.com.au**

1.5 Mine Geology

1.5.1 General Description of Mine Geology

Springvale Colliery is located in the Western Coalfield at the western margin of the Permo-Triassic Sydney Basin. The Western Coalfield consists mainly of rocks derived from the Hawkesbury and Narrabeen Groups which vary in thickness, hardness and permeability both between and within these assemblages.

The Lidsdale-Lithgow seam mined at Springvale Colliery is a member of the Cullen Bullen subgroup of the Late Permian Illawarra Coal Measures. Both the Lidsdale and Lithgow seams vary in thickness from 1m to about 7.3m respectively. Apart from the varying thickness between the seams, the Lithgow seam is also of greater quality, consisting of mainly a dull, non-swelling bituminous and sub-bituminous coal (Refer to **Plan 7**).

To the west of the Springvale Mining Lease, the Blackman's Flat Conglomerate separates the Lidsdale seam from the Lithgow seam. Within the lease area the combined Lidsdale/Lithgow seam ranges up to 7.3m in thickness of which only the Lithgow seam is of predominantly coal with sub-ordinate claystone bands. Within the combined seam, the LW1 claystone band is taken to be the local correlative of the Blackman's Flat Conglomerate. The seam comprises a series of coal plies separated by thin tuffaceous claystone bands, which form marked horizons across the Lease area. These claystone bands tend to be thin (usually less than 0.10m in thickness) but are sheared and weak, often exhibiting striations on their contacts.

Currently, Springvale Colliery preferentially mines the lower 3 - 3.2m of the Lithgow seam, as it contains the least amount of claystone bands and provides a product to satisfy the ash constraints of current contracts. Depth of cover of the current and proposed workings varies between 300 to 420m with the seam dipping between the NE and E at a grade of approximately 1 in 50 with local variations as result of basement topography and localised structural disturbances.

Significant detailed underground geological mapping and interpretation of geological/geotechnical data has identified many structures (particularly small scale faults) which can be directly correlated with zones of poor ground conditions. The main structural disturbances to the mining activities are as follows:

1.5.1.1 Faults

There are several types of faults present within the mining operation. The most common are small displacements, low angle faults (locally termed greasyback faults) which are evident cutting through the claystone bands but cannot be followed into the overlying or underlying coal plies. In 1998/99, a major north-south trending, reactivated fault zone was intersected over a 1,200m strike length. This fault was extensively reworked with a gouge zone of approximately 0.30m. Associated with this fault were numerous small scale strike-slip, normal and reverse faults that severely weakened adjacent immediate ground resulting in mining problems.

1.5.1.2 Surface Lineaments

Aerial and satellite photography has identified several surface lineaments running across the mining lease. The Kangaroo Creek Lineament trends NW-SE across the first three-longwall panels, while the Wolgan River Lineament trends NE-SW above Longwall panels LW404 - 409 and also LW413. The relationship of the lineaments to underground conditions is currently under review with no underground expression of the Wolgan River Lineament recorded in LW413.

1.5.1.3 Swillies

There are numerous low amplitude disturbances in the coal seam of unknown origin. They usually have little or no effect on the mining activity although higher densities of joints are often observed on the flanks or inflection points of the structures. On average the wave length of the swillies are approximately 30m with an amplitude of <0.5m.

1.5.1.4 Exploration

In the previous MOP period, ten (10) exploration boreholes were completed, during 2005, at Springvale Colliery, in addition to four (4) piezometers holes, four (4) mine dewatering holes and a deep-hole extensometer to monitor groundwater.

Since 2006, thirty eight (38) holes have been drilled on the Newnes Plateau. There have been sixteen (16) exploration boreholes, eight (8) piezometer boreholes, three (3) extensometer boreholes, three (3) gas boreholes, seven (7) dewatering boreholes and one (1) ballast borehole completed. A more detailed breakdown of the drilling, listing the purpose, duration, rehabilitation status, location and hole depth is shown in **Table 11**.

Exploration will continue on the Newnes Plateau during the next MOP period with an estimated six (6) holes scheduled each year from 2009 to 2016. The locations of all boreholes drilled on the Newnes Plateau within the Exploration Licence EL6974 are shown on **Plan 2A** and **Plan 2B**.

1.5.2 Coal Resources and Reserves

The Lithgow Seam is the only economic coal resource within the Springvale Leases. The total reserves within the LW 411 - 418 SMP approval area in the Lithgow seam is 53.0Mt.

As noted in the SMP Written Report, the combined Lidsdale / Lithgow coal seam within the Springvale leases is approximately 7m in thickness. Springvale currently mines the lowermost 3.0m of coal in development and 3.2m on extraction from the Lithgow coal seam, which is the only marketable coal within the seam. The coal plies forming the upper section of the combined seam are high ash coal material and dirt bands in excess of 35% ash and unable to be considered economic. Currently, coal resources within the Springvale Holding total 72.3Mt.

The mineable tonnage remaining in the current LW 411 - 418 SMP approval area is in the order of 25Mt. The currently approved longwall layout for the SMP area, as shown on Plan 1, will provide the following tonnages, based on a working height of 3.0m development, 3.2m longwall extraction, development width of 4.8m and SG of 1.48. The development and longwall tonnages within the LW411 - LW418 approval area are shown in **Table 6**.

Table 6: Development and Longwall Tonnages

Longwall	LW Length (m)	Development (m)	LW Tonnes	Development Tonnes	Total Tonnes
LW411	3,501	21,278	5,062,500	453,500	5,516,000
LW412	3,501	11,279	5,062,500	240,400	5,302,900
LW413 (Max)	2,839	11,279	4,100,879	249,256	4,350,135
LW413 (Min)	2,289	11,279	3,306,415	249,256	3,555,671
LW414	2,315	8,424	3,347,000	205,700	3,552,700
LW415	3,030	8,424	4,380,500	205,700	4,586,200
LW416	3,030	8,424	4,380,500	205,700	4,586,200
LW417	3,030	8,424	4,380,500	205,700	4,586,200
LW418	3,030	8,424	4,380,500	231,000	4,611,500
				TOTAL (Max)	**37,091,835**
				TOTAL (Min)	**36,297,371**

The total resource within the approval area in the lower section of the Lidsdale / Lithgow seam is 53,023,300 tonnes. Providing that geological and geo-technical conditions allow, the maximum total mineable tonnage from the approval area is 37,091,835 tonnes, providing a resource recovery of 70.0%. If those same geological and geo-technical conditions do not allow the extraction of the maximum mineable tonnage, the resource recovery will reduce to 68.5%.

1.5.3 Possible Effects on Other Seams

Exploration drilling has revealed upper seams in the application area, the Katoomba, Wolgan, Irondale and Middle River seams. The Katoomba, Wolgan and Irondale seams are typically thin (<1m) and of inferior quality.

The Middle River Seam is a composite unit of inferior quality coal inter-bedded with siltstone, mudstone and sandstone bands (15 – 20m thick). This unit is separated from the overlying Katoomba Coal seam by the thin Farmers Creek Formation.

1.5.4 Further Plans for Mining in Other Seams

There are no future plans for mining these other seams in the application area due to the currently non economic nature of these seams.

1.6 Land Ownership

The Springvale Colliery lease area lies within the Lithgow Council Local Government area and the Parishes of Cox, Clwydd, Cook, Marangaroo and Lidsdale within the County of Cook. The majority of the holding lies within the Newnes State Forest and Plateau. Some freehold land is located within the boundaries of the subterranean leases CL377 and ML1303. Essentially, the majority of planned mine workings lie beneath the Newnes State Forest and Plateau. An overview of relevant land ownership titles is shown on the **Figure 1-Plan of Operations** and in addition, a schedule of land ownership overlying the lease areas is shown below in **Table 7**

Table 7: Land Ownership Details over Springvale Holding and Coal Services

Owner Name	Lot	DP	Lease	Description
SPRINGVALE MINE				
M.A. Pyne	*14*	*16283*	*ML1303*	*Freehold*
M.A. Jackson	*13*	*16283*	*ML1303*	*Freehold*
W.J. Unsworth	*15*	*16283*	*ML1303*	*Freehold*
W.J. Unsworth	*16*	*16283*	*ML1303*	*Freehold*
D.M. & J.I. Livingstone	*12*	*16283*	*ML1303*	*Freehold*
J.D Wakeling	*11*	*16283*	*ML1303*	*Freehold*
P.T Sharp	*10*	*16283*	*ML1303*	*Freehold*
W.J Unsworth	*17*	*16283*	*ML1303*	*Freehold*
W.J Unsworth	*18*	*16283*	*ML1303*	*Freehold*
P.J Braithwaite	*19*	*16283*	*ML1303*	*Freehold*
J. Rosewarne, V.A Logue, & E.J. Marshall	*20*	*16283*	*ML1303*	*Freehold*
B.T & V.A Fitzgerald	*9*	*16283*	*ML1303*	*Freehold*
M.M Alexander	*8*	*16283*	*ML1303*	*Freehold*
B.E. & G.J Ryan	*7*	*16283*	*ML1303*	*Freehold*
A.W Hollands	*3*	*15649*	*ML1303*	*Freehold*
M.S. & L.J. Morris	*C*	*326622*	*ML1303*	*Freehold*
P.A. Café & S.A. Wheeler	*B*	*326622*	*ML1303*	*Freehold*
G.J. & S.A. Alexander	*A*	*326622*	*ML1303*	*Freehold*
Delta Electricity	*1*	*568265*	*ML1303*	*Freehold*
Delta Electricity	*16*	*855844*	*ML1303*	*Freehold*
P.E. Dutton	*30*	*16283*	*ML1303*	*Freehold*
W.J. Unsworth	*29*	*16283*	*ML1303*	*Freehold*

Owner Name	Lot	DP	Lease	Description
W.J. Unsworth	*28*	*16283*	*ML1303*	*Freehold*
M.C. Bruce	*27*	*16283*	*ML1303*	*Freehold*
M.C. Bruce	*26*	*16283*	*ML1303*	*Freehold*
D.N & M.J Morgan	*25*	*16283*	*ML1303*	*Freehold*
H.C. & M.M. Collins	*24*	*16283*	*ML1303*	*Freehold*
H.C. & M.M. Collins	*23*	*16283*	*ML1303*	*Freehold*
F. Fararo	*A*	*417872*	*ML1303*	*Freehold*
J.H & C.F. Epton	*1*	*607402*	*ML1303*	*Freehold*
C.J. Beecroft	*2*	*607402*	*ML1303*	*Freehold*
M.F. Zustovich	*3*	*607402*	*ML1303*	*Freehold*
A.C. & H.C. Collins	*1*	*551636*	*ML1303*	*Freehold*
Delta Electricity	*101*	*829410*	*ML1303*	*Freehold*
Delta Electricity	*2*	*829137*	*ML1303*	*Freehold*
Delta Electricity	*5*	*829137*	*ML1303*	*Freehold*
Delta Electricity	*228*	*751651*	*ML1303*	*Freehold*
Delta Electricity	*2*	*1018958*	*ML1303*	*Freehold*
State Rail Authority of NSW	*1*	*226790*	*ML1303*	*Freehold*
State Rail Authority of NSW	*2*	*226790*	*ML1303*	*Freehold*
The State of NSW	*129*	*751651*	*ML1303*	*Crown*
Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd	*125*	*751651*	*ML1303*	*Freehold*
Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd	*2*	*835651*	*ML1303*	*Freehold*
State Rail Authority of NSW	*3*	*226790*	*ML1303*	*Freehold*
J.L. & S.L. Murray	*22*	*868170*	*ML1303*	*Freehold*
L.S. & M.A. Mickklesson	*21*	*868170*	*ML1303*	*Freehold*
P.D. Heckendorf	*73*	*751651*	*ML1303*	*Freehold*
W. & L.G. Brooks	*3*	*805024*	*ML1303*	*Freehold*
J.L. Murray	*4*	*805024*	*ML1303*	*Freehold*
The State of NSW	*68*	*751651*	*NL1303*	*Crown*
G.S. Gunn & J.M. McGuirk	*72*	*751651*	*ML1303*	*Freehold*
G.S. Gunn & J.M. McGuirk	*302*	*751651*	*ML1303*	*Freehold*
G.S. Dunn	*407*	*751651*	*ML1303*	*Freehold*

Owner Name	Lot	DP	Lease	Description
C.C. & R. Bush	*67*	*1004747*	*ML1303*	*Freehold*
The State of NSW	*195*	*751651*	*ML1303*	*Crown*
Department of Corrective Services	*1*	*787242*	*ML1303*	*Crown*
The State of NSW	*7*	*751655*	*CL377*	*Crown*
J.L, L.J, M.L. & J Danaia	*30*	*751655*	*CL377*	*Freehold*
J.L, L.J, M.L. & J Danaia	*31*	*751655*	*CL377*	*Freehold*
J.L, L.J, M.L. & J Danaia	*32*	*751655*	*CL377*	*Freehold*
J.L, L.J, M.L. & J Danaia	*33*	*751655*	*CL377*	*Freehold*
J.L, L.J, M.L. & J Danaia	*37*	*751655*	*CL377*	*Freehold*
Puckoon (NSW) Pty Limited	*38*	*751655*	*CL377*	*Freehold*
Puckoon (NSW) Pty Limited	*39*	*751655*	*CL377*	*Freehold*
Puckoon (NSW) Pty Limited	*99*	*751655*	*CL377*	*Freehold*
T.G. & W.F. Best	*26*	*751655*	*CL377*	*Freehold*
Newnes State Forest	*201*	*751655*	*CL377*	*Crown*
Newnes State Forest	*84*	*751655*	*CL377*	*Crown*
Oakey Park Coal Mining and Coke Company Limited	*1*	*113040*	*EL6974*	*Freehold*
Boral Resources (NSW) Pty Ltd	*47*	*751655*	*EL6974*	*Freehold*
Boral Resources (NSW) Pty Ltd	*50*	*751655*	*EL6974*	*Freehold*
Newnes State Forest	*51*	*751655*	*EL6974*	*Crown*
Newnes State Forest	*52*	*751655*	*EL6974*	*Crown*
Newnes State Forest	*53*	*751655*	*EL6974*	*Crown*
Newnes State Forest	*202*	*751655*	*EL6974*	*Crown*
Newnes State Forest	*203*	*751655*	*EL6974*	*Crown*
Newnes State Forest	*35*	*751634*	*ML1588*	*Crown*
COAL SERVICES				
Delta Electricity	*101*	*829410*	*MPL314*	*Freehold*
Delta Electricity	*1*	*1087684*		*Freehold*
Delta Electricity	*5*	*1087684*		*Freehold*
Ivanhoe Coal Pty Limited	*101*	*1137972*	*MPL314*	*Freehold*
Ivanhoe Coal Pty Limited	*16*	*751651*	*MPL314*	*Freehold*
Ivanhoe Coal Pty Limited	*2*	*567915*	*MPL314*	*Freehold*

Owner Name	Lot	DP	Lease	Description
Ivanhoe Coal Pty Limited	*147*	*751651*	*MPL314*	*Freehold*
Ivanhoe Coal Pty Limited	*358*	*751651*	*MPL314*	*Freehold*
Ivanhoe Coal Pty Limited	*375*	*751651*	*MPL314*	*Freehold*
Ben Bullen State Forest	*502*	*825541*	*MPL314*	*Crown*
J.W. Hunt	*371*	*751651*	*MPL314*	*Freehold*
Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd	*501*	*825541*	*ML1352 ML1448*	*Freehold*
Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd	*357*	*751651*	*ML1352 CCL733*	*Freehold*
Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd	*13*	*751651*	*ML1352 CCL733*	*Freehold*
Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd	*15*	*8049291*	*ML1352 CCL733-Part Relinquished*	*Freehold*
Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd	*9*	*8049291*	*CCL733-Part Relinquished*	*Freehold*
Delta Electricity	*2*	*702619*	*CCL733 Relinquished*	*Freehold*
Delta Electricity	*1*	*702619*	*CCL733 Relinquished*	*Freehold*
Delta Electricity	*191*	*629212*	*CCL733 Relinquished*	*Freehold*
Delta Electricity	*18*	*751636*	*CCL733 Relinquished*	*Freehold*
Centennial Springvale Pty Ltd and Springvale SK Kores Pty Ltd	*1*	*88503*	*CCL733*	*Freehold*
State Rail Authority of NSW	*8*	*252472*	*MPL314*	*Freehold*
State Rail Authority of NSW	*1*	*252472*	*MPL314*	*Freehold*
State Rail Authority of NSW	*2*	*702619*	*MPL314*	*Freehold*

1.7 Consultation

1.7.1 Subsidence Management Plan LW411 – LW418

The Department of Primary Industries – Mineral Resources (now I & I NSW - ME) approved the Springvale SMP covering LW 411 - LW 418 on 7 March 2006. Subsequent SMP Variation Applications have been submitted and approved for Longwall 413 and Longwall 414 in November 2008, February 2009 and September 2009.

Community consultation during the preparation of the SMP for the approved area LW 411 – LW 418 was undertaken in accordance with the Department of Mineral Resources (DMR) "*Guidelines for Applications for Subsidence Management Approvals*" (December 2003) and the "*Guidelines for Best Practice Community Consultation in New South Wales Mining and Extractive Industries*" New South Wales Minerals Council.

The Subsidence Community Consultation Process fulfils the requirements of Condition 13 of the Springvale SMP Approval. The general aim of the process is to ensure that the needs of the community for information, consultation and participation are adequately considered during the development and implementation of the SMP via a transparent and interactive process.

The Springvale Community Consultation Program was submitted I & I NSW – ME on 6 September 2006. A review of the consultation process was conducted and the updated program submitted to I & I NSW – ME on 23 September 2009. A copy of the Subsidence Community Consultation Process is included as **Attachment 8**.

Extensive consultation was conducted during the SMP application process. Consultation has continued with the DPI – Mineral Resources (now I & I NSW – ME), regulatory agencies and stakeholders during the approved mining period. The relevant stakeholders are listed below in **Table 8**. As part of the community consultation process, regular meetings have been held with Relevant Stakeholders to update them on the progress of longwall extraction, monitoring programs and any associated subsidence impacts. Mid-Panel and End-of-Panel reviews have been held for LW 411 and LW 412 and the dates are listed below.

- LW411 Mid-Panel Review 8 December 2006
- LW411 End-of Panel Review 7 December 2007
- LW412 Mid-Panel Review 5 November 2008
- LW412 End-of Panel Review 18 September 2009

Table 8: Relevant Stakeholders

Department / Authority / Organisation	Contact
Department of Planning	Mr Howard Reed
Industry & Investment NSW – Minerals and Energy	Ms Elise Newbury
	Dr Gang Li
Industry & Investment NSW – Forests NSW	Mr Gavin Jeffries
NSW Office of Water	Mr Mark Mignanelli
Sydney Catchment Authority	Mr George Dodds
Lithgow City Council	Mr Roger Bailey
Department of Environment, Climate Change and Water	Mr Andrew Helms
	Mr Peter Christie
	Mr Mark Irvin
Colong Foundation for Wilderness Limited	Mr Keith Muir
Blue Mountains Conservation Society Incorporated	Ms Tara Cameron
Gundungurra Tribal Council Aboriginal Corporation	Ms Sharon Brown
Bathurst Local Aboriginal Land Council	Mr Warwick Peckham
Centennial Coal - Angus Place Colliery	Mr Jacques Le Roux

1.7.2 Newnes State Forest

The extraction of coal within the Springvale Operation is conducted below the Newnes State Forest. As the landholder, Forests NSW is consulted in an ongoing capacity in relation to works associated with the mining operation, subsidence monitoring and exploration activities conducted within the Newnes State Forest. These works are carried out in accordance with the terms of an agreement held with Forests NSW. This agreement followed the preparation of a Review of Environmental Effects developed to the satisfaction of Forests NSW Bathurst Regional Office.

This MOP document has been drafted to reflect the management of issues raised in consultation with the Forest NSW and other stakeholders listed above. Relevant strategies highlighted through consultation are generally inclusive of agreed management actions.

1.7.3 Stakeholder Management Plan

Springvale Coal understands its commitment to sustainable development, emphasised within the Centennial Coal Environmental Policy. The company pledges to effectively manage close working relationships with appropriate statutory organisations and community stakeholders to meet this obligation. Through active response to broader stakeholder expectations Springvale aims to responsibly achieve the long-term interests of shareholders, employees and the community in which it operates. This commitment, combined with EPL and consent conditions, form the primary driving force to engage stakeholders throughout Springvale Coal's various operations.

The close proximity of townships to site operations, combined with environmental concerns (primarily subsidence), are major drivers for Springvale to develop long-term working relationships with local communities and other priority stakeholders. Springvale views that engaging appropriate stakeholders throughout all operations is essential to ensure that issues are dealt with in a timely manner, minimising production delays and satisfying both regulatory and community obligations. Through early involvement in development applications and operational changes unexpected set-backs are reduced with a realistic timescale produced satisfying all parties.

The cooperation of both the local community and statutory organisations is deemed highly necessary as Springvale Coal mines under an ecologically sensitive area. A wide range of stakeholders are already involved through a series of processes including the AEMR, EMS, SMP, End of Panel reviews and Lambert's Gully CCC . Furthermore, Springvale financially supports several community activities. Direct contact with a number of local residents regarding the ongoing operation at the Coal Services Site is made, including the operation of the existing open cut. Such stakeholder engagements prove highly constructive.

Springvale's Stakeholder Engagement Management Plan disseminates:

- Identification of stakeholders.
- Methods of engagement.
- Frequency of engagement.
- Person(s) responsible for engagement.

The site Stakeholder Engagement Plan **(Attachment 9)** is implemented as document number SV-MS-028 and includes strategies to engage (but not limited to) the following:

- Regulator and statutory groups
- Non-government organisations
- Key industry
- Environmental contactors
- Indigenous groups
- Employees/Centennial corporate
- Community

Stakeholder engagement is a key aspect of Springvale's business plan, supported by Centennial Coal company policies and an overriding commitment to sustainable development.

2 PRE MOP ENVIRONMENT

2.1 Existing Environment

Springvale Mine is an underground operation, located largely beneath Crown land in the Newnes State Forest. Springvale does not lie within a Mines Subsidence District. The nearest district embraces the township of Lithgow approximately 7km south of the colliery holding.

Coal Services incorporates only surface related activities. The infrastructure covers a more diverse area which extends from the Springvale pit top at Lidsdale to the Coal Preparation Plant and associated infrastructure located on the Western Main leases adjacent to the village of Blackmans Flat. Mining titles provide the appropriate legal tenement for the infrastructure over these areas, which include freehold land, Crown Land and State Forest.

2.2 Aboriginal and European Cultural Heritage

2.2.1 Springvale Mine

An archaeological assessment was conducted over panels LW 411 to LW 418 in December 2004 by Environmental Resource Management Australia Pty Ltd for the Springvale SMP Application. Prior to the commencement of the field surveys, the Gundungurra Tribal Council Aboriginal Corporation (TCAC) and the Bathurst Local Aboriginal Land Council (LALC) were consulted in relation to the proposed survey areas. Following agreement of these plans, representatives from both groups participated in all field work which was carried out. Both the Bathurst LALC and the Gundungurra TCAC assessed the Aboriginal cultural heritage value of the study area.

No significant, overhanging rock shelters or any shelters with flat, sandy floors suitable for occupation were found during the survey. Additionally, no stone artifacts, art sites, campsites, scarred trees or grinding groves were found. No Aboriginal heritage sites of any type were found during the survey of the study area. Information in relation to potential heritage sites and artifacts, from this survey, was submitted to the DPI – Mineral Resources as Appendix G of the Springvale LW 411 – LW 418 SMP Application.

Additionally there are two known Aboriginal heritage sites within the proximity of, though not located within, the approved SMP area LW 411 – LW 418. These sites are located over the Springvale Colliery main headings adjacent to the outbye end of Longwall LW 410. The sites are rock shelters located in the upper catchment of Marrangaroo Creek approximately 600m from the #3 Shaft site and shown on **Plan 2A**.

A number of Aboriginal sites ranging from open sites, artifacts and shelters were recorded in the area of the pit top and conveyor route during surveys undertaken during the initial EIS. A number of other archaeological surveys have been undertaken since the EIS particularly in relation to the location of the conveyor route.

Management of these sites identified in the surveys involves monitoring the stability of shelter sites 10 and 11, as identified in the EIS, by subsidence monitoring. All maintenance work along the conveyor route is kept within the confines of the development area to prevent damage to site adjacent to the conveyor route.

Only one item of potential heritage significance was identified in the EIS, which consisted of a dilapidated stone Hospital Cottage located along the Lithgow-Mudgee Road. In 1994, capital was invested by Springvale to restore the cottage, which is currently used as office facilities for company personnel.

2.2.2 Coal Services

Several archaeological sites have been recorded within ML 1448 in the past, of which only one was re-located and assessed during the OzArk survey, conducted in 2005 as part of the application for the extension of the Lamberts Gully Open Cut operation. All coordinated sites below are in MGA.

During the 1992 Springvale Overland Conveyor study, Rich & Gorman (1992) identified four sites, with a further three being recorded during Rich's subsequent 1993 assessment for the conveyor belt realignment route. During assessment of Lamberts Gully, Brayshaw and Haglund recorded 2 sites, of which one was a re-recording of a site previously documented by Rich & Gorman. In total, there are eight (8) previously recorded sites within the Lease Area. Of these, four sites have been issued with Section 90 permits (#45-6-2355, 45-1-0243, 45-6-2355, 45-6-2354) and subsequently destroyed. The remaining four sites are discussed below, as they should remain unaffected within the current mine plan boundaries. The location of these sites can be found on **Figure 3**.

2.2.2.1 Site 5 (DEC # 45-1-0208) – MGA E 225 654.6 N 6 303 239.5

This site was previously recorded by Rich and Gorman in 1992. This open camp site was recorded on the toe slope of a ridgeline south-east of Lamberts Creek. Two quartz artifacts were found on a track within 5m of each other, one being a whole flake the other broken and many other quartz pieces were noted nearby.

OzArk attempted to relocate this site using the co-ordinates provided as well as the map on which Rich and Gorman recorded the site. At what appeared to be the appropriate location, there were indeed many quartz pieces, but none that could be definitively identified as being artefactual in nature.

2.2.2.2 Site 6 (DEC # 45-1-0203) – MGA E 225 284.7 N 6 303 409.5

This open camp site was recorded by Rich and Gorman in 1992 on a flat area on a steep sloping spur leading down to Lamberts Creek. An area of approximately 100 x 30m along a vehicle track was described as bearing 16 artifacts. All of the artifacts were quartz with the exception of two being quartzite. Cores, flakes and flaked pieces were present with one quartzite piece demonstrating a utilised edge. Three of the four pebble cores present were bipolar and two had flake scars across the surface of the platforms (Rich and Gorman 1992: 46). The site was assessed as likely to bear more artifacts, although not substantial numbers and deposits were not noted as likely due to the stony nature of the ground.

Again, OzArk attempted to relocate this site using the co-ordinates provided as well as the map on which Rich and Gorman had recorded the site. According to the coordinates, this site has been destroyed by the existing Lamberts Gully open cut mine. According to the map, the site may still remain extant on the edge of the open cut pit, however, concentrated attempts to relocate this site were unsuccessful. As a result, it appears most appropriate to consider this site as no longer extant.

2.2.2.3 Site 7 (DEC # 45-1-0218) – MGA E 224 504.6 N 6 303 839.5

This open camp site was recorded by Rich and Gorman in 1992 on a gently sloping spur leading down to a small creek line along the western edge of the mine extension area. Approximately ten artifacts were recorded here, all but one were made of quartz, while the last was of a fine grained white material, and included 8 flakes and 2 cores. Visibility was assessed as low and more artifacts were thought likely to be present with the further possibility of intact sub-surface deposit.

OzArk relocated this site using both co-ordinates and the maps provided. Not all of the artifacts were relocatable, but they did find several of the previously recorded artifacts as well as three artifacts not previously recorded:

1. Broken flake - Fine grained, creamy-grey material, flake scars on dorsal surface, measuring 5 x 4 x 1cm;
2. Flake – White quartz, 2 x 0.8 x 0.7cm; and
3. Flake – Creamy chert, 2.5 x 1 x 0.6cm.

OzArk generally agrees with the previous assessment of this site by Rich and Gorman (1992: 48) that overall impacts to this site are potentially minimal in terms of disturbance, and that there is limited potential for intact archaeological deposit.

2.2.2.4 Site SVW OS-1 with PAD – MGA E 225 900.6 N 6 303 385.5

Open camp site with Potential Archeological Deposit. The site is located roughly on the border of the eastern side of Mining Lease 1448 which is situated on the Centennial property known as Western Main Colliery (Springvale Washery).

The site is located within 200m east of Lamberts Creek 7 (DEC # 45-6-2354), located by Brayshaw / Haglund in 1992 and a site previously destroyed under a NPWS permit. The site is on a slightly elevated flat open landform near a minor ephemeral drainage line. Six artifacts were recorded on an unsealed service track, four of which were diagnostic. The artifacts were removed off the track and placed at the base of a red stringybark. At MGA co-ordinates E 225876.6, N 6 303 382.5

Discussions with the BLALC in the field confirmed that this was of high Aboriginal significance and archeologically, the site was assessed as having provisionally moderate scientific significance as it had the potential to contain in situ archeological deposits.

The site was flagged in the field with a wooden marker post such that the Mine Manager was aware of its location and could direct any works to avoid unnecessary impact.

2.2.2.5 Site IF2 (Not registered on DEC)

This isolated find was recorded by Rich in 1993 on a track near the existing conveyor belt in the central portion of the area along the northern boundary. It comprises a single quartz broken flake and was never registered on the DEC AHIMS database. It was impossible to relocate this artefact and thought unlikely that it will be relocated despite several attempts.

2.2.2.6 Relationship to Mining Activities

As noted above, 8 sites have been previously recorded in the Area, including the existing Lamberts Gully mine area. Of these, 4 have had Consent to Destroy permits issued over them, 2 of which included a test excavation component. Of the remaining 4 sites, 1 may have been inadvertently destroyed by the mining operations, 2 are minor (one an isolated find, the other an open site with 2 artifacts) and have been assessed as having low significance, leaving one site, Site 7 (# 45-0-0218) with moderate potential still extant within the current Area.

As a result of further archaeological investigations, Site 7 is now protected and will not be impacted by the proposed development.

2.2.2.7 Mitigation Measures

Centennial Coal has made an undertaking to protect those archaeological sites remaining within the development area. The main site, Site 7 has been flagged with tape and noted on mining plans to be avoided. This site has subsequently been fenced off. There is now no longer any need for further approvals under the National Parks and Wildlife Service Act.

2.3 Flora

2.3.1 Regional

As a result of field survey and reference to the Royal Botanic Gardens study 13 map units or plant communities have been identified as occurring in the Benson and Keith (1990) study area. The study area comprised the Wallerawang 1:100,000 map sheet which contains not only the Springvale lease area but extends for a distance beyond the boundaries.

The Department of Environment and Climate Change has published a report "*The Vegetation of the Western Blue Mountains including the Capertee, Coxs, Jenolan & Gurnang Areas"* (DEC, 2005). The study area includes the LW 411 - 418 SMP approval area. These plant communities, identified in this study, are listed below.

- Blue Mountains Sandstone Plateau Forest
- Montane Gully Forest
- Newnes Plateau Woodland
- Tablelands Gum Peppermint Woodland
- Western Scribbly Gum Woodland
- Cox's Valley Woodland
- Snow Gum Woodland
- Mottled Gum Open Woodland
- Newnes Plateau Shrub Swamps
- Cox's River Swamps
- Montane Heath
- Pagoda Complex
- Cleared Land

2.3.2 Approved SMP Area LW411 – LW418

Springvale Colliery is required to establish a Subsidence Environmental Monitoring Program (SEMP) under the Springvale Subsidence Management Plan (SMP) Approval, Conditions 7, 8 & 9. As an integral component of the overall Springvale Colliery Environmental Management System, this management plan aims to highlight the environmental risks posed by subsidence on the Newnes Plateau and identify control strategies seeking to mitigate such risks. The SEMP was submitted to the I & I NSW -ME on 7 July 2006. A review of the management plan was completed and submitted to the I & I NSW -ME on 23 September 2009.

The SEMP describes the environmental monitoring and reporting program to detail how the effects of subsidence on the environment are to be monitored and managed. This includes baseline data collection, investigation, assessment and regular reviews. The program aims to identify management measures to remediate / mitigate any subsidence impacts. Copies of the Springvale Colliery Environmental Management System (SV-MS-027) and Subsidence Environmental Monitoring Program (SV-MS-036) are included as **Attachment 10**.

Baseline and continuing monitoring has identified various individual plant and plant communities within the application area. Five (5) plant communities have been identified as occurring in the application area. These are listed below:

- Montane Gully Forest
- Newnes Plateau Woodland
- Mottled Gum Open Woodland
- Newnes Plateau Shrub Swamps
- Montane Heath

Detailed descriptions of these communities are included below.

2.3.2.1 Montane Gully Forest

Dominant Species:

- Brown Barrel (*E. fastigata*)
- Mountain Gum (*E. dalrympl*eana)

The more sheltered valleys in the dissected south-western extremities of the Newnes Plateau support an open-forest dominated by Brown Barrel and Mountain Gum. Associated tree species include Narrow-leaved Peppermint, Ribbon Gum (*E. viminalis*) and Blue Mountains Ash (*E. oreades*). Ribbon Gum is only present on the margins of the open valleys around the western edge of the Plateau.

Whilst the understorey is typically composed of a ground layer of medium to high density with only a sparse shrub cover, there are occasional shrub thickets. Common shrub species include Silver Wattle (*A. dealbata*), Blackwood (*A. melanoxylon*), *Cassinia sp*. *and Banksia cunninghamii*. Ground layer species include the ferns, Bracken Fern (Pteridium esculentum), *Blechnum nudum*, the herbs, *Lomandra longifolia* and *Hydrocotyle laxi*flora, and the grasses, *Microlaena stipoides* and *Poa sieberana*.

Montane Gully Forest is widely distributed in the Blue Mountains area and is reserved within the Blue Mountains and Wollemi National Parks.

2.3.2.2 Newnes Plateau Woodland

Dominant Species:

- Silvertop Ash
- Blue Mountains Ash
- Broad-leaved Peppermint (*E. dives*)

On the flatter parts of the Newnes Plateau where deeper, friable sandy soils occur a woodland community dominated by Silvertop Ash, Blue Mountains Ash and Broad-leaved Peppermint exists. Benson and Keith (1990) record that this community includes a range of structural forms varying from open-forest through woodland to open-woodland and low woodland. Variation is based on natural factors such as soil fertility and fire regime as well as selective logging. In the study area the most common structural forms are open-forest and woodland.

Associated tree species include Mountain Gum, Blaxland's Stringybark and, in poorly drained sites, Mottled Gum (*E. mannifera ssp. gullickii*). Benson and Keith (1990) state that there is considerable diversity in the dominant tree species.

In many areas the understorey has been disturbed by selective logging, extraction of fuel wood and by feral pigs which are apparently quite common on the Newnes Plateau. The shrub layer is typically of low density, with higher densities being present in burnt areas. Common shrub species include *Daviesia latifolia, Acacia dorothea*, Sunshine Wattle, *Phyllota squarrosa, Monotoca scoparia* and *Petrophile canescens*.

The ground layer vegetation also varies in accord with the extent of disturbance. Grassy areas are widespread. These areas often have a diversity of graminoids and herbs. Other sites support prostrate shrubs. Common grasses include Red-Anther Wallaby Grass (*Chionochloa pallida*), a Spear Grass (*Stipa pubescens*), Tussocky Poa (*Poa labillardieri*) and Snow Grass (*Poa sieberana*). Among the more common herbs are *Lomandra glauca, Lomandra multiflora, Dianella revoluta* and *Amperea xiphoclada*. The common prostrate shrubs are *Grevillea laurifolia* and *Persoonia chamaepitys*.

This plant community is restricted to the Newnes Plateau. The only example represented in a reserve is a small area within Birds Rock Flora Reserve (Benson and Keith 1990). The examples within the study area are disturbed to an extent by logging and feral pigs, but are still of high conservation significance due to the limited extent of the community and the lack of adequate representation in conservation reserves.

2.3.2.3 Mottled Gum Open Woodland

Dominant Species:

- Mottled Gum (*E. mannifera*)
- Broad-leaved Peppermint
- Snow Gum
- Narrow-leaved Peppermint

Poorly drained, relatively flat areas near the highest parts of the Newnes Plateau support an open woodland dominated by Mottled Gum. Other tree species present include Broad-leaved Peppermint, Snow Gum, Mountain Gum and Narrow-leaved Peppermint (Benson and Keith 1990).

The understorey has a ground layer of medium density with a sparse shrub layer, becoming denser in patches. Common shrub species include *Hakea dactyloides, Boronia microphylla, Phyllota squarrosa*, Tea Trees and *Lomatia silaifolia*. Ground layer species include Tussocky Poa, the herbs*, Helichrysum scorpioides, Dianella revoluta, Gahnia filifolia* and *Lepyrodia scariosa*.

This community has a restricted distribution with the more extensive stands occurring on the Newnes Plateau.

2.3.2.4 Newnes Plateau Shrub Swamp

Benson and Keith (1990) describe two main plant communities within the 'Newnes Plateau Shrub Swamp' map unit. The distribution of the communities is distinguished by clay content of the soils.

The first community is dominated by shrubs including *Epacris microphylla, Epacris paludosa, Grevillea acanthifolia, Leptospermum grandifolium and Baeckea linifolia*. Graminoids dominate the ground layer flora with common species including *Restio australis, Lepyrodia scariosa, Lepyrodia anarthria* and *Empodisma minus*. The main example of this swamp type in the study area occurs along tributaries of Carne Creek. Smaller examples of similar, but more limited floristics occur along Marrangaroo Creek (e.g. near the old water supply dam on the Creek).

The second community, which appears to occur on soils of higher clay content, and at slightly higher altitudes is dominated by Tea Trees, including *Leptospermum obovatum, Leptospermum continentale*, *Leptospermum flavescens*, and *Baeckea utilis*.. Again graminoids are the most common ground layer species with common species including *Restio australis, Juncus continuus and Lepyrodia spp*. A major example of this swamp type occurs along Kangaroo Creek.

2.3.2.5 Montane Heath

Dominant Species:

- Dwarf She-Oak (*Allocasuarina nana*)
- Heath-leaved Banksia (*Banksia ericifolia*)
- *Leptospermum attenuatum*
- *Phyllota squarrosa*

Shallow soils around the fringes of the Newnes Plateau may support an open-heath community dominated by Dwarf She-Oak, Heath-leaved Banksia, *Leptospermum attenuatum* and *Phyllota squarrosa*. There is a diverse range of shrub species present in addition to those identified as dominants. These include *Calytrix tetragona, Hakea propinqua, Leptospermum arachnoides, Isopogon anemonifolius, Hakea dactyloides* and *Brachyloma daphnoides*.

The ground layer flora is generally of low density. Sedges including *Lepidosperma viscidum*, *Schoenus villosus* and *Gahnia spp*. are common. Other ground layer plants include Red-Anther Wallaby Grass (*Chionochloa pallida*), *Patersonia longifolia* and *Dampiera stricta*.

Montane Heath, although a widespread plant community along the tablelands in New South Wales, generally occurs in small areas. There is some floristic variation with altitude and latitude. The community is considered to be adequately conserved in New South Wales.

2.3.3 Threatened Species

2.3.3.1 Regional

Benson and Keith (1990) observed four plant species of conservation significance in the course of their field studies with another seven species listed that may occur as suitable habitat exists within the area. These species are listed below:

- *Acacia asparagoides*
- *Banksia conferta bar. Penicillata*
- *Boronia deanei*
- Snow Daisy *(Celmisiia sp. Nov. aff. Longifolia)*
- *Dillwynia stipulifera*
- Black Box *(E. aggregata)*
- Wolgan Snow Gum *(E. gregsoniana)*
- *Eucalyptus laophila*
- *Leptospermum blakelyi*
- *Micromyrtus sp.*
- Oak-leaved Daisy Bush *(Olearia quercifolia)*
- *Persoonia hindii*
- *Pultanaea incurvata*

2.3.3.2 Springvale Mine Lease Area

Persoonia hindii is the only endangered species (Schedule 1 – Threatened Species Conservation Act 1995) found on the Newnes Plateau above the Springvale mining lease area. *Derwentia blakelyi* is a known threatened (vulnerable) flora species (Schedule 2 – Threatened Species Conservation Act 1995) on the Newnes Plateau above the Springvale mining leases. Additionally it is considered that the threatened species *Boronia deanei* is considered likely to occur within the lease area. *Boronia deanei* is listed on the federal Environment Protection and Biodiversity Conservation Act 1999 (EPBC).

2.3.3.3 Endangered Ecological Communities

2.3.3.3.1 Newnes Plateau Shrub Swamp

Newnes Plateau Shrub Swamps occur on long gentle open drainage lines on the Newnes Plateau. It forms a dense, wet heath with an unevenly-textured, tussock sedge understorey. Trees are generally absent, although occasional eucalypts do occur where there is greater influence from incoming sediments. The main shrub species are Baeckia linifolia, Grevillea acanthafolia, Epacris species and Leptospermum species. The consistent features of the ground cover are Cyperiod species Lepidosperma limicola, and button grass (gymnoschoenus sphaerocephalus) and Empodisma minus and members of the Resionaceae. (DEC, 2005)

Whilst the unit is typically within the Triassic age Narrabean Sandstone, the community itself occurs within recent alluvial deposits that form in the low-lying, broad valleys of the plateau. They range in elevation from 900 to 1,120m above sea level. There is usually between 880 – 1,080mm of precipitation per annum (DEC, 2005).

2.3.3.3.2 Newnes Plateau Hanging Swamp

Newnes Plateau Hanging Swamps occupy gully heads and ridgetop sites at points of water seepage where percolating groundwater travelling through the sandstone is forced outwards by impermeable shale layers. These form ephemeral wet peaty soils on which a range of swamp heath plants grow. The uppermost stratum, which may include mallees such as *E. gregsoniana* and tea tree (*Leptospermum juniperinum*) and Banksias are usually only a few metres above ground level and may only be sparse. In constrast the lowest stratum may only be a 1 metre off the ground or more, with coral fern (Gleichenia) and umberella fern (Sticherus) combining with large saw-sedge (*Gahnia sieberiana*) to form a nearly impenetrable layer. (DEC, 2005)

Soils are permanently saturated peat and humic loams, formed of the build up of the plants growing in the community. Occurring almost exclusively on the Triassic era Narabeen sediments, the unit occurs between 900 and 1,170m above sea level. Although not of primary importance for sustaining the unit (it being a groundwater dependant ecosystem), there is between 900 and 1,070mm of precipitation per annum. (DEC, 2005)

2.3.3.3.3 Newnes Plateau Rush - Sedge Snow Gum Hollow Wooded Heath

The highest ridgelines of the Newnes Plateau include open depressions that are sites of semi permanent water seepage. A wet woody shrub swamp occupies these locations. The uppermost stratum is very open cover of snow gum (*E. Pauciflora*), with occasional Mountain Gum (*E. dalrympleana*). Taller shrubs of tea tree (*Leptospermum obovatum*, *L. trinervium*) and swamp grevillea (*Grevillea acanthafolia*) are by far the most abundant feature of the community. A dense, uneven cover of various sedges and rushes dominated empodisma minus is to be foundcovering the ground long with small, moisture loving forbes (DEC, 2005).

Found at elevations of 1,150 to 1,170m above sea level, growing in saturated, humic-loam sediments overlying the Narrabeen sandstones. There is about 1,020mm of precipitation per annum, but the landscape position suggest that groundwater and seepage are more important for the persistence of the community (DEC 2005).

2.4 Threatened Fauna

A substantial number of fauna species are located both in the SMP area and within a 20km surrounding area of the Springvale leases. Records of fauna species known to occur within the boundaries of Springvale Colliery, as well as within a radius of 20km surrounding the mine, were obtained from a variety of sources. These included:

- *Eulamprus leuraensis* (Blue Mountains Water Skinks);
- *Climacteris picumnus* (Brown Treecreeper);
- *Callocephalon fimbriatum* (Gang Gang Cockatoo);
- *Petalura gigantean* (Giant Dragonfly);
- *Ninox strenua* (Powerful Owl);
- *Cercartetus nanus* (Eastern Pygmy Possum)
- *Tyto novaehollandiae* (Masked Owl)

Records from the wildlife database are held by the Department of Environment, Climate Change and Water (formerly National Parks & Wildlife Service). Fauna records within the 1:100,000 Wallerawang, Bathurst and Katoomba map sheets were obtained under Licence Number. CON93005.

One endangered fauna species (Schedule 1 – Threatened Species Conservation Act 1995) has previously been found in the Newnes Plateau, above the Springvale underground mining leases. In 2002, two specimens of the Blue Mountains Water Skink (*Eulamprus leuraensis*) were found at EPA Licenced Discharge Point 4 at the rear of Longwall LW 409. The author of the study, Dr. Arthur White, concluded that the discharge water from the mine was improving habitat quality for this species. The Blue Mountains Water Skink is listed in the EPBC Act.

A further endangered species the Stuttering Frog (*Mixophyes balbus*) plus six vulnerable species the Powerful Owl, Brown Treecreeper, Black-chinned Honeyeater, Squirrel Glider, Eastern Bent Wing Bat and Eastern Pygmy Possum were located within the SMP application area during surveys conducted by Mount King Ecological Surveys as part of the back ground monitoring for this application (see Appendices E of SMP Application). The Bathurst Copper Butterfly has been found on the western edge of the Newnes Plateau near Lithgow and Marrangaroo. This species has not been found over the Springvale mining leases (Umwelt, 2002).

Two further endangered fauna species (Schedule 1 – Threatened Species Conservation Act 1995) the Broad Headed Snake and Regent Honeyeater and fourteen additional vulnerable fauna species (Schedule 2 – Threatened Species Conservation Act 1995) potentially occur (from habitat analysis) within a 20km radius of the Springvale underground mining leases. These species are the Diamond Firetail (*Stagonopluera guttata*), Koala (*Phascolarctos cinereus*), Yellow-bellied Glider (Petaurus australis), Brush-tailed Rock-wallaby (*Petrogale penicillate*), Eastern False Pipistrelle (*Falsistrellis tasmaniensis*), Rosenberg's Goanna, Red - Crowned Toadlet, Glossy Black Cockatoo, Turquoise Parrot, Square-tailed Kite, Speckled Warbler, Spotted-tailed Quoll, Large-eared Pied Bat and Giant Dragonfly. None of these species have actually been sighted in the area, however, potential habitat exists.

2.4.1 Threatened Species

A list noting threatened and endangered species and their occurrence in the Springvale SMP application area, mine lease area and within a 20km radius of the mine is shown below in **Table 9**.

There are other threatened species known from the general area surrounding Angus Place Colliery e.g. Freckled Duck (*Stictonetta naevosa*) and Blue-billed Duck (*Oxyura australis*), but their precise locations are not known.

Seven Part Tests of significance were undertaken for each of the species listed under the TSC Act and it was determined that none of the species nor their habitat were likely to be significantly impacted by the proposed mining, either because subsidence would not have a significant impact, or because it was unlikely that the species occurs in the area due to lack of suitable habitat.

Additionally, an Assessment of Significance under the EPBC Act was undertaken for each of the listed species. It was concluded that there would not be a significant impact to any of the species based on the fact that subsidence would not have a significant impact on any species and that preferred habitat does not occur within the area for the majority of species identified in the search.

Table 9: Threatened and Endangered Species Within and Surrounding the Springvale Lease Area

Common Name	Schedule Threatened Species Conservation Act 1995	2004 Survey Sightings within SMP Application area	Previous Sightings within Springvale Lease area	Previous Sightings within a 20km radius of the mine
Stuttering Frog	Endangered	1		
Blue Mountains Water Skink	Endangered		3 (Discharge, Junction Swamp, Carne Creek headwaters	10
Broad-headed Snake	Endangered			2
Regent Honeyeater	Endangered			1
Rosenberg's Goanna	Vulnerable			1
Red-crowned Toadlet	Vulnerable			3
Glossy Black-cockatoo	Vulnerable			7
Turquoise Parrot	Vulnerable			1 site
Square-tailed Kite	Vulnerable			1
Powerful Owl	Vulnerable	1	1 (Sunnyside Ridge Road)	9
Brown Treecreeper	Vulnerable	3		8
Diamond Firetail	Vulnerable			1
Speckled Warbler	Vulnerable			1
Brush-tailed Rock-wallaby	Vulnerable			2
Spotted-tailed Quoll	Vulnerable			7
Koala	Vulnerable			15
Yellow-bellied Glider	Vulnerable			3
Squirrel Glider	Vulnerable	1		3
Eastern Pygmy-possum	Vulnerable	1		1
Eastern Bentwing Bat	Vulnerable	1		12
Eastern False Pipistrelle	Vulnerable			9
Large-eared Pied Bat	Vulnerable			7
Giant Dragonfly	Vulnerable		1(E boundary, E arm Wolgan tributary)	8
Bathurst Copper Butterfly	Vulnerable			28
Black-chinned Honeyeater	Vulnerable	1		

3 PROPOSED MINING ACTIVITIES

3.1 Exploration

Exploration will continue on the Newnes Plateau during the next MOP period with an estimated six (6) holes scheduled each year from 2009 to 2016. The location of all boreholes drilled on the Newnes Plateau within the Exploration Licence EL6974 is shown on **Plan 1 & 2A** and **Plan 1 & 2B**.

3.2 Land Preparation

3.2.1 Clearing and Vegetation Disposal

Vegetation clearing and land disturbance occurred at Springvale during the previous MOP period. In 2005, land preparation involved clearing for the excavation of the Delta Water Transfer System water sharing pipeline. A total of 4.17Ha of land was disturbed along a ten-kilometre section of the pipeline. A three metre wide section was disturbed along the shoulder of Beecroft's Track, also along the Fernbrook Power Line Easement to lay the pipeline and a further three metre wide section, where vegetation clearing occurred for sections of the pipeline which were not adjacent to the existing road or power line.

Clearing also took place for the overflow line from the Gravity Tank to Licensed Discharge points 4 & 5. In this section of line a total of 0.57Ha was disturbed of which 0.42Ha was cleared. Clearing for the No. 5 Borehole site and Power Line was carried out during 2005. The borehole site is approximately 0.16Ha and the power line is approximately 2.5Ha. Four hydrogeological monitoring borehole sites and one extensometer hole site was cleared consisting of drill pads (20m x 20m), totalling 0.4Ha.

Surface clearing activities for the duration of the existing MOP have included exploration and monitoring boreholes and also for the preparation for and dewatering boreholes as shown in **Table 10**. Additionally, the drilling and installation of infrastructure for the additional dewatering bores (Bore No.6), initially scheduled for the next MOP period has been brought forward. A total of 0.56Ha was cleared for the dewatering bore installation with a further 0.7Ha cleared for the access track and the installation of the underground power and dewatering pipeline. A 3m wide section covering 1.3km was also disturbed in order to extend underground power from the Bore No.5 to the Bore No.6 site.

All clearing of vegetation and surface disturbance in the Newnes State Forest was conducted in consultation with Forests NSW after a review of environmental factors (REF) and within the agreed guidelines that exist with Springvale Coal. A copy of the agreed guidelines with Forests NSW (*Environmental Controls for Civil and General Earthworks Carried Out in the State Forest SV20MS-001*) is included in **Attachment 10**. Title over these areas is currently held in the form of Occupation Permit 2349. A Mining Lease Application is to be submitted to I & I NSW – Minerals and Energy to cover the Bore 6 dewatering facility once an existing Mining Reserve, relating to sand, is removed.

All clearing of vegetation within and adjacent to the Coal Services site(s) has been carried out under the previously approved MOP period. No further clearing is required during the term of this MOP.

Table 10: Springvale Borehole Status 2006 – 2009

SPRINGVALE MINE											
Hole ID	**Purpose**	**Cased**	**Case**	**Commenced**	**Completed**	**Rehab**	**Sealed**	**Easting**	**Northing**	**RL**	**Depth**
SPR37R	Piezometer	96	Steel	20/01/2006	03/02/2006	Yes	Fully Grouted	239074.22	6300367.47	1170.39	420
SPR40	Extensometer	36	Steel	11/01/2006	19/01/2006	Yes	Open	236758.2	6304554.8	1129.37	380
SPR42	Exploration	30	Steel	04/06/2008	17/06/2008	Yes	Fully Grouted	240864.932	6299653.586	1148.833	403.27
SPR43	Exploration	108	PVC	05/12/2007	17/12/2007	Yes	Fully Grouted	239470.496	6301095.01	1163.859	426
SPR43R	Coal Gas Evaluation	42	Steel	16/10/2007	20/12/2007	Yes	Fully Grouted	239487.057	6301094.725	1163.844	426.62
SPR44	Exploration	164	Steel	09/04/2008	06/05/2008	Yes	Fully Grouted	238578.505	6299230.619	1098.203	321.58
SPR45	Exploration	150	Steel	03/04/2008	08/04/2008	Yes	Fully Grouted	239132.66	6298442.235	1145.734	366.08
SPR45R	Exploration	210	Steel	01/07/2008	07/07/2008	Yes	Fully Grouted	239137.705	6298437.051	1145.774	359
SPR46	Exploration	32	Steel	20/05/2008	03/06/2008	Yes	Fully Grouted	240673	6299026.409	1158.927	399.51
SPR48	Piezometer	6	Steel	21/11/2007	22/11/2007	Yes	Fully Grouted	237217.08	6304198.905	1152.75	203
SPR49	Piezometer	13	Steel	14/05/2008	15/05/2008	Yes	Fully Grouted	237245.903	6303199.9	1165.999	300
SPR50	Piezometer	6	Steel	13/11/2007	20/11/2007	Yes	Fully Grouted	238290.35	6304151.562	1156.8	204
SPR51	Piezometer	6	Steel	23/11/2007	07/05/2008	Yes	Fully Grouted	237957.312	6303240.734	1158.306	390
SPR52	Extensometer	12	Steel	12/05/2008	13/05/2008	Yes	Open	237054.617	6303750.196	1165.204	390
SPR53	Exploration	32.5	Steel	21/01/2009	02/02/2009	Yes	Fully Grouted	239814.82	6300812.875	1135.773	396.66
SPR54	Exploration	34	Steel	03/02/2009	11/02/2009	No	Fully Grouted	238390.235	6300516.234	1135.835	374.2
SPR57	Exploration	38.5	Steel	11/12/2008	20/01/2009	No	Fully Grouted	238419.921	6299861.656	1162.207	392.75
SPR58	Exploration	34	Steel	02/12/2008	11/12/2008	Yes	Fully Grouted	240197.473	6299323.21	1153.211	396.4
SPR59	Exploration	32	Steel	12/02/2009	23/02/2009	No	Fully Grouted	239802.664	6301656.43	1115.142	387
SPR60	Exploration	29	Steel	24/02/2009	03/03/2009	No	Fully Grouted	239873.946	6303000.307	1079.563	367
SPR61	Exploration	39	Steel	04/03/2009	13/03/2009	No	Fully Grouted	238319.032	6303131.235	1147.874	414
SPR61G	Exploration	38	Steel	16/03/2009	25/03/2009	No	Fully Grouted	238322.916	6303129.559	1147.404	413.5
SPR62	Exploration	40	Steel	24/04/2009	05/05/2009	No	Fully Grouted	238507.727	6303657.789	1156.944	429
SPR62G	Exploration	30	Steel	14/05/2009	25/05/2009	No	Fully Grouted	238508.789	6303655.67	1156.5	427
SPR63	Exploration	34	Steel	05/05/2009	14/05/2009	No	Fully Grouted	239001.077	6304151.998	1120.764	406
SPR64	Piezometer	42	Steel	18/08/2009	25/08/2009	No	Fully Grouted	238420.212	6299864.681	1162.651	412

Hole ID	Purpose	Cased	Case	Commenced	Completed	Rehab	Sealed	Easting	Northing	RL	Depth
SPR65	Extensometer	33	Steel	26/08/2009	28/08/2009	No	Open	237390.907	6304221.551	1149.047	422
SPR66	Piezometer	32	Steel	01/09/2009	02/09/2009	No	Fully Grouted	239824.338	6301994.189	1108.287	408
SPR67	Piezometer	33	Steel	08/09/2009	09/09/2009	No	Fully Grouted	238709.483	6302283.601	1124.916	286
SPR68	Exploration	367.5	Steel	10/09/2009	30/09/2009	No	Fully Grouted	238703.617	6302278.838	1124.652	396.2
SPRDW6 NE	Mine Dewatering	5.6	Steel	03/03/2009	20/03/2009	No	Fully Grouted	238502.715	6304523.666	1146.26	471.5
SPRDW6 NW	Mine Dewatering	0	Nil	17/04/2009	02/05/2009	No	Fully Grouted	238482.686	6304523.129	1147.736	421.5
SPRDW6 NW2	Mine Dewatering	464	Steel	24/07/2009	15/09/2009	No	Open	238477.651	6304523.511	1147.852	470
SPRDW6 SE	Mine Dewatering	5.6	Steel	24/03/2009	25/06/2009	No	Fully Grouted	238503.168	6304509.628	1146.421	470
SPRDW6 SE2	Mine Dewatering	467	Steel	26/08/2009	15/09/2009	No	Open	238495.793	6304512.277	1147.027	470
SPRDW6 SW	Mine Dewatering	0	Nil	05/04/2009	16/04/2009	No	Fully Grouted	238483.153	6304509.088	1147.576	474.5
SPRDW6 SW2	Mine Dewatering	468	Steel	17/07/2009	14/09/2009	No	Open	238478.469	6304508.309	1147.917	470
SPRLD1	Mine Ballast	259.5	Steel	30/11/2006	17/12/2006	No	Open	237016.83	6301211.51	1144.555	372

KEROSENEVALE PROJECT											
Hole ID	**Purpose**	**Cased**	**Case**	**Commenced**	**Completed**	**Rehab**	**Sealed**	**Easting**	**Northing**	**RL**	**Depth**
KVD01	Exploration	6	PVC	08/2008	08/2008	No	Grouted	230144.647	6301710.842	928.715	36.15
KVD02	Exploration	6	PVC	08/2008	08/2008	No	Unknown	229323.593	6301727.977	923.899	30.35
KVD03	Exploration	6	PVC	08/2008	08/2008	No	Grouted	229548.348	6301334.164	919.42	21.3
KVD05	Exploration	6	PVC	08/2008	08/2008	No	Grouted	230093.652	6301211.232	947.145	48.25
KVD06	Exploration	6	PVC	08/2008	08/2008	No	Unknown	230026.793	6300920.813	948.252	48
KVD07	Exploration	6	PVC	08/2008	08/2008	No	Grouted	230179.089	6302245.396	910.371	35.63
KVD08	Exploration	6	PVC	11/2008	11/2008	No	Grouted	230221.15	6301973.094	919.204	33
KVD09	Exploration	6	PVC	11/2008	11/2008	No	Unknown	230243.037	6301559.627	931.103	36
KVD13	Exploration	6	PVC	11/2008	11/2008	No	Unknown	229912.627	6301640.77	919.963	22
KVD-GT	Exploration Geotechnical Investigation	6	PVC	22/10/2008	24/10/2008	No	Grouted	230241.36	6302061.51	914.232	33
KVO18	Exploration	6	PVC	04/08/09	04/08/09	No	Grouted	230066.98	6302147.9	911.3	31
KVO19	Exploration	6	PVC	04/08/09	04/08/09	No	Grouted	230030.89	6301795.779	922.27	34
KV_MB1S	Piezometer	29.5	PVC	29/10/08	29/10/08	No	No	230599.984	6301290.026	964.816	29.5
KV_MB1D	Piezometer	73.0	PVC	29/10/08	29/10/08	No	No	230604.192	6301288.165	965.439	73.0
KV_MB2D	Piezometer	19.0	PVC	05/11/08	05/11/08	No	No	229718.584	6301382.999	920.285	18.99
KV_MB3S	Piezometer	33.25	PVC	28/10/08	28/10/08	No	No	230276.955	6301743.088	930.247	33.25
KV_MB3D	Piezometer	41.0	PVC	28/10/08	28/10/08	No	No	230276.636	6301746.634	930.032	41.04
KV_MB8A	Piezometer	13.0	PVC	28/07/09	28/07/09	No	No	229166.350	6301607.400	910.080	13.00

3.3 Construction

3.3.1 Existing Buildings and Mining Infrastructure

Springvale's existing surface facilities and mining related infrastructure are primarily located at the mine pit top. These include the administration building, bathhouse, workshop, lamp room, meal room, first aid room, sewage treatment facility, wash-down bays, ROM coal stacker, 85,000t stockpile, hardstand material storage area, bulk fuel storage area, store, compressor room, substations, switch-room, hardstand car parking area for approximately 125 vehicles. Predominantly all the buildings are colourbond. The bathhouse and administration are part Hebel brick and colourbond. The electrical substations are cement blocks. No substantial alterations or modifications to building or infrastructure are proposed. The existing layout of the Springvale pit top surface facilities and infrastructure is shown in **Plan 1D** and surface infrastructure located at the No. 3 Shaft Site is shown on **Plan 1E**. Other facilities within the MOP area include:

- Downcast shafts located approximately two kilometres from the pit top. The upcast shaft site (constructed 2005) comprises two fans (one running – one standby) that run at approximately 120m^3 per second. These shafts are located within Newnes State Forest.
- The overland conveyor, which connects the mine and Mt Piper, the Coal Services site and Lidsdale Siding. The locations of these sites are shown on **Figure 1 and Figure 3**.
- Dewatering boreholes and associated water treatment sites located within Newnes State Forest. The locations of these sites are shown on **Plan 1 & 2A**.

Springvale Coal Services' existing surface facilities and related infrastructure are located over a broad area that extends from Springvale Mine pit top to Lidsdale Rail Siding and the coal preparation plant (CPP) located on the Western Main Leases at Blackmans Flat. The Springvale Coal Services Operation interfaces with the Springvale Mine at the point of delivery from CP01 underground conveyor to the reinforced concrete Rill Tower. The infrastructure at Springvale pit top consists of the ROM stockpile, coal reclaim system and a screening and crushing plant which delivers onto the overland conveyor system for supply contacts to Delta Electricity.

Infrastructure located on the Western Main leases are shown on **Plan 1F** and include the following:

- ROM and clean coal stockpile areas
- Screening and crushing plant and
- Coal Preparation Plant
- Tailings ponds for the receipt and retention of fines reject from the coal preparation plant
- Approved REA for the disposal of course reject from the CPP
- Proposed REA located to the south of the overland conveyor, within the Lamberts Gully lease ML1448. The appropriate approvals for this REA will be in place prior to the cessation of the Huon No.6 REA, located on the western edge of CCL733. This area (Area 4) will be relinquished to Delta and will form part of the ash emplacement program.
- Settlement Ponds located adjacent to the ROM Stockpile .These ponds capture the run off from the stockpile area and the screening and crushing plant prior to discharge from site via licensed discharge point LDP006.
- Electrical substations and transformer yards. This infrastructure consists of brick buildings with steel roofing located at various points along the conveyor. These buildings house electrical control components and associated equipment.
- Main Control Room – A brick and steel building located at the Blackmans Flat site. The main control room houses the central PLC control equipment, high voltage switchgear, motor control cubicles and ancillary equipment.

- Washery Switch Room – A brick and steel building located adjacent to the washery houses the switch room containing high voltage switchgear, motor control cubicles and ancillary electrical equipment for the CPP.
- Concrete water storage tanks (above ground) located adjacent to the CPP to provide water storage for use in the CPP and fire fighting purposes.

3.3.2 Access Roads

The main access road for Springvale Mine is from the Castlereagh Highway, approximately 1km south of the village of Lidsdale. The road to the pit top area is sealed and regularly maintained by contractors.

Access roads to exploration borehole, pumping and No.3 Shaft sites in the Newnes State Forest are via public roads, which are predominantly unsealed and require four-wheel drive capability. Springvale has a maintenance agreement with Forests NSW relating to these access roads. Ventilation Shafts 1 and 2 are accessed along a private road owned by Delta Electricity. Springvale has an agreement to utilise this road for access purposes. Access along the overland conveyor is via an unsealed corridor within the mining leases MPL314 and ML1352, which overlies company and privately owned land.

The main access road to the Coal Services site is from the Castlereagh Highway, within the village of Blackmans Flat. The road is not sealed and is regularly maintained by contractors. Access roads to the Coal Preparation Plant, stockpile areas, the existing Huon REA, the proposed REA to the south of the overland conveyor and the existing tailings ponds (co-disposal) are unsealed and are designed to a standard to allow for four-wheel drive and truck access

3.3.3 Power Supply

Power is supplied to the Mine at 66kV, from the State Public Grid by Integral Energy. The 66kV incoming feed supplies 2 x 8MVA, 66kV/11kV transformers. One 8MVA transformer is sufficient to operate current mine requirements as peak power demand is some 7MVA.

An additional 8MVA transformer has been installed approx. 1km from No. 3 Ventilation Shaft. This is supplying Nos. 3 Shaft Fan, Longwall and the Compressors on the surface at the shaft area. Two of these transformers supply 11kV to the main Substation (Nos. 1) where it is then distributed by 12 x gas filled circuit breakers to either the surface substation or underground. Another 66kV / 11kV 5MVA substation supplies the seam to surface bore pump infrastructure (three (3) Springvale bore pumps and one (1) Angus Place Colliery bore pump).

At the Coal Services site, various supplies provide power for the operation of plant. The Screening and Crushing Plant is powered from the main incoming supply to the Springvale Mine Site. OL1 Conveyor is powered from a separate supply from Integral Energy located at Brays Lane. The CPP and all other conveyors are powered by an 11kV feed from Integral Energy from the Blackmans Flat Substation. Power is reticulated around the site via zero sequence reactor and overhead 11kV overhead transmission lines. Transformers are located to reduce voltages as required.

3.4 Underground Mining

As noted previously, the remaining underground mining in the current MOP area, within the proposed MOP period, will consist of the completion of longwall extraction of LW 413 to LW 418. in accordance with the MOP variation. This variation was submitted due to amendments to the mine plan and associated surface infrastructure caused by a combination of geological conditions, resulting in potential roof control issues, and changes in seam grades, resulting in the need to install a dewatering borehole (Bore No.6) in a revised location, to control mine water.

Development of roadways in the original LW 414 installation position, for the installation of dewatering borehole No.5, encountered considerable geological disturbance and required substantial secondary roof support. It is expected that more difficult mining conditions will be encountered in longwall extraction in the northern sections of Longwalls 414 to 416.

Additionally, the floor of the seam, which tended to fall in a north easterly direction, has turned to a more easterly direction creating problems with dewatering of the mine workings. This problem has now been magnified as floor levels indicate a syncline which will allow substantial quantities of water to be contained in this area creating both mining and potential safety issues unless the area can be successfully continuously dewatered. Dewatering boreholes have normally been installed at the northern (installation face) ends of the panels with the water gravitating to these boreholes to allow dewatering of the mine workings. With the existence of the syncline it is necessary to relocate the dewatering bore to a revised position which will eliminate the potential dewatering problem.

This decision has been reached following extensive review of both the geological model and existing and interpreted floor levels, the dewatering system of the mine has required revision and has resulted in the requirement to amend the position and timing of the proposed Bore No.6 dewatering bore identified in the approved MOP. Additionally, Springvale intends to lodge an application for a Mining Lease for Mining Purposes to include the surface and depth below to 20m, to provide continuous title from the surface to seam for the provision and maintenance of surface infrastructure associated with the Bore No.6 dewatering borehole once an existing Mining Reserve relating to sand is revoked. Tenure is currently held over this area by an Occupation Permit (No.239) with the landholder, Forests NSW.

Geological and geo-technical conditions within Longwall 413 and Longwall 414 extraction are expected to be more difficult than those experienced in the previous longwalls in this area, resulting in a mid-panel face relocation (“step-around”) to avoid areas of geological disturbance in LW 413 and the potential shortening of LW 414. Additional support has been installed in LW 413 gateroad with the existing level of support in 414 Panel gateroad increased accordingly. The length of LW414 is currently being assessed following the review of geotechnical results from the increased support levels.

3.4.1 General Description of Design

Springvale Colliery is an underground mine which extracts coal from the Lithgow seam using longwall mining techniques. The principal coal output is extracted from a 305m wide longwall face with an average extraction height of 3.2m. The extraction blocks vary in length from around 1,800m for the first 11 longwalls (LW 1 to LW 410) to approximately 3,500m for LW 411 to LW 412. The remainder of the planned extraction (LW 413 to LW 418) has been amended by SMP Variation Applications submitted in October 2008, January 2009 and August 2009. These applications were approved in November 2008 February 2009 and September 2009, with the new longwall block lengths and proposed areas of extraction shown on the **SMP Approved Plan**.

The mine layout is constrained by the lease boundary and subsidence protection zones designed to protect sensitive surface escarpment areas. **Plan 1 & 2(A), (B) & (C)** shows the mine plan with existing and proposed workings and subsidence protection zones. It is currently planned to extract a total of around 2.8 – 4.0Mtpa, with the majority of production to be sold on the Power Generation market.

3.4.2 Geotechnical Information to Support Design Criteria

3.4.3 Overview of Mine Systems

Development roadways are driven using conventional single pass continuous miner extraction. Roadway dimensions are nominally 4.8m wide by 3.2m high. Main roadway development involves a five heading layout with a nominal 100m x 40m pillar centres in an E – W orientation. Longwall gateroad development involves a two heading layout with a nominal 110m x 45m pillar centres in a N – S orientation. Both longwall and development coal are initially transferred by means of an underground conveyor system to a surface stockpile.

A Longwall mining system is utilised to extract coal. This comprises 200 x 800 tonne 2 leg Joy supports, 5 x 1,050 tonne Joy supports (2 located at the tailgate end and 3 at the maingate end), a 1,260 kW 3.3kV DBT AFC and a Joy 4 LS/5 double ended drum shearer constitute the major equipment. The maingate and tailgate supports have been revised to provide increased support density at both the maingate and tailgate. It is expected that these supports will reduce the number of occurrences of cavities at the gate road ends of the face. The purchase of this additional new support equipment represents a further incremental step in securing the safe operation of the longwall face.

Springvale utilises the following mining equipment and plans to maintain, upgrade and replace during efficiency monitoring.

Longwall (305m wide face)
3.3kV Joy 4LS/5 double ended ranging drum shearer.
200 x 800 tonne Joy shield supports.
5 x 1,050 tonne Joy shield supports (2 at the tailgate and 3 at the maingate)
3.3kV, 1,260kW A.F.C.

Development

Four Joy 12CM30 Continuous Miners
Five Joy 15SC32 Shuttle Cars
Two Stamler Ratio Feeders
One Hexham Ratio Feeder
Two 18m^3/s ABB auxiliary fans
Two 13m^3/s ABB auxiliary fans
Four Mobile roof bolting rigs
Associated diesel personnel and equipment transporters and loaders
Associated pumping, electrical reticulation equipment

3.4.3.1 Mine Ingress/Egress

Entry to the mine is via two, in-seam, portals (the seam outcrops at the mine entry). The entries extend for approximately 2,500m past the abandoned Renown Colliery workings prior to connecting with the five heading main roadways. The downcast shafts are located near the transition from two entries to the main roadways. The Upcast shaft is located at 86ct 400 mains. One of the portal entries is a dedicated transport road and the other is used as a belt road with walking access for a second egress, if required.

3.4.3.2 Coal Conveyance

Coal production is conveyed to the surface stockpile via a network of six (6) surface and underground trunk belts. Details of the underground belts are listed in **Table 11**.

Table 11: Underground Conveyor System

Belt	Width	Length
No.1	1,400mm	177m
No.2	1,400mm	1,300m
No.3	1,400mm	2,085m
No.4	1,400mm	4,480m
LW 413	1,200mm	2,830m
414 Panel	1,200mm	1,730m

Delivery of coal to Mt Piper and Wallerawang Power Stations is via a 11km overland conveyor system. Coal can be stockpiled at the Coal Services site located at Blackmans Flat. Detail of the overland conveyor system is shown below in **Table 12**.

Table 12: Overland Conveyor System

Belt	Width	Length
OL 1	900mm	3,059m
OL 2	900mm	4,240m
OL 3	900mm	1,289m
OL 4	900mm	1,368m
OL 5	900mm	742m

3.4.3.3 Mining Seam Section

The Lithgow / Lidsdale coal seam within the Springvale leases is generally in the order of 7.0m in thickness. Springvale currently mines the bottom 3.0m to 3.2m of coal from the Lithgow Coal Seam, which is the only marketable coal within the seam. The seam dips at approximately 1 in 50 generally in a north easterly direction. The longwall extraction in the application area takes place in a southerly up dip direction. **Plan 7b** shows the seam profile section. The longwall mining equipment in use at the colliery can operate to maximum height of 3.5m.

Springvale Colliery markets the majority of its production to the local electricity generator with the remainder of production directed toward the export market. The requirements of this contract include heavy penalties for ash levels that exceed specifications, and may include the possibility of rejection of coal supply. The usual working section mined at Springvale Colliery is nominated as the Lithgow Seam. Mining of a seam section thicker than the Lithgow Seam, results in ash levels that exceed the contract specifications.

3.4.3.4 Ventilation and Methane Drainage

The mine is ventilated by two fans (one running and one standbye) in parallel installed at the top of the upcast ventilation shaft. The fan is currently exhausting 130m^3/s of air. The shaft is approximately 3.8m in diameter and concrete lined.

The ventilation system is designed to provide a minimum of 4m^3/s, per metre of extracted height, at the longwall face and 4.6m^3/s at each continuous miner unit, in accordance with the Coal Mines Health and Safety Act 2002.

The Lithgow coal seam is extremely low in methane gas content and therefore no active management such as methane drainage is required. Methane monitoring in general body mine ventilation gases is undertaken for mine safety reasons.

3.4.3.5 Spontaneous Combustion

Test samples of coal from the Lithgow and Lidsdale seams indicate a low propensity for spontaneous combustion. In order to further minimise the risk of spontaneous combustion a Spontaneous Combustion Management Plan has been submitted and approved by the Coal Mines Inspectorate. Measures to minimise risk include gas monitoring in critical areas (both continuous real time monitoring in ventilation airways and regular bag samples in sealed areas). Mine design parameters such as limiting the ventilation intake to return differential pressures and timely installation of goaf seals are also included in the plan.

No recorded incidences of underground spontaneous combustion have been recorded at Springvale since commencement of operations.

3.4.3.6 Seam Gas

The levels of seam gas desorbed at Springvale are very low, as is the case generally in the Western District Coalfield. Methane levels measured at Springvale, even in sealed goafs have not exceeded 1.4%. Likewise, other gases associated with coal seams have not been recorded in significant quantities. Adherence to measures prescribed in the Coal Mines Health and Safety Act 2002 is practised in case of anomalous occurrences of flammable or toxic seam gases.

3.4.3.7 Development Roadway Failure

Roadway conditions are highly variable and require similarly variable support regimes. In areas where geological structures and stress concentration are not present primary support is adequate to maintain long term stability. Where structure / stress concentration is present secondary support is required to maintain long term stability. Secondary support installation and timing is a subject of ongoing study at Springvale colliery due to the operational delays and high costs associated with support installation and rectification support works.

3.4.3.8 Stress

In situ stress magnitudes at Springvale are moderate to high (when normalised with respect to rock stiffness). The principal horizontal stress is generally oriented in an ENE – WSW with a magnitude of 14 - 15MPa. The minor horizontal stress direction is approximately perpendicular to it with a magnitude of 10 - 12MPa. Vertical stress levels are typically around 10MPa. Stress concentration has been found to occur in situations where surface valleys overlie the workings and where structural features such as fault intersections occur.

The impact of stress concentration on development roadway drivage has been noted to cause shear failure of the roof strata along bedding planes up to a height of 8m. Although the mechanism is generally similar the rate and severity of failure has varied extensively and required installation of high density cable support (up to 4 by 8m bolts per metre), steel sets, Polyurethane Resin injection, and rib replacement.

The impact of stress concentration on the longwall is most commonly seen in the Maingates, particularly in areas overlain by valleys and when extraction has passed beyond the stress shadow of the previous longwall. Convergence of roof, floor and sides has been noted, with preparatory roof / rib support now installed prior to extraction in areas likely to be affected. Face conditions are seldom stress affected and routine tailgate passive support has generally eliminated problems in this area.

3.4.3.9 Subsidence Management

Subsidence monitoring is carried out in accordance with the approved Subsidence Monitoring Program and various management plans which forms part of our SMP approval conditions. Condition 10 of the Springvale SMP Approval stated the following:

"The leaseholder shall undertake a subsidence monitoring / reporting program for the subject panels. This program shall include but not be limited to any proposed inspection regimes, layout of monitoring points, parameters to be measured, monitoring methods and accuracy, timing and frequencies of surveys and inspections. It shall be agreed to by the PSE prior to commencement of longwall mining. The leaseholder must implement any changes to the monitoring / reporting program, if required by the PSE during the development of subsidence arising from the longwall mining."

The revised predictions and subsidence results have been provided to and discussed with the Principal Subsidence Engineer I & I NSW – ME. Maximum subsidence recorded to date in the Springvale longwall mining area is 1,424mm over LW 410 and in the approved SMP area 1,325mm over LW 411. Subsidence survey monitoring results to date have been consistent with revised predictions. A summary of the subsidence results are shown in **Attachment 7.**

Surveys of powerlines are undertaken at six (6) monthly intervals and have shown no adverse impacts. No remedial work has been required. Various management plans provide monitoring procedures and TARPS relating to any subsidence impacts and appropriate management of these impacts.

Springvale submitted a copy of the Springvale Subsidence Management Program (SMP) for LW 411 – LW 412 and the program was approved on 1 March 2006. A further review for LW 412 was conducted and agreed to on 7 May 2008. The SMP for LW 413 – LW 414 was submitted to the I & I NSW – ME and approved on 17 July 2009. A copy of the Springvale Subsidence Management Program is included as **Attachment 12**.

Protection zones have been established around cliff lines on the Newnes Plateau. These cliff lines and subsidence protection zones are located to the east and the south of the current approved mining area.

3.4.3.10 Subsidence Incident Management

As a part of its subsidence management process, Springvale has a system in place designed to report, manage and consult on incidences relating to (or suspected to be related to) subsidence anomalies. Springvale follows the steps as presented in **Attachment 5** and summarised below. The detection of any anomalous results will trigger the following:

1. Field inspection
2. Evaluation of the cause to determine if the results was caused by mining (or some other cause either natural or anthropogenic)
3. If mining induced, notify relevant Government Departments in accordance with SMP conditions
4. Determine impact – temporary or long term
5. Investigate existing data
6. Carryout additional monitoring (in consultation with relevant Government Departments / land owners or managers) as required
7. Undertake remediation if appropriate following consultation with the appropriate Government Departments

The type and extent of additional monitoring required will depend solely on the nature and severity of the anomalous condition. Potential management and remedial measures are outlined Springvale's Environmental Monitoring Program (SV-MS-036) however their implementation will again depend on the severity of the situation, the outcome of Government Department consultation and the outcome of inspections, reports and consultation with appropriate expert consultants.

In December 2008, anomalous behaviour was noted within East Wolgan Swamp. The anomalous behaviour consisted of an area of slumping and a cavity into which mine water discharge would flow during times of emergency discharge.

The East Wolgan Swamp is classified as a NPSS and is located in the bottom of a narrow, relatively steep-sided valley, at around 40 - 50m below the ridge top. It has a total catchment of approximately 266Ha. The drainage line within which the Swamp is located, flows into the Wolgan River. East Wolgan Swamp straddles the Angus Place and Springvale SMP areas and is located partially above the goaf area and chain pillars associated with Springvale's 411 longwall panel extraction and partially above the coal barrier between Angus Place and Springvale. Longwall 411 was extracted by Springvale, commencing in March 2006.

East Wolgan Swamp is located within an ephemeral drainage line and has historically received discharge waters from the Springvale underground mine water management system enabled through Springvale's EPL. In more recent times (and since 2006), continuous discharge into the drainage line ceased as a result of the Springvale to Delta Water Transfer Scheme which transfers the mine water to the Power Station. To enable operational efficiencies, Springvale has approval to release water as emergency discharges during times when the water transfer scheme is inoperable.

As a result of this incident, Springvale is in the process of following the steps described earlier. This included Government Department notification, field investigations, Stakeholder meetings (including the Department of Environment, Water Heritage and Arts), Investigation Report and a proposal has been presented regarding further investigative works, stabilisation and monitoring. In that regard, Springvale (at the time of writing the MOP) is up to Step 6. The exact cause of the anomalous behaviour has not been determined and could have been a combination of a number of factors which may include:

It is highly likely that there has been a coincident set of conditions which may have lead to the formation of the cavity and/or slumping. Whilst this has not yet been fully determined, they probably include:

- the intersection of major structures (associated with valley / water course formation);
- the orientation of the longwall panel relative to the watercourse and the major structures (sub parallel);
- the steepness and depth of the East Wolgan watercourse at its northern end;
- existence of piping within the peat material exacerbated by the force and extent of the emergency discharge waters which were intermittent in nature resulting an on / off, wetting / drying cycle;
- the prevailing in-situ stress direction and magnitude; and
- the location of the cavity close to the permanent barrier pillar, where tilts and strains are maximised (consequence of mining).

This phenomenon has not occurred elsewhere on the Newnes Plateau above Angus Place or Springvale workings. However, it should be noted that a valid comparison can be made with the conditions in the Narrow Swamp, which is the nearest swamp to East Wolgan Swamp, and most like it in nature. Longwall mining was successfully completed beneath Narrow Swamp, with no mining induced cracking or loss of flows. This anomalous behaviour, in East Wolgan Swamp will be considered in the ongoing risk management process as Springvale mines beneath other Newnes Plateau Shrub Swamps.

3.4.3.11 Geological Structure

Numerous geological structures have been noted and predicted in the Springvale lease area. Typically these take the form of multiphase (reworked) strike-slip, normal or low angle thrust faults with low displacement. The orientation of the structures, are typically N – S or WNW – ESE. The intersection points of faults in these different orientations have been noted to be areas where the extremely poor roof / floor conditions occur. In addition to weakening the strata around these areas stress concentration and rotation have been observed. Extensive studies and modelling have been carried out so as to project likely structure zones.

Geological structures also contribute to roadway failure at Springvale. Typically where structures occur, stress concentration is also observed and extensive support must be installed as drivage occurs as a critical path task. In extreme situations, forepoling techniques must be employed to allow continuance of development drivage operations.

The impact of structures on the longwall has been most significant in the maingate, particularly where coupled with stress concentration. As above, convergence issues have been noted and preparatory support is now installed in structured areas prior to extraction. Face control issues as a result of geological structures have rarely been an issue to date.

3.5 Coal Preparation and Handling

3.5.1 Mineral Processing

3.5.1.1 ROM Stockpile

Coal is deposited on the stockpile via means of a conveyor network linking the surface to the underground production areas. Coal is stockpiled initially by the reinforced concrete Rill Tower with a nominal capacity of 23,000t. The coal is sized underground to a nominal capacity of -200mm. During periods of peak production the stockpile capacity is increased by using a Caterpillar D10R (or similar) dozer to spread the ROM coal. Maximum capacity of the ROM Stockpile is 85,000t.

3.5.1.2 Coal Reclaim System

Coal is reclaimed from the ROM stockpile by means of two (2) activators and two (2) vibratory feeders .The nominal capacity of the reclaim system is 900tph. The feed rate on to the reclaim conveyor is controlled by a process loop between a belt weigher and the PLC Control system.

3.5.1.3 Screening and Crushing Plant

Coal is discharged from the reclaim conveyor to a sizing and scalping screen located within the steel frame fully clad Screening and Crushing Plant. The -50mm product is collected in the underpan of the first stage of the screen and deposited directly on to CP04 conveyor and subsequently to the Overland Conveyor System without further processing. The +50mm - +175mm product is separated on the second stage of the screen and is delivered on to CP03 Conveyor to the discharge chute above twin MMD Coal Sizers. The sizers reduce this coal to a nominal -50mm product for delivery to the Overland Conveyor System.

3.5.1.4 Overland Conveyor System

The main overland conveyor system consists of 5 conveyors (OL1 - OL5) of 900mm in width and travelling at a speed of 4.5m/s.These conveyors have a capacity of 900tph and allow the delivery of coal from Springvale to the Delta owned and operated Mt Piper Power Station. The capacity of the return conveyor from Coal Services to the Lidsdale Rail Siding is 600tph. Feed rate on to the Overland System is also controlled by a process loop between belt weighers and a PLC Control system. Ancillary conveyor systems allow Springvale to deliver coal to Wallerawang Power Station (via OL1 and W01 Conveyors) and the Coal Preparation Plant located at Blackmans Flat.

The existing overland conveyor system is approximately 11km in length and is fully enclosed for approximately 9.5km and partially enclosed for the remaining 1.5km. This conveyor system is inspected daily and maintained as required. There are no planned changes to this system during the term of this MOP. The route of the overland conveyor is shown on **Figure No.1 and Figure No.3**.

Coal is diverted from the main conveyor line at the junction of OL2 and OL3 Conveyors. This coal is transferred via conveyor to an area known as the Western Main Stockpile. This stockpile has a nominal capacity of 100,000t beneath the tripper with the ability to extend its capacity using dozers. These stockpile areas are under the control of Lamberts Gully Open Cut Coal Operation. Coal can be reclaimed from this stockpile for delivery to Mt Piper or to the Coal Preparation Plant.

Coal reclaimed for the CPP is conveyed to a small surge bin at a rate of 900tph.The feed from the surge bin is fed in to the CPP at a rate of 300tph.The CPP consists of Dense Medium Circuit for the -40mm product, a jig for the -70mm - +40mm product and spirals and classifying cyclones for the -1.0mm product. Product from the washery is transferred to a Washed Coal Stockpile of nominal capacity of 12,000t. Coal is reclaimed from this stockpile and transferred to Lidsdale Siding the return section of OL2 Conveyor. This reclaim system has a capacity of 600tph.

3.5.2 Coal Handling

Coal is transported out of the mine via a 1,400mm conveyor belt to an 85,000t stockpile. From the stockpile the coal is reclaimed via a system of vibratory feeders assisted by a D10R (or similar) dozer to a belt which feeds onto a vibrating screen and crusher. Coarse material is rejected at this point and the ROM coal is sized to less than 50mm prior to loading onto the overland conveyor.

The overland belt allows access to utilise the Washery and transfer coal to a rail siding for transport to export markets. Approximately 55% of the ROM coal is transported directly to the domestic market whilst the remainder is processed for the export market. Coal processing and ash removal (at the Washery) occurs via a system of Jigs, Spirals, and a Dense/Medium Cyclone.

3.6 Waste Management

Waste material is generally limited to oversize material separated prior to crushing because the coal used by Mt Piper Power Station is ROM product.

Coarse rock, some packaging, wood, hoses, gloves and raincoats are disposed of to landfill by licensed waste contractors. Oil drums and filters are disposed of with waste metals through metal recyclers. Waste oil and oily water are disposed of through licensed waste transporters and recyclers or treatment plants.

3.6.1 Reject Handling and Disposal Techniques

Springvale Colliery coal is washed at the coal preparation plant at Western Main Colliery primarily for export sales. Springvale also currently transports unwashed coal directly to Mount Piper Power Station via a dedicated overland conveyor. Any coal fines that are retrieved from the conveyor system or general underground mine are collected and reclaimed to the ROM coal stockpile.

Reject from the Washery is separated into coarse and fine streams for deposit in approved emplacement areas. These areas are currently under the control of the Lamberts Gully Coal Operation and responsibility will transfer to Coal Services after cessation of Lamberts Gully operations. Carbonaceous waste material generated on site is placed in the Huon No. 6 Reject Emplacement Area. Coal sludge, removed from surface sediment ponds, is either hauled to the coal reject dam or blended with product coal.

3.6.2 Coarse Reject

Coarse reject material from the Coal Preparation Plant is transported via truck to the Huon No. 6 Reject Emplacement Area (or future emplacement areas). It may also be used as part of general operations or made available for other projects.

3.6.3 Fine Reject

Fine coal reject from the coal preparation plant is fed to the co-disposal dam via slurry pipes. Decant pipes are positioned to collect pooled water after settling of the fine material. The water is discharged to the retention dam below the co-disposal unit for either reuse in the coal preparation plant as clarified process water or disposed off site under licence conditions. The area is designed to contain 382,000m^3 of material and is fully bunded to contain reject material. The fines may be dried and blended into product coal for both domestic and export markets.

3.7 ROM and Product Stockpiles

The underground mine is serviced by an 85,000t ROM stockpile at the Pit Top. A 500,000t ROM/emergency stockpile area and 10,000t washed coal stockpile area is available at the Springvale Coal Services site. A stockpile area, on land controlled by Centennial Coal, at Lidsdale Siding, is used when exporting coal.

3.8 Water Management

Surface water management systems are used for controlling runoff water quality and are shown on **Plans 1D and 1F**. Pit Top surface water management systems consist of separate clean and dirty water flow paths.

Water removed from the surface conveyors, OL1 and OL2, is collected in a sump located adjacent to the Overland Conveyor. Water and fines collected in this sump are removed by pumping onto the Overland Conveyor.

Further details for specific issues within the site are provided in Sections 3.8.3.1 and 3.8.3.2

3.8.1 Storage and Diversion of Clean Water

Clean water diversion channels have been designed to capture clean runoff from undisturbed areas and discharge into Springvale Creek without contamination. The channels are designed to handle a 1 in 100 year, 72 hour storm event.

The channels are protected by “concrete mattresses” and energy dissipaters have been installed at outlets of the main clean water channels. Runoff from undisturbed areas is diverted away from operational areas and through the Springvale Creek discharge weir (LDP001). Surface runoff from the catchment behind the offices and carpark area is collected in Dam 2. This Dam provides primary settlement and is discharged as clean water.

3.8.2 Collection and Treatment of Dirty Water-Pit Top

An oil/water separator unit is utilised at the pit top for separating waste oil for disposal off site. The separator collects water used in the machinery washdown bay, hardstand areas, oil storage areas, maintenance and service workshop and oil contaminated stormwater runoff from workshop areas.

Water from these areas is collected in a common wastewater collection drain which gravity feeds to the separator unit. Oil and grease from the separator is disposed off-site by a Licenced Contractor, while the separated water enters the “dirty water” system via Pollution Control Dam 4.

Waste oil collected in the workshop is stored in an underground collection sump before being removed off-site by a Licenced Contractor for recycling. The separator is designed to accommodate a 1 in 5-year storm event, based on the first flush principle, without overflow.

3.8.3 EPA Licence and Disposal of Water

3.8.3.1 Pit Top

Underground water is pumped to the surface, as required by the operations. The water is then stored in holding Dam 5 and pumped underground for re-use if required. Overflow from Dam 5 discharges offsite through Licence Discharge point LDP001.

Surface water management systems are used for controlling runoff water quality. Pit Top surface water management systems consist of separate clean and dirty water flow paths. Excess surface water is discharged through LDP001 (Pit Top), which is shown on **Plan 1D.** LDP007, which was not used during 2008, is located on a sump of the Overland Conveyor. Water and fines collected in this sump are removed by pumping onto the Overland Conveyor.

Storm water runoff from the Pit Top passes through Dams 2, 3 and 4 **(Plan 1D).** These dams are designed to contain runoff from a 1:100 year 72-hour ARI (Average Recurrence Interval) storm and are approximately 7ML in capacity. Dam 4 receives runoff from the Pit Top hardstand areas via the oil/water separator. Dam 4 also receives dirty water runoff and dust suppression water from the permanent coal stockpile and crusher house areas. The water from Dam 4 cascades in to Dam 3 from where it is pumped underground to Renown Colliery where the water is both settled and filtered. Dam 3 is normally kept at a very low level.

Stormwater runoff from behind the office areas is collected in Dam 2 and released off-site as clean water. Previous water releases were licensed under the EPL at LDP003, however due to the successful rehabilitation of the catchment the discharge point was removed by the EPA (DECCW) on 16 May 2000.

3.8.3.2 Coal Services (Western Main)

Stormwater runoff from the Springvale Coal Services Site collects in dams constructed within main drainage lines that flow to the Retention Dam at the lowest point of the site. Water from the Retention Dam is either recycled for process water or discharged through LDP006. The Retention Dam is designed to contain runoff from a 1:100 year 24-hour ARI storm event. Immediately prior to LDP006, a series of rock weir structures were installed in 2007 to slow the water flow to the discharge point and increase the residency time to allow greater settlement. Straw bales are also used to provide filtering during extreme rainfall events.

The site currently has an established water management system incorporating clean and dirty water systems. Dirty water collected around the site is directed through diversion channels into the main dirty water containment structures. These include a series of dams and weirs leading to the main pollution control structures near the front entrance to the site. The main structures consist of two 200KL sediment retention dams which are designed to retain runoff from a 1:100 year 24 hour ARI storm event.

Settled water is then allowed to discharge into the main channel leading from the site. This point is licensed (LDP006) and monitored monthly in accordance with the existing Pollution Control Licence.

Considerable work has been undertaken over recent years in the control and treatment of water discharges from the site. This work has largely centred on the control of acid mine drainage. A plan of the water management system covering the site, including the REA is shown on **Plan 1F**.

It has been found that high sulphur concentrations (in the form of pyrite) occur within coal reject material which forms sulphuric acid when in contact with water. Therefore, waters leaving the coarse and fine reject disposal areas as well as runoff from haul roads and other exposed areas may be acidic. The formation of low pH has been a specific issue relating to coal generated from the site rather than coal mined from Springvale and transported to the site by the overland conveyor.

The water management system for the new emplacement area will represent a simple extension to the existing system. The proposed works will not increase the loading on the existing system, as this loading is systematically limited due to the ongoing rehabilitation effort.

The monitoring of the licensed discharge point (LDP006) occurs in accordance with the Environment Protection Licence for the site and includes:

- Monitoring of pH at the property boundary at the pit top main entrance;
- Regular pH monitoring of sites upstream and downstream of the discharge point in accordance with EPA licence conditions;
- Monitoring of flow volume;
- Monthly monitoring of NFR;
- Weekly inspection of channels for evidence of oil and grease contamination; and
- Weekly inspection of sedimentation levels within all channels and upstream of rock weirs. Material is removed once capacity was reduced by 50%.

Procedures are continually being reviewed, as is the required treatment system to ensure that the system is effectively managed. No additional discharge points and no changes to the current licence are required for the emplacement development.

3.8.3.3 Boreholes

Currently, there is one (1) active and five (5) inactive bore sites located within the Newnes State Forest. The borehole is the primary mine dewatering system for the mine. Once water is pumped to the surface, the water is fed to a 500KL Gravity Tank. Water from the Gravity Tank is transferred to the Wallerawang Power Station via the Springvale-Delta Water Transfer Scheme. Water from the Gravity Tank may be released (as “emergency discharge”) to two unnamed watercourses leading to the Wolgan River on the Newnes Plateau. The two discharge points LDP004 (east) and LDP005 (west) are licensed for this purpose by DECCW-EPA.

3.8.3.4 Water Reticulation

Approximately 1.5ML/day of raw mine water,(recycled from mine waste water and pumped into Renown Colliery workings) is used for dust suppression, cooling machines, fire fighting, etc. Potable water (approx. 20KL/day) is sourced from the Lithgow City water supply.

Potable water is available at both the Screening and Crushing Plant and the Main Control Room at the Blackman's Flat site. The water is supplied via pipeline from the Lithgow Council reticulated supply and is metered for usage. Recycled water is used throughout the CPP. This water is reclaimed from various surface storage dams that are fed from either run off or underground aquifers.

3.8.3.5 Underground Mine Water Management

The underground water management system is required to dewater the underground mine. Mine water is either used as process water (approximately 1.5ML/day), or discharged through LDP001 (after aeration and settling), LDP004/5 ("emergency discharge" only), or delivered to Wallerawang Power Station via the Springvale-Delta Mine Water Transfer Scheme.

Underground mine water pumped through the in-pit system is delivered to Dam 5 where it is used for process water or discharged through LDP001 to Springvale Creek. The former Renown Colliery workings are used, as required, as a sediment dam for underground mine water from the in-pit system, prior to pumping to surface Dam 5.

Shaft No.3 Emergency Holding Dam provides 5ML of holding capacity, to capture mine water from the pipeline in event of any shutdowns. A Gravity Tank was constructed on the Newnes Plateau to collect water from various sources before delivering it to Wallerawang Power Station via the transfer scheme.

An underground pumping station has been established to pump water direct from the mine to the Gravity Tank. This system has a total capacity of 160L/s and may be boosted by pumps which have been installed on the surface at No.3 Shaft. A pump is planned to be used at Shaft No.3 to dewater the dam into the staging tanks in the event the pipeline surcharges into the dam.

The existing dewatering site, known as the Bore 6 site, is connected by a 450mm diameter polypipe, some 370m long, to the Springvale-Delta Water Transfer Scheme. The site consists of three holes drilled and cased to below the coal seam. Currently, two (2) pumps are in operation at the dewatering site. Given the predicted increase in mine water make, the Bore No.6 pumping installation is designed to cope with the expected increase and has been designed to facilitate up to three (3) pumps.

3.8.3.6 Springvale - Delta Water Transfer Scheme

As part of the DECCW - EPA licence, Springvale coal entered in to a Pollution Reduction Program to investigate ways of better managing the water flows from the dewatering systems, which were discharging onto the Newnes Plateau. Of the many options examined, the Springvale – Delta Mine Water Transfer scheme was the chosen option. In November 2004 construction commenced on the Springvale to Wallerawang Power Station Water Sharing Pipeline, to supply mine water to Delta Electricity. The system was officially commissioned on 23 March 2006.

The system comprises a series of pressure pipes which transfer all the water, being pumped to the Newnes Plateau, to a 500KL Gravity Tank which is located on the watershed between the Cox's River and Hawkesbury / Nepean catchments.

A subsystem which transfers Angus Place Colliery's Water into the transfer system has also been built. From the Gravity Tank all water is transferred directly into the cooling towers at Wallerawang Power Station. In the event of a failure of the transfer system, Springvale has a licence to discharge via Licensed Discharge Points 4 & 5 to the Wolgan River System. The system has a design capacity of 30Ml per day and is currently averaging approximately 15ML per day.

3.9 Hazardous Materials

3.9.1 Blasting

The use of blasting underground is limited to increasing roadway clearance in the case of convergence. Blasting is carried out in accordance with Part 2, Division 5, Clause 49 of the Coal Mine Health and Safety Regulation 2006.

3.9.2 Hazardous Substance Storage

Springvale Colliery has a License to store (Acknowledgement Number 07-100091-001) for the storage of dangerous and hazardous substances on site. Springvale Colliery has an approved external magazine on site as shown on **Plan 1D**.

A register containing Material Safety Data Sheets for all hazardous substances used and stored on site is maintained at central locations around the mine. All contractors and employees are made aware of site requirements associated with dangerous hazardous substances and MSDS during site inductions and toolbox talks.

3.9.3 Toxic Material

No toxic residues are included in any of the reject streams as the mining process does not require such products. All chemicals coming onto site are reviewed under the MSDS Scheme.

3.10 Other Infrastructure

3.10.1 Sewage Treatment

Sewage and grey water from the Springvale Colliery Bathhouse and Offices is treated onsite in a sewage treatment facility before being disposed of onsite through using spray irrigation to a utilisation area (LDP002). The Sewage Treatment System consists of a macerator pump pit (where sewage and grey water gravitate from the bathhouse and offices), and a macerator pump (which pumps to an oxidation pond and then to a maturation pond). The treated effluent is then pumped to a sprinkler system in the utilisation area. The sprinklers are in four separate zones which are alternated to ensure full utilisation and to eliminate run off from the utilisation area.

The Coal Services Site sewage management system consists of a Biocycle unit. Sewage from the demountable buildings is connected to this system and treated effluent from the Biocycle unit is sprayed on landscaping works adjacent to the office. Maintenance of the biocycle unit is contracted to a local plumbing service.

3.10.2 Site Security

Springvale has implemented a security system to ensure public and employee safety is maintained during all aspects of the operation. These systems and procedures have been established in accordance with the relevant requirements under the Coal Mine Health and Safety Act 2002, Occupation Health and Safety Act 2000, Mining Act 1992, subordinate legislation and conditions stipulated in the Mining Leases.

The pit top is bounded to the west, north and east by the steep cliffs of the Newnes State Forest, to the south by the rail line and property fences. A lockable security gate is located at the main access road and appropriate signage has been established where necessary. A Security Patrol person is on site during hours of darkness, seven (7) days per week.

Surface infrastructure located within Newnes State Forest including the No.3 Shaft, borehole sites, water treatment site and electrical substations are securely fenced and security alarms installed where necessary. Access to the No.1 and No.2 shafts requires access onto a private road which is locked. The downcast shaft is surrounded by a security fence and is locked. The Hospital Cottage is surrounded by a security fence, lockable gate and appropriate signage has been established where necessary.

The Coal Preparation site at Blackmans Flat is largely secured on the northern boundary. Security fencing adjoins the area immediately adjacent to the Castlereagh Highway and the main site entrance along with the area adjacent to the Blackmans Flat village. Access to the site is controlled by a locked security gate on the main entrance roadway.

Random security patrols provide coverage for other areas of the Overland Conveyor and critical infrastructure 7 days per week. The Overland Conveyor interfaces with Delta Electricity's Mt Piper Power Station to the west with a combination of security fencing and patrols by Delta's security providers completing the security measures in this area. Sections of the overland conveyor corridor pass through the Ben Bullen State Forest and security in these areas is difficult to maintain. Regular visits by Springvale personnel and random security patrols are utilised to ensure a presence in these areas.

The screening and crushing plant on the site's eastern boundary is located immediately adjacent to the Springvale Mine site and is regularly patrolled by security providers. The main control room at the Blackmans Flat site has a security alarm installed with constant monitoring by external security staff.

3.10.3 11kV Powerline Corridors

As part of the mine dewatering and the Delta Water Transfer Scheme, additional infrastructure is required on the Newnes Plateau to power the borehole pumps. Existing 11kV overhead aerials to the Bore 4 and Bore 5 installations were constructed in 2003 and 2005 respectively. The Bore 6 powerline is an underground installation. Additionally, the No.3 Shaft site is also powered by separate 11kV overhead aerials. Title to all powerline corridors is provided by Occupation Permit 2349 from Forest NSW. All powerlines on the Newnes Plateau are regularly inspected at six (6) monthly intervals by qualified contractors to ensure operational integrity and also ensure they do not impose any threats relating to bush fires. The location of all infrastructure on the Newnes Plateau is shown on **Plans 1 & 2A** and **1 & 2B**.

4 PROPOSED REHABILITATION ACTIVITIES

As longwall underground mining progresses, Springvale will pro-actively undertake progressive rehabilitation around disturbed areas, where required. The detail of these activities is described in the SMP process. See **Plan No.5**-for areas of rehabilitation during the MOP period.

4.1 Stakeholder Consultation

Rehabilitation will be in accordance with standards and requirements of the appropriate government regulatory agencies and blend in with the final landform. As stated in **Section 1.7.1**, in accordance with the SMP process, Springvale has regular consultations with all relevant stakeholders and adheres to the SMP notification process (Condition 12 Springvale SMP Approval).

4.2 Rehabilitation Status at MOP Commencement

It is not expected that any other disturbed area such as the pit top facilities, water treatment site, substations, over land conveyor and ventilation shafts, described in this MOP will require rehabilitation within the period of this MOP application. The surface area of the pit top which has been disturbed is presently at approximately 19Ha.

Rehabilitation of the Bore 1 and Bore 2 sites, together with the associated 11kV overhead aerial corridors has commenced and will be completed in the current MOP period. It is also expected that the rehabilitation of the Bore 3, Bore 4 and Bore 5 sites will be completed. The rehabilitation of the abandoned fire-fighting dam on pit top has been completed. The remainder of the proposed works will be completed in the current MOP period. **Table 13** lists the summary of proposed rehabilitation for the MOP period.

4.3 Proposed Rehabilitation Status at MOP Finish

It is envisaged that the mining operations will be continuing beyond the life of this MOP application.

4.4 Mine Closure Plan

With mining operations expected to continue for a considerable period beyond the term of this MOP, Springvale has prepared a conceptual final mine plan **(Plan 6)** to satisfy I & I NSW-ME Security Deposit requirements. Further planning, in line with Centennial policy, will continue to refine the closure criteria and process, which will be provided prior to 30 June 2010. Design and development of a Conceptual Mine Closure Plan will continue during this MOP period.

4.5 Buildings

Surface disturbance of buildings, as a result of mining induced subsidence, has not and is unlikely to require surface rectification works. Additions to the existing bathroom facilities have been included in the current 5 year business plan. However, due to current economic climate, it is unlikely that this proposal will receive ratification.

4.6 Rehabilitation of Disturbed Lands

As mining progresses towards the east, it is proposed that the de-watering borehole sites No.3, No.4 and No.5 are rehabilitated. These sites will be progressively rehabilitated to the satisfaction of the NSW State Forest and any other relevant authorities.

4.7 Other Infrastructure

Boreholes will be appropriately backfilled and sealed in accordance with I & I NSW – ME “Guidelines for Borehole Sealing Requirements on Land - Coal Exploration EDG No.1 December 1997” and in accordance with our agreement with Forests NSW.

4.8 Water Management (Rehabilitated Land)

The existing facilities for pumping mine water will still be maintained over the term of this MOP. This includes two of the six (6) dewatering borehole sites. Four (4) of these are now abandoned and planned for rehabilitation.

In accordance with current water discharge licences, Springvale transfers mine water to the Delta Water Transfer Scheme thereby, eliminating surface water discharges, except in approved emergency situations.

4.9 Rehabilitation Trials and Research

Not applicable for the term of this MOP.

Table 13: Summary of Proposed Rehabilitation

	Area Affected/Rehabilitated (hectares)		
A: MINE LEASE AREA	**Total Area, start of MOP**	**Total Area, end of MOP** *(anticipated)*	**At mine closures** *(anticipated)*
A1 Mine lease(s) Area SPRINGVALE MINE (ML's1303, 1326, 1588 & 377) (ML's 1323, 1537 & MPL314) Occupation Permit 2349 COAL SERVICES (ML1352 & MPL314) (Part CCL733 & ML1448)	**5131 Hectares** *UNDERGROUND* 4951 Hectares *SURFACE* 125.5 Hectares 26 Hectares *SURFACE* 13.5 Hectares 41 Hectares	**6384 Hectares** *UNDERGROUND* 6208 Hectares *SURFACE* 130.5 Hectares 29 Hectares *SURFACE* 13.5 Hectares 32 Hectares	**6384 Hectares** *UNDERGROUND* 6208 Hectares *SURFACE* 130.5 Hectares 29 Hectares *SURFACE* 13.5 Hectares 32 Hectares
B: DISTURBED AREAS			
B1 Infrastructure area Pit-top, overland conveyor, CPP & stockpiles, No.3 Shaft, & occupation permit	**72 Hectares**	**75 Hectares**	**75 Hectares**
B2 Active Mining Area (excluding items B3-B5 below)	**NIL**	**NIL**	
B3 Waste emplacements Approved REA (Part CCL733) Proposed REA (Part ML1448)	**31.7 Hectares** 8.8 Hectares 22.9 Hectares	**22.9 Hectares**	**22.9 Hectares**
B4 Tailings emplacements (Part CCL733)	**9.1 Hectares**	**9.1 Hectares**	**9.1 Hectares**
B5 Shaped waste emplacement (awaits final vegetation)	**NIL**	**NIL**	
ALL DISTURBED AREAS	**112.8 Hectares**	**107 Hectares**	**107 Hectares**
C: REHABILITATION			
C1 Total Rehabilitated area (except for maintenance)	**1.0 Hectare**	**3.0 Hectares**	**107 Hectares**
D: REHABILITATION ON SLOPES			
D1 10 to 18 degrees	**N/A**	**N/A**	**N/A**
D2 Greater than 18 degrees	**N/A**	**N/A**	**N/A**
E: SURFACE OF REHABILITATED LAND			
E1 Pasture and grasses	**0**	**0**	
E2 Native forest / ecosystems	**0**	**0**	
E3 Plantations and crops	**0**	**0**	
E4 Other (include non-vegetative outcomes)	**0**	**0**	

5 FINAL REHABILITATION

5.1 Rehabilitated Areas and Features

Longwall mining is not anticipated to be completed within the term of this MOP. The estimated life of the mine is in the order of 30 years, and the Mine Closure Plan is in a conceptual form at this stage and will be reviewed during the MOP period.

It is anticipated that the final land use for the pit top will be grazing and/or rehabilitated to its original open forest landscape. This will be achieved by progressive rehabilitation of following areas that are no longer required for mining activities at Springvale.

- Main Surface area including the buildings, workshops, water dams, settling ponds, substations and parking areas
- The main services area at No.3 Shaft, on the Newnes Plateau, including boreholes, substations and ventilation shafts No.1 and No.2, and
- The access roads to and from the intake ventilation shafts No.1 and No.2 rehabilitated to best practice following demolition / removal of infrastructure.
- Dewatering and exploration boreholes will be progressively rehabilitated at the end of production. However, the locations of the future sites have not been finalised..
- Electrical substations and power lines will also be rehabilitated to the appropriate standard as agreed between Springvale and the landholder (Forests NSW).
- Other facilities that have been prepared for the working of Springvale Colliery including the overland conveyor will also be rehabilitated, generally to original contours and landform. Final land use of the overland conveyor route will be determined in the light of the future demand for this facility at the time of decommissioning as the design life of the Mt Piper Power Station is longer than the anticipated life of Springvale Mine.
- Surface contours have not generally been significantly altered to accommodate the majority of the infrastructure at Springvale and on the Forests NSW land, This has reduced the impact on the existing contours and grades, therefore significant earthworks will not generally be required to return the landform to pre-mining levels.
- The No 3 Shaft area is slightly different, with the majority of the area to be returned to pre-mining contours and native vegetation in agreement with Forests NSW, while the sediment dam area will be retained for Forests NSW fire fighting purposes.

Springvale has prepared a Final Rehabilitation Plan **(Plan 6)**, which was used for the calculations of security deposits, to satisfy I & I NSW - ME Security Deposit requirements and is committed to addressing any future issues with the I & I NSW - ME and other relevant authorities.

The final landform of the pit top and conveyor route will be stable, aesthetically consistent with the surrounding landforms and will not preclude alternative land uses following the completion of all mining activities on site. For details of the proposed and final rehabilitation, please refer to the Annual Environmental Management Reports (AEMR) which incorporates all information relating to rehabilitation and associated securities held by the I & I NSW - ME.

In accordance with Centennial policy, a more detailed Conceptual Mine Closure Plan is currently being developed.

6 ENVIRONMENTAL AND REHABILITATION RISK IDENTIFICATION

Environmental Management at Springvale Colliery is undertaken through a risk driven methodology. Assessing risk against predetermined consequence and probability criteria allows for site resources to be efficiently deployed toward high risk or high consequence issues.

The “whole of mine” risk assessment was reviewed in early March 2009. The review concluded the following aspects were the largest environmental risks to the operation.

- Surface water management
- Groundwater contamination from underground activities
- Dust emissions from coal handling and exposed areas
- Bulk hydrocarbon storage
- Subsidence perceptions

Additional detail regarding the identification of environmental and rehabilitation of activities, processes or facilities are listed in **Table 13**. Please refer to the Springvale Colliery Site Business Risk Assessment Environmental) in **Attachment 4** for more detailed information.

The management of subsidence issues and the ability to dewater the Springvale Colliery were considered the highest business risks associated with environmental issues. The risk assessment relating to subsidence was conducted in March 2005 as part of the SMP application process and was reviewed in December 2007. Please refer to the Springvale Colliery Longwall Mining Risk Assessment HMS in **Attachment 5** for more detailed information.

Table 14: Activity, Process or Facility

Issue	Land preparation, vegetation & topsoil stripping	All construction activities including earth moving	Mine development and mining, surface & U/G	Use/maintenance of roads, tracks and vehicles	Waste rock emplacement management	Mineral processing facilities and operations	Ore/product stockpiling and handling	Tailings impoundment management	water management including storm event contingencies	Hazardous materials & fuel, handling/spills management	Sewerage	Other infrastucture use and operation	Rubbish disposal	Rehabilitation activities	Rehabilitation maintenance, pending self-sustainability	Rehabilitated land and remaining features
air pollution, dust/other		■					■									
erosion/sediment minimisation	■	■	■	■					■					■	■	■
surface water pollution	■	■	■			■	■	■	■	■	■				■	
groundwater pollution			■				■	■	■	■						
contaminated or polluted land							■			■						
threatened flora communities	■		■											■		
threatened fauna populations	■		■											■		
threatened species habitat	■		■											■		
weed control and management	■							■			■			■	■	■
excessive noise, (intensity/time)		■					■									
vibration and air blast,																
visual amenity, stray light						■										
Aboriginal heritage	■		■													
natural heritage conservation	■															
spontaneous combustion							■									
bushfire														■	■	
mine subsidence			■													
hydrocarbon (fuel) contamination		■	■							■						
methane drainage/venting																
public safety	■	■		■				■		■				■		

7 ENVIRONMENTAL AND REHABILITATION RISK MANAGEMENT

7.1 Air Pollution

Potential dust sources from the Springvale operations include unsealed or dirty traffic areas, coal stockpiles, ventilation fan and coal being conveyed. Dust controls used on unsealed or dirty traffic areas include the use of water carts or water cannons and road sweeping. Dust emissions from the mine ventilation fans are quite low due to the high humidity within the underground mine. Covers and coal moisture control dust emissions from surface conveyors.

Condition P1.1 of the Springvale EPL requires the monitoring of five dust gauges. Results of this monitoring are reported each year in the AEMR and EPL Annual Returns.

7.2 Erosion and Sediment Control

The risk of erosion and sedimentation from exploration is from contaminated water make overflowing and erosion from un-rehabilitated drill pads. Existing, controls for drill sump overflows include large drill sumps, bunded down-slope with subsoil and topsoil bunds and sediment fences. Erosion from un-rehabilitated sites is avoided by site rehabilitation, inspections and maintenance. These controls are adequate for the scale of incident and potential impact from exploration activities.

The risk of erosion and sedimentation at the Coal Services Site is from emplacement of tailings and coarse reject. The surface inspection regime ensures that there are adequate sedimentation dams that will reduce this risk to low. Total suspended solids (TSS) data from LDP006 indicate the existing controls are effective for sediment and erosion control, with TSS levels on average below 18mg/L.

7.3 Surface Water Pollution

Controls are as described in Section 3.8. Surface water is monitored, strictly, in accordance with the requirements of EPL3607. Results of this monitoring are reported each year in the AEMR and EPL Annual Returns.

7.4 Ground Water Pollution

Major potential sources of groundwater pollution are from hydrocarbon storage and dispatch. However, the risk of groundwater pollution from these sources is low, as the two Springvale site underground storage tanks are routinely leak tested and above ground storages are bunded. Water monitoring data from the Pit Top (LDP001), Mine Dewatering Bore (LDP004/5) and the Coal Services Site (LDP006) indicate that no groundwater pollution occurred because no hydrocarbon contaminants have been found in discharge waters. All discharges have met the EPA licence criteria for oil and grease.

Results of this monitoring are reported each year in the AEMR and EPL Annual Returns.

7.5 Contaminated Polluted Land.

There is no evidence of contaminated or polluted land onsite as far as Springvale Colliery is aware. Springvale has undertaken regular servicing and inspections of the underground diesel tanks. The most recent testing results of these tanks and details of site contamination studies are presented below:

- 12 February 2009 Tanknology Australia applied vacuum testing (Vacutect) and confirmed the tanks were sound.
- 7 October 2009 AECOM commissioned to undertake a 'Phase 1 contaminated sites assessment'. The results of this assessment are not yet available.

- 14 October 2009 Petrolink undertook a Soil Contamination Assessment (in September 2009) as part of a project to decommission the underground diesel tanks and replace them with a Self-Bunded surface tank. Sixteen (16) soil samples were obtained and underwent analysis at a NATA accredited laboratory to determine whether the soil contained significant hydrocarbon contamination. The laboratory results did not identify any significant hydrocarbon contamination with levels of key analytes in each sample well below the appropriate EPA and NEPM thresholds.

7.6 Threatened Flora

This subject was detailed in Section 2.3 of this report. An approved program of flora monitoring is in place for the SMP area as part of Condition 7, 8 & 9 of the Springvale SMP Approval, which is covered by the Environmental Management Plan.

7.7 Threatened Fauna

This subject was detailed in Section 2.4 of this report. An approved program of fauna monitoring is in place for the SMP area as part of Condition 7, 8 & 9 of the Springvale SMP Approval, which is covered by the Environmental Management Plan.

7.8 Weeds

The major weed threats include Blackberry, St. Johns Wart and pampas grass, which are controlled by the annual noxious weed control program. The weed control program focuses on controlling weeds on the Pit Top, Overland Conveyor and Coal Services Sites. Different seasons are to be used to target the different species of weeds.

7.9 Blasting

This subject was addressed in Section 3.9.1 of this report.

7.10 Operational Noise

The major noise risks include plant and machinery noise. The noise from the leachate pumps at the Coal Preparation Plan also poses a medium risk. Machine noise is controlled by operating procedures such as reverse alarm modification at night, hours of operations for heavy machinery, regular maintenance of machinery and operator awareness.

Noise monitoring is undertaken on an as required basis, but generally following a change of fixed or mobile plant or a noise complaint. Condition L4 in the EPL required noise monitoring of the upcast ventilation shaft at the nearest privately owned resident. As for the upcast ventilation shaft, a consultant has carried out the prescribed noise monitoring. The noise levels are within the prescribed limits.

7.11 Visual, stray light.

Visual stray light is not considered to pose any potentially adverse environmental impacts at the colliery due to the small surface footprint, locality and the distance to neighbouring properties. There have been no complaints received in the operating life of the colliery in relation to visual stray light.

7.12 Aboriginal Heritage

This subject was detailed in Section 2.2 of this report.

7.13 Natural Heritage

This subject was detailed in Section 2.2 of this report.

7.14 Spontaneous Combustion

This subject was detailed in Section 3.4.3.5 of this report.

7.15 Bushfire

Bushfire management is undertaken in consultation with the Rural Fires Service (RFS) and Forests NSW. Springvale completed the Bushfire Management Plan in 2008 and was forwarded to Rural Fire Services and Forests NSW.

The risk of bushfire having an adverse environmental impact (outside of that from the historic burning regime of the Aboriginals over the past 60,000 years) is low at Springvale Colliery as the local ecology is adapted to fire and robust bushfire management protocols are in place. The Springvale Bushfire Management Plan (SV-MS-029) and the Springvale Bushfire Procedure (SV-MS-029-WP-568) are included in **Attachment 10**.

7.16 Mine Subsidence

This subject was detailed in sections 3.4.3.9 and 3.4.3.10 of this report and is addressed in detail in the approved Subsidence Management Plan and the Plan's associated documents. A copy of the Springvale Subsidence Management Program is included as **Attachment 12**.

7.17 Hydrocarbon Contamination

Hydrocarbon contamination is rated as a medium risk, due to the high consequence of hydrocarbon water contamination from a bulk spill of diesel or solcenic oil. Review of the surface around all hydrocarbon bulk storage is carried out on a scheduled basis under the terms of a tank maintenance contract.

Refer also to section 7.4 – Ground Water Pollution

7.18 Methane Drainage / Ventilation

This subject was detailed in Section 3.4.3.4 of this report.

7.19 Public Safety

Condition 19 of the Springvale SMP Approval requires the development of a Public Safety Management Plan.

"The leaseholder shall implement a public safety management plan to ensure public safety in any surface areas that may be affected by subsidence arising from Longwall mining. This plan shall include, but not be limited to, regular monitoring of areas or infrastructure / structures posing safety risks, erection of warning signs, entry restrictions, backfilling of dangerous surface cracks and securing of unstable built structures or rock-mass where required and appropriate, and the provision of timely notification of mining progress to the community and any other relevant stakeholders where management of public safety is required. The plan shall be developed and implemented to the satisfaction of the district inspector of Coal Mines."

The Public Safety Management Plan was submitted to I & I NSW – ME and was accepted on 26 October 2006. The plan was reviewed in September 2007 and no amendments were deemed necessary. The management plan was again reviewed in August 2009 and submitted to I & I NSW – ME on 23 September 2009. A copy of the Springvale Public Safety Management Plan (SV-MS-039) is included as **Attachment 13**.

7.20 Traffic Management

Springvale uses and maintains all forestry access roads and tracks utilised by Springvale in accordance with I & I NSW – ME (Forests NSW) Forest Practices Code (Part 4 – Forest Roads and Fire Trails) and the maintenance agreement in place between Springvale and Forests NSW.