APPENDIX 1 – GEOLOGICAL BORE RECORDS USED IN ASSESSMENT

This appendix includes the borehole geological records that were used in the assessment and development of the hydrostratigraphy for the study area. The source of this data is described in Chapter 2.

	Unit		702300117		
	Log		Johns (1952) & Harris (1964)		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	9.5	9.5	No sample.		Recent
9.5	20.4	11.0	Bryozoal limestone, dense to porous.	Gambier limestone	Gambier Limestone
20.4	30.5	10.1	Bryozoal limestone and grey fine bedded silty marls.	Gambier limestone	Gambier Limestone
30.5	61.0	30.5	Dense light grey marly limestone, some soft bands with fine bands.	Gambier limestone	Gambier Limestone
61.0	71.0	10.1	Coarse bryozoal limestone grading to marl.	Gambier limestone	Gambier Limestone
71.0	101.5	30.5	No sample.	Gambier limestone	Gambier Limestone
101.5	107.6	6.1	Consolidated porous bryozoal limestone, marly in part.	Unnamed glauconite Member	Gambier Limestone
107.6	109.1	1.5	Bryozoal limestone with fine waterworn quartz grit and fine sand.	Compton conglomerate	Gambier Limestone
109.1	109.8	0.6	Hard dense banded limestone.	Buccleuch B	Murray Group
109.8	114.0	4.3	Grey carbonaceous clay, finely banded towards base.	Knight Formation	Dilwyn Formation
114.0	117.1	3.0	Coal with pyrite nodules and a little quartz sand.	Knight Formation	Dilwyn Formation
117.1	119.2	2.1	Fine waterworn gravel and coarse sands.	Knight Formation	Dilwyn Formation
119.2	146.3	27.1	No sample.		No data_b
146.3	160.7	14.3	Light grey mudstones, siltstones and banded shales, loosely coherent to hard and dense. Plant and root matter sparse throughout.	Paradoxa Assemblage	Otway Group (Upper)
160.7	160.8	0.2	Hard grey limestone bar.	Paradoxa Assemblage	Otway Group (Upper)
160.8	174.1	13.3	Loosely consolidated grey sandy shales and siltstones, often finely laminated and carrying plant matter throughout. Loosely coherent sands at 557-564ft, 604-606ft and 607-609ft.	Paradoxa Assemblage	Otway Group (Upper)
174.1	188.9	14.8	Loosely consolidated grey sandy shales and siltstones, often finely laminated and carrying plant matter throughout. Loosely coherent sands at 557-564ft, 604-606ft and 607-609ft.	Speciosus Assemblage	Otway Group (Upper)
188.9	189.0	0.2	Coal.	Speciosus Assemblage	Otway Group (Upper)
189.0	198.2	9.1	Grey carbonaceous sands and laminated shales.	Speciosus Assemblage	Otway Group (Upper)
198.2	251.5	53.4	Grey carbonaceous sands and laminated shales.	Speciosus Assemblage	Otway Group (Upper)
251.5	251.8	0.3	Dense grey banded marble/limestone.	Speciosus Assemblage	Otway Group (Upper)
251.8	261.6	9.8	Dark grey sands with lignite fragments.	Speciosus Assemblage	Otway Group (Upper)

261.6	270.4	8.8	Grey finely laminated and cross bedded shales, sandy in part.	Speciosus Assemblage	Otway Group (Upper)
270.4	275.0	4.6	Loosely consolidated grey sands with little plant matter.	Speciosus Assemblage	Otway Group (Upper)
275.0	332.0	57.0	Grey sandy shales and siltstones with sand in parts and some carbonaceous and coaly horizons a few inches in thickness.	Speciosus Assemblage	Otway Group (Upper)
332.0	332.6	0.6	Dense light grey limestone.	Speciosus Assemblage	Otway Group (Upper)
332.6	342.1	9.5	Grey siltstone, mostly sandy throughout and containing traces of plant matter throughout.	Speciosus Assemblage	Otway Group (Upper)

Unit 702300377
Log Miller

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.2	0.2	Light grey brown fine sand.		Recent
0.2	0.5	0.3	Grey brown and yellow brown silty clay.		Recent
0.5	2.4	2.0	Yellow brown clay some reddish mottling.		Padthaway Formation
2.4	3.7	1.2	As above with frequent small nodules of lime.		Padthaway Formation
6.4	10.7	4.3	Pale brown hard travertine with interstitial layers of brown sand.		Coomandook-Bridgewater Formation
10.7	12.5	1.8	Off white sandy limestone with occasional shell fragments.		Coomandook-Bridgewater Formation
12.5	15.2	2.7	Pale yellow travertine.		Coomandook-Bridgewater Formation
15.2	22.9	7.6	Off white hard sandy limestone occasional bryozoa.		Gambier Limestone
22.9	30.8	7.9	Pale brown marly limestone with frequent pieces of flint; frequent bryozoa.		Gambier Limestone
30.8	31.7	0.9	Light grey marl occasional flint nodules.		Gambier Limestone
31.7	36.6	4.9	Pale yellowish grey bryozoal limestone frequent hard nodules.		Gambier Limestone
36.6	39.6	3.0	As above with very abundant grey flint layers.		Gambier Limestone
39.6	41.2	1.5	Pale grey bryozoal limestone occasional flint nodules.		Gambier Limestone
41.2	42.7	1.5	Off white sandy marl.		Gambier Limestone
42.7	45.1	2.4	Pale grey marly bryozoal limestone with occasional flint nodules.		Gambier Limestone
45.1	46.0	0.9	No description.		Gambier Limestone
46.0	47.6	1.5	Pale grey marl with frequent bryozoa clayey.		Gambier Limestone
47.6	50.9	3.4	Pale grey bryozoal limestone.		Gambier Limestone
50.9	60.1	9.1	Grey bryozoal limestone with very abundant flint fragments.		Gambier Limestone
60.1	60.7	0.6	Pale grey marly limestone occasional bryozoa.		Gambier Limestone
60.7	64.0	3.4	Pale grey bryozoal limestone occasional flint fragments.		Gambier Limestone
64.0	65.9	1.8	Off white hard sandy bryozoal limestone.		Gambier Limestone

	Unit Log		702300381 Driller		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.5	0.5	Black soil.		Recent
0.5	4.0	3.5	Grey clay.		Padthaway Formation
4.0	6.0	2.0	Conglomerate. Hard. Grey sands.		Padthaway Formation
6.0	8.0	2.0	Grey clay.		Padthaway Formation
8.0	9.0	1.0	Grey clay.		Padthaway Formation
9.0	10.0	1.0	Grey marine sand.		Coomandook-Bridgewater Formation
10.0	14.0	4.0	Grey and brown clay.		Coomandook-Bridgewater Formation
14.0	16.0	2.0	Whitish sandy marl.		Coomandook-Bridgewater Formation
16.0	18.0	2.0	Whitish sandy marl.		Coomandook-Bridgewater Formation
18.0	22.0	4.0	Large shell some sand.		Gambier Limestone
22.0	25.0	3.0	Grey marly limestone.		Gambier Limestone
25.0	27.0	2.0	Limestone.		Gambier Limestone
27.0	29.0	2.0	Grey limestone.		Gambier Limestone
29.0	30.0	1.0	Grey drift sand.		Gambier Limestone

	Unit Log		702300541 MacKenzie		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.2	0.2	Fill. Mixture of limestone fragments, fine to coarse sand, grey silt & organic remains. Cream to dark brown		Recent
0.2	1.0	0.8	Sand. Fine to medium, clear, silky quartz. 30% grey to brown silt. Minor carbonate grains and organic material. Poorly cemented. Dark grey.		Parilla Sand
1.0	2.0	1.0	Clay. Soft, sticky, orange brown. 10% quartz as above. 20-30% fine to medium, cemented carbonate grains, some minor staining (?Mn).		Unnamed Clay Unit
2.0	4.0	2.0	Silt. 80% soft, yellow silt. 20% medium angular carbonate grains, abundant bryozoa and foraminifera. Some small re crystallized limestone fragments. Minor quartz. Yellow brown.	Gambier Limestone	Gambier Limestone
4.0	6.0	2.0	Silt. As above, 15% carbonate grains, glauconitic. Poorly to moderately cemented.	Gambier Limestone	Gambier Limestone
6.0	8.0	2.0	Silt. As above, cream to fawn, slightly clayey - 5%.	Gambier Limestone	Gambier Limestone
8.0	10.0	2.0	Silt. As above, orange brown, less fossils. No clay or glauconite. Poorly cemented.	Gambier Limestone	Gambier Limestone
10.0	12.0	2.0	Silt. As above, up to 30% carbonate grains. Abundant foraminifera, few bryozoal. Poorly to moderately cemented. Yellow to pale orange.	Gambier Limestone	Gambier Limestone

12.0	14.0	2.0	Silt. As above, 30-40% very fine to medium carbonate grains, few fossils. Off white to light grey. Poorly cemented.	Gambier Limestone	Gambier Limestone
14.0	16.0	2.0	Silt. As above, 20% carbonate grains, minor glauconite. Fawn.	Gambier Limestone	Gambier Limestone
16.0	18.0	2.0	Silt. As above, up to 40% carbonate grains. 2% fine glauconite fragments. Pale fawn. Poorly to moderately cemented.	Gambier Limestone	Gambier Limestone
18.0	20.0	2.0	Silt. As above, up to 5% glauconite. Becoming grey, passing into limestone.	Gambier Limestone	Gambier Limestone
20.0	22.0	2.0	Limestone. Fragments of fine grained, hard well cemented limestone, fossiliferous, 10% glauconite. 5% silt. Light grey to brown.	Gambier Limestone	Gambier Limestone
22.0	24.0	2.0	Limestone. As above, shell fragments present. Some chips of re crystallized limestone. 1% glauconite.	Gambier Limestone	Gambier Limestone
24.0	26.0	2.0	Limestone. As above, fine to medium grained white carbonate, abundant foraminifera and bryozoa, very silty up to 40%. Poorly to moderately cemented. Light grey. 2% glauconite.	Gambier Limestone	Gambier Limestone
26.0	28.0	2.0	Limestone. As for 22-24 m interval.	Gambier Limestone	Gambier Limestone
28.0	30.0	2.0	Limestone. As above, shell fragments to 10mm, well cemented. Off white to light grey.	Gambier Limestone	Gambier Limestone
30.0	32.0	2.0	Limestone. As for 24-26m interval, less silty (20%). 15% fine glauconite. Moderately cemented. Khaki.	Gambier Limestone	Gambier Limestone
32.0	34.0	2.0	Limestone. As above, but larger fragments better cemented.	Gambier Limestone	Gambier Limestone
34.0	36.0	2.0	Limestone. As above, 20% fossiliferous material. Poorly cemented.	Gambier Limestone	Gambier Limestone
36.0	38.0	2.0	Limestone. As above, up to 40% silt. Light grey to khaki.	Gambier Limestone	Gambier Limestone
38.0	40.0	2.0	Limestone. As above, 20% silt. Fine to coarse fossiliferous material and carbonate grains. Few fragments of fine grained well cemented limestone. 1% glauconite. Light grey.	Gambier Limestone	Gambier Limestone

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Unit 702300632
Log Unknown

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	1.8	1.8	Sand, fine grey.		Parilla Sand
1.8	6.4	4.6	Clay, brown micaceous.		Unnamed Clay Unit
6.4	22.9	16.5	Limestone, Polyzoal.		Gambier Limestone
22.9	26.8	4.0	Marl.		Gambier Limestone
26.8	34.1	7.3	Limestone.		Gambier Limestone
34.1	34.2	0.1	Quartzite.		Gambier Limestone
34.2	40.2	6.0	Marl.		Gambier Limestone
40.2	40.5	0.3	Quartzite.		Gambier Limestone
40.5	41.5	0.9	Marl.		Gambier Limestone
41.5	75.3	33.8	Limestone with alternating quartzite bars.		Gambier Limestone
75.3	92.4	17.1	Marl.		Gambier Limestone
92.4	101.2	8.8	Limestone.		Gambier Limestone
101.2	104.9	3.7	Marl.		Gambier Limestone

104.9	111.9	7.0	Clay, black.		Dilwyn Formation
111.9	115.1	3.2	Sandstone.		Dilwyn Formation
115.1	139.3	24.2	Clay, white.		Dilwyn Formation
139.3	141.5	2.1	Clay, carbonaceous.		Dilwyn Formation
141.5	150.3	8.8	Shale, grey.		Dilwyn Formation
150.3	152.7	2.4	Clay, dark.		Dilwyn Formation
152.7	155.2	2.4	Shale, green.		Dilwyn Formation
155.2	161.0	5.8	Clay, carbonaceous.		Otway Group
161.0	164.0	3.0	Shale, green.		Otway Group
164.0	164.2	0.2	Sandstone.		Otway Group
164.2	164.9	0.8	Sand, hardened.		Otway Group
164.9	165.0	0.1	Shale, dark.		Otway Group
165.0	165.5	0.5	Hardened sand.		Otway Group
165.5	168.6	3.0	Shale, dark.		Otway Group
168.6	169.1	0.5	Hardened sand.		Otway Group
169.1	172.3	3.2	Shale, green.		Otway Group
172.3	176.2	4.0	Hardened sand.		Otway Group
176.2	176.7	0.5	Limestone.		Otway Group
176.7	179.9	3.2	Shale, dark.		Otway Group
179.9	180.1	0.2	Limestone.		Otway Group
180.1	180.5	0.4	Hardened sand.		Otway Group
180.5	180.6	0.2	Limestone.		Otway Group
180.6	185.4	4.7	Shale, sandy (grey).		Otway Group
185.4	187.2	1.8	Hardened sand.		Otway Group
187.2	189.3	2.1	Shale, sandy.		Otway Group
189.3	190.7	1.4	Sand, hardened.		Otway Group
190.7	197.9	7.2	Shale, grey.		Otway Group
197.9	204.0	6.1	Sand, grey, hardened.		Otway Group
204.0	204.3	0.3	Sand, hardened.		Otway Group
204.3	204.4	0.2	Limestone.		Otway Group
204.4	212.5	8.1	Shale, sandy.		Otway Group
212.5	214.0	1.5	Hardened sand.		Otway Group
214.0	217.7	3.7	Shale, dark.		Otway Group
217.7	218.1	0.5	Sand, hardened.		Otway Group
218.1	228.4	10.2	Shale, grey, green patches.		Otway Group
228.4	228.7	0.3	Shale, black.		Otway Group
228.7	232.0	3.4	Shale, green.		Otway Group
232.0	238.1	6.1	Shale, grey.		Otway Group
238.1	240.2	2.1	Sand, hardened.		Otway Group
240.2	240.9	0.6	Shale, sandy, ligneous.		Otway Group
240.9	241.2	0.3	Limestone, hard, blue.		Otway Group
241.2	242.4	1.2	Shale, sandy.		Otway Group
242.4	245.9	3.5	Sand, hardened.		Otway Group
245.9	251.5	5.6	Shale, dark alternating sands.		Otway Group
251.5	254.3	2.7	Shale, green.		Otway Group
254.3	271.2	16.9	Shale, green.		Otway Group
271.2	275.8	4.6	Sand, hardened.		Otway Group
275.8	276.5	0.8	Limestone.		Otway Group
276.5	277.6	1.1	Sand, hardened.		Otway Group
277.6	295.1	17.5	Limestone, hard, grey.		Otway Group
295.1	300.0	4.9	Shale.		Otway Group
300.0	300.3	0.3	Sandstone.		Otway Group
300.3	302.1	1.8	Shale, sandy.		Otway Group
302.1	306.7	4.6	Black and green shale.		Otway Group
306.7	314.0	7.3	No sample.		Otway Group
314.0	314.0	0.0	Showing of gas.		Otway Group
314.0	314.9	0.9	No sample.		Otway Group
314.9	315.5	0.6	Limestone bar.		Otway Group
315.5	317.7	2.1	No sample.		Otway Group
317.7	317.7	0.0	Carbonaceous shale.		Otway Group
317.7	321.0	3.4	Seam of black coal.		Otway Group
321.0	321.3	0.3	No sample.		Otway Group
321.3	323.2	1.8	No sample.		Otway Group
323.2	323.5	0.3	Shale, green.		Otway Group
323.5	324.4	0.9	Light showing of gas and oil.		Otway Group
324.4	357.0	32.6	No sample.		Otway Group
357.0	357.0	0.0	Water sand.		Otway Group

Unit Log 702300819 Driller & Bleys (6.1m – 155.2m)

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.6	0.6	Soil.		Recent
0.6	1.2	0.6	Limestone rubble.		Padthaway Formation

1.2	4.4	3.2	Hard flintly limestone.	Padthaway Formation
4.4	6.1	1.7	Gravely sand.	Coomandook-Bridgewater Formation
6.1	7.9	1.8	Creamy fine sandy limestone.	Coomandook-Bridgewater Formation
7.9	9.1	1.2	Whitish cream slightly micaceous very fine sand.	Coomandook-Bridgewater Formation
9.1	10.1	0.9	Buff slightly clayey and micaceous fossiliferous sand.	Coomandook-Bridgewater Formation
10.1	11.3	1.2	Creamy shelly sand with limestone.	Coomandook-Bridgewater Formation
11.3	12.5	1.2	Cream medium grained fossiliferous sand and gravel of limestone.	Coomandook-Bridgewater Formation
12.5	15.2	2.7	Cream gravel of limestone with fragments of shells and very fine grained sand.	Gambier Limestone
15.2	18.3	3.0	Light cream silty fine grained sand with gravel of limestone.	Gambier Limestone
18.3	20.4	2.1	Whitish cream fossiliferous sand with some fine grained quartz and gravel of limestone and some chert.	Gambier Limestone
20.4	22.0	1.5	Light grey limestone with chert.	Gambier Limestone
22.0	25.9	4.0	Cream silty fossiliferous fine sand and some gravel of limestone.	Gambier Limestone
25.9	26.8	0.9	Cream silty fossiliferous fine sand and some grit of limestone and chert.	Gambier Limestone
26.8	27.7	0.9	Grey and cream gravel of chert and limestone with shell fragments.	Gambier Limestone
27.7	29.0	1.2	Light and dark grey fossiliferous sand with chert gravel and shell fragments.	Gambier Limestone
29.0	31.1	2.1	Light and dark grey fossiliferous sand with chert gravel and shell fragments.	Gambier Limestone
31.1	34.1	3.0	Light cream to whitish limestone gravel with fossiliferous and sand, and some fine silty sand.	Gambier Limestone
34.1	36.6	2.4	Light cream micaceous fossiliferous fine grained sand.	Gambier Limestone
36.6	39.6	3.0	Light grey limestone with chert and shell fragments.	Gambier Limestone
39.6	41.8	2.1	Creamy white slightly micaceous fossiliferous fine grained silty sand.	Gambier Limestone
41.8	43.3	1.5	Greyey white fossils and limestone gravel.	Gambier Limestone
43.3	47.9	4.6	Greyey white fossiliferous clay with lime and chert gravel.	Gambier Limestone
47.9	52.4	4.6	Greyey white fossiliferous marly sand.	Gambier Limestone
52.4	54.6	2.1	Light grey slightly micaceous fossiliferous sandy marl with some chert grit.	Gambier Limestone
54.6	57.9	3.4	Light grey fossiliferous fine sand with some limestone and chert grit.	Gambier Limestone
57.9	60.4	2.4	Light grey fossiliferous sand with limestone grit.	Gambier Limestone
60.4	70.7	10.4	Grey fossiliferous sandy marl with limestone and chert chips and gravel.	Gambier Limestone
70.7	72.0	1.2	Greyey white fossiliferous limestone.	Gambier Limestone
72.0	75.6	3.7	Cream limestone.	Gambier Limestone

75.6	85.1	9.5	Light brownish cream marly fossiliferous fine sand.		Gambier Limestone
85.1	85.4	0.3	Grey fossiliferous fine sandy marl.		Gambier Limestone
85.4	94.5	9.1	Buff silty bryozoic sand.		Gambier Limestone
94.5	100.6	6.1	Light brown slightly silty bryozoic sand.		Gambier Limestone
100.6	114.3	13.7	Light brown slightly silty micaceous fossiliferous sand.		Gambier Limestone
114.3	116.2	1.8	Brown slightly silty micaceous fossiliferous sand.		Gambier Limestone
116.2	128.7	12.5	Dark brown to black fossiliferous fine sand micaceous lignitic clay.		Nirranda Group
128.7	138.1	9.5	Dark brown to black fossiliferous micaceous lignitic clay with limestone and marcasite peddles.		Dilwyn Formation
138.1	149.4	11.3	Dark brown to black fossiliferous micaceous slightly lignitic clay with quartz grit, and marcasite pebbles.		Dilwyn Formation
149.4	152.4	3.0	Dark brown micaceous slightly lignitic sandy clay.		Dilwyn Formation
152.4	154.0	1.5	Dirty grey micaceous clayey sand.		Dilwyn Formation
154.0	155.2	1.2	Dirty grey to dark brown micaceous slightly lignitic sandy clay.		Dilwyn Formation

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Unit 702300831
Log Driller

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.5	0.5	Black soil.		Recent
0.5	4.0	3.5	Grey clay.		Padthaway Formation
4.0	6.0	2	Conglomerate, Hard, Grey sands.		Padthaway Formation
6.0	8.0	2	Grey clay.		Coomandook-Bridgewater Formation
8.0	9.0	1	Grey clay.		Coomandook-Bridgewater Formation
9.0	10.0	1	Grey marine sand.		Coomandook-Bridgewater Formation
10.0	14.0	4	Grey and brown clay.		Coomandook-Bridgewater Formation
14.0	16.0	2	Whitish sandy marl.		Gambier Limestone
16.0	18.0	2	Whitish sandy marl.		Gambier Limestone
18.0	22.0	4	Large shell some sand.		Gambier Limestone
22.0	25.0	3	Grey marly limestone.		Gambier Limestone
25.0	27.0	2	Limestone.		Gambier Limestone
27.0	29.0	2	Grey limestone.		Gambier Limestone
29.0	30.0	1	Grey drift sand.		Gambier Limestone

Unit 702300839
Log Ker (0-53.4m) & Steel (53.4-97.6m)

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.2	0.2	Clay soil. Some calcareous fragments. Brown.		Recent
0.2	1.8	1.6	Limestone. Chalky, slightly calcareous. White.		Padthaway Formation
1.8	3.8	2.0	Limestone. Clayey. Cream.		Coomandook-Bridgewater Formation
3.8	5.2	1.4	Limestone. Hard, partly silicified. Yellow.		Coomandook-Bridgewater Formation

5.2	14.9	9.8	Limestone. Hard, partly silicified. Cream.	Coomandook-Bridgewater Formation
14.9	16.8	1.8	Limestone. Hard, nodular. Buff.	Gambier Limestone
16.8	22.9	6.1	Limestone. Hard, nodular, some fossils and mollusc shells and few rounded quartz pebbles. Cream.	Gambier Limestone
22.9	25.0	2.1	Limestone. Hard, shelly, bryozoal. Buff.	Gambier Limestone
25.0	30.5	5.5	Limestone. Highly fossiliferous. Buff.	Gambier Limestone
30.5	35.7	5.2	Limestone. Highly fossiliferous. Buff.	Gambier Limestone
35.7	36.6	0.9	Limestone. As above with hard blue limestone bars.	Gambier Limestone
36.6	40.9	4.3	Limestone. Highly fossiliferous. Buff.	Gambier Limestone
40.9	43.3	2.4	Limestone. Fossiliferous and clayey. Cream.	Gambier Limestone
43.3	44.2	0.9	Limestone. Highly fossiliferous (polyzoal). Few limestone fragments.	Gambier Limestone
44.2	52.4	8.2	Limestone. Hard highly fossiliferous polyzoal.	Gambier Limestone
52.4	53.4	0.9	Limestone. Clayey and fossiliferous. Grey.	Gambier Limestone
53.4	62.5	9.1	Limestone. Fairly soft, extremely fossiliferous, common fine glauconite grains and probable limonite grains, rare quartz. Greenish grey.	Gambier Limestone
62.5	67.1	4.6	Limestone. Soft and marly, abundantly fossiliferous, common glauconite, rare quartz. Greenish grey and brown.	Gambier Limestone
67.1	70.1	3.0	Calcarenite. Medium to coarse, composed of mainly lime grains and fossil fragments with common quartz grains and glauconite, slightly marly. Greenish.	Gambier Limestone
70.1	79.3	9.1	Calcarenite. Similar to above but more marly.	Gambier Limestone
79.3	82.3	3.0	Calcarenite. Marly, composed of fine to medium and rare coarse lime grains, quartz grains and shell fragments, common glauconite. Greenish grey.	Gambier Limestone
82.3	85.4	3.0	Marl. Fairly stiff, containing very abundant lime grains and shell fragments, common glauconite and quartz grains. Greenish grey.	Gambier Limestone
85.4	88.4	3.0	Marl. Similar to above but quartz grains abundant.	Gambier Limestone
88.4	91.5	3.0	Sand. Clayey, sand composed of very fine to medium subangular to well rounded quartz and rarer lime grains, common fine shell fragments. Brown.	Nirranda Group
91.5	97.6	6.1	Sand. Very fine to fine subangular to well rounded quartz and rarer lime and shell fragments, common glauconite, some calcareous clay. Brown to yellowish brown.	Nirranda Group

	Unit		702301001		
	Log		Driller		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.3	0.3	Top soil.		Recent
0.3	2.1	1.8	Clayish limestone.		Padthaway Formation
2.1	6.4	4.3	Hard limestone.		Padthaway Formation
6.4	11.3	4.9	Hard clayish limestone.		Padthaway Formation
11.3	16.2	4.9	Yellowish clay and gravel.		Padthaway Formation
16.2	21.3	5.2	Hard sand stone.		Coomandook-Bridgewater Formation
21.3	24.4	3.0	Hard sand stone and bars flint.		Coomandook-Bridgewater Formation
24.4	29.0	4.6	Clayish limestone and flint.		Gambier Limestone
29.0	31.1	2.1	Hard sand stone.		Gambier Limestone
31.1	59.5	28.4	Hard limestone with clay seams and hard bars.		Gambier Limestone
59.5	61.0	1.5	Swelling sandy clay.		Gambier Limestone
61.0	72.3	11.3	Clayish limestone, hard bars.		Gambier Limestone
72.3	73.5	1.2	Brown sandy clay and flint.		Gambier Limestone
73.5	78.4	4.9	Sandy clay limestone and flint.		Gambier Limestone
78.4	99.4	21.0	Dark brown to black clay.		Nirranda Group

	Unit		702301311		
	Log		Driller		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.3	0.3	Black loam.		Recent
0.3	1.8	1.5	Clay		Unnamed Clay Unit
1.8	7.9	6.1	Clay with seams of gravel.		Unnamed Clay Unit
7.9	9.8	1.8	Hard limestone.		Gambier Limestone
9.8	15.9	6.1	Limestone.		Gambier Limestone
15.9	24.4	8.5	Coral rock.		Gambier Limestone

	Unit		702301501		
	Log		Marsden		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.1	0.1	Sand. Medium. Grey.		Recent
0.1	0.9	0.8	Clay. Silty, sand, medium-fine grains, slightly calcareous. Red-brown.		Recent
0.9	7.6	6.7	Sand. Silty, calcareous, medium grained quartz. Yellow, brown.		Coomandook-Bridgewater Formation
7.6	11.6	4.0	Sand. Coarse, slightly silty, only slightly calcareous, coarse silica grains, subrounded. Buff.		Coomandook-Bridgewater Formation
11.6	16.2	4.6	Limestone. Gravel, shell fragments, some quartz medium grained. Buff-yellow.		Gambier Limestone
16.2	25.9	9.8	Limestone. Fossiliferous (bryozoal throughout), shell fragments, gravel, traces of flint, slightly silty, some quartz, medium grained, subrounded. Buff.		Gambier Limestone

	Unit Log		702301520 Cobb		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	3.0	3.0	Quartz sand. Moderately to well rounded quartz grains, 0.3-0.5mm. Dark brown-black grading down to a pale orange-brown. Some silt.		Parilla Sand
3.0	9.1	6.1	Silt. Sandy approximately 10-15% quartz sand, well rounded. Pale orange-brown.		Parilla Sand
9.1	12.2	3.0	Clay. Sandy, orange-brown about 10% quartz, moderately rounded. Non-calcareous.		Unnamed Clay Unit
12.2	15.2	3.0	Clay. Stiff plastic. Moderately cohesive, about 15-20% quartz (angular-moderately rounded) and calcite. Calcareous.		Unnamed Clay Unit
15.2	21.3	6.1	Calcirudite. Buff-pale orange-brown. Essentially fossil fragments (bryozoa spicules, shell fragments?) and well rounded quartz (5-10%) with a fine clay matrix. Some small chert fragments. Becomes finer grained towards base. Some larger (1.5cm) chert fragments (brown).		Gambier Limestone

	Unit Log		702301528 Bleys		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.3	0.3	Soil.		Recent
0.3	1.8	1.5	Red and rusty brown sandy clay.		Recent
1.8	9.8	7.9	Whitish and reddish medium grained sandy limestone.		Padthaway Formation
9.8	22.6	12.8	Whitish and buff marly medium grained sand.		Coomandook-Bridgewater Formation
22.6	25.9	3.4	Whitish cream and yellowish brown bryozoic soft limestone.		Gambier Limestone
25.9	27.1	1.2	Yellowish brown slightly marly coarse, sand with quartz grit.		Gambier Limestone
27.1	27.7	0.6	Cream and whitish cream bryozoic and shelly medium sand and some limestone.		Gambier Limestone

	Unit Log		702301545 Cobb		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	3.0	3.0	Quartz sand. Quartz grains moderately to well rounded, 0.2-1.2mm grain size. Organic tubules and rootlets to 10 feet. Orange-brown.		Parilla Sand
3.0	6.1	3.0	Quartz sand. Silty, deep orange-brown. Old calcareous grains.		Parilla Sand
6.1	9.1	3.0	Quartz sand. About 10-15% silt sized particles.		Parilla Sand
9.1	12.2	3.0	Quartz sand. Some clay.		Parilla Sand
12.2	13.7	1.5	Marl. Buff, pale grey. Odd well rounded quartz grains, bryozoa and flint (black) fragments (2-5%) approximately 0.3mm in size.		Coomandook-Bridgewater Formation

13.7	18.3	4.6	Calcarenite. Grading to a calcirudite, essentially bryozoal and shell (?) fragments in a clayey calcareous matrix. Some fine black flint chips and larger (to 8-10mm) orange-brown chert fragments.		Gambier Limestone
18.3	19.8	1.5	Marly calcarenite. Bryozoal (up to 3mm) and shell fragments in a calcareous clay matrix.		Gambier Limestone

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Unit Log 702301637
Wilson

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.8	0.8	Topsoil-Lutite-siltite. Soft slightly calcareous, 30% fine grain quartz. Dark brown to orange brown.		Recent
0.8	1.0	0.2	Calcarenite. Fine hard, fine to coarse subangular to subrounded quartz.	Padthaway Formation equivalent	Padthaway Formation
1.0	2.0	1.0	Calcarenite. 1015% quartz as above, siltite 10%. White cream, pale grey and yellow. Well cemented.	Padthaway Formation equivalent	Padthaway Formation
2.0	3.0	1.0	Calcarenite. As above, some dark grains, limonite or manganese stains.	Padthaway Formation equivalent	Padthaway Formation
3.0	4.0	1.0	Calcarenite. As above, some ferruginous fragments.	Padthaway Formation equivalent	Padthaway Formation
4.0	5.0	1.0	Calcarenite. As above, some shell and bryozoal fragments to 2mm, fine to coarse quartz some well rounded.	Padthaway Formation equivalent	Padthaway Formation
5.0	6.0	1.0	Calcarenite. As above, coarser grained, some fine ferruginised calcarenite, manganese staining, buff yell cream and very pale grey. 10% silt.	Padthaway Formation equivalent	Padthaway Formation
6.0	7.0	1.0	Calcarenite-Arenite. Medium to coarse grained (1mm), weakly cemented, shell fragments, foraminifera. Siltite 5% speckled.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
7.0	8.0	1.0	Arenite. As above but 30-40% calcarenite (matrix mainly) 10% siltite. Yellow to orange brown and moderately hard to soft.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
8.0	9.0	1.0	Arenite. As above, ferruginous grains and fragments.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
9.0	10.0	1.0	Arenite. As above, soft to well cemented.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
10.0	11.0	1.0	Arenite. As above, mostly hard and a few quartz grains to 2mm.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
11.0	12.0	1.0	Arenite. As above for 6-7m (interval) mostly soft, some foraminifera, shell and bryozoal remains.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
12.0	13.0	1.0	Arenite. As above, hard and soft.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation

13.0	14.0	1.0	Arenite. As above, 60% quartz, fine and coarse fraction mainly soft, 25-35% siltite, some carbonate grains, fossiliferous.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
14.0	15.0	1.0	Arenite. As above, 20-30% siltite and 10% soft carbonate.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
15.0	16.0	1.0	Arenite. As above for 13-14m (interval), some grit shell fragments to 10mm, quartz grains to 3mm, siltite 5-10%, mostly well cemented.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
16.0	16.5	0.5	Arenite. As above, minor fines, predominantly well cemented, pale yellow cream and white. Cast of shell 15mm.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
16.5	17.4	0.9	Calcarenite. Fine to gritty quartz 20-30%, abundant calcisiltite 20-30% some bryozoal and shell fragments soft to weakly cemented, cream white. Colour change 16.5m onwards.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
17.4	18.0	0.6	Calcarenite. As above, quartz angular to rounded, clear-milky. Siltite 10-15%, quartz 30-40%. Shelly bryozoal foraminifera.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
18.0	19.0	1.0	Calcarenite. As above, greyish fragments silty 10-25% Noticeable increase in bryozoal fragments, fine quartz, carbonate fraction.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
19.0	20.0	1.0	Arenite. Fine to gritty quartz (2.5mm) siltite 15-20% rest carbonaceous bryozoal sticks, shell fragments. Minor mica few brown (ferr.) grains and fragments.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
20.0	21.0	1.0	Arenite. As above, some calcareous layers fossiliferous, ? Deep green glauconite.	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
21.0	22.0	1.0	Calcarenite. As for 17.4-18m (interval) but fine grain. Large fragments of pale grey flint-remnants of eroded Gambier Limestone (?).	Bridgewater-Coomandook Formation equivalent	Coomandook-Bridgewater Formation
22.0	23.0	1.0	Calcarenite. Fine to coarse grained, abundant bryozoal sticks 10% fine quartz soft cream. Siltite 10%.	Gambier Limestone	Gambier Limestone
23.0	24.0	1.0	Calcarenite. As above, large chips flint, shelly, bryozoal rest white, moderately cemented, fine grained, abundant fine quartz.	Gambier Limestone	Gambier Limestone
24.0	25.0	1.0	Calcarenite. As above, pale grey and better cemented, abundant flint.	Gambier Limestone	Gambier Limestone
25.0	27.0	2.0	Calcarenite. As above, bryozoal, fine to coarse, some stems to 4mm. Calcisiltite 20-30%, slightly marly. Foraminifera, minor quartz weakly cemented, off white.	Gambier Limestone	Gambier Limestone
27.0	29.0	2.0	Calcarenite. As above, large pale grey flint fragments some bryozoa to 10mm. Cream coloured.	Gambier Limestone	Gambier Limestone
29.0	30.0	1.0	Calcarenite. As above, minor flint.	Gambier Limestone	Gambier Limestone

	Unit		702301850		
	Log		Driller		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.5	0.5	Black sandy clay		Recent
0.5	1.0	0.5	Very hard rock		Padthaway Formation
1.0	14.0	13.0	White limestone (hard bar)		Padthaway Formation
14.0	20.0	6.0	Grey limestone with clay		Padthaway Formation
20.0	24.0	4.0	White limestone		Padthaway Formation
24.0	27.0	3.0	White sandy limestone		Coomandook-Bridgewater Formation
27.0	42.0	15.0	Very hard limestone		Gambier Limestone
42.0	118.0	76.0	Grey limestone with flint		Gambier Limestone
118.0	126.0	8.0	Grey limestone		Gambier Limestone
126.0	139.0	13.0	Grey limestone with clay		Gambier Limestone
139.0	142.0	3.0	Grey sticky clay		Nirranda Group
142.0	146.0	4.0	Green sticky clay		Nirranda Group
146.0	159.0	13.0	Yellow sandy clay		Nirranda Group
159.0	177.0	18.0	Stiff black clay		Dilwyn Formation
177.0	191.0	14.0	Black clay, fine sand		Dilwyn Formation
191.0	214.0	23.0	Stiff black clay with hard bars of dolomite		Dilwyn Formation

	Unit		702302613		
	Log		Edwards		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.3	0.3	Arenite. Quartz, dark and clear, sub-rounded, up to 1mm average 0.2mm, with 10% calcarenite average 0.2mm, and 10% dark organic material.		Recent
0.3	6.0	5.7	Calcarenite. Yellow and white, shell chips, bryozoa sticks, coral fragments etc up to 6mm diameter, average 1mm, with 10-30% arenite.		Padthaway Formation
6.0	16.0	10.0	Calcisiltite. Pale yellow-brown to dark grey, with 20% Calcarenite (as above) and 10% arenite (as above).		Padthaway Formation
16.0	16.0	0.0	Clay bands		Padthaway Formation
16.0	22.0	6.0	Calcisiltite. Pale yellow-brown to dark grey, with 20% Calcarenite (as above) and 10% arenite (as above).		Coomandook-Bridgewater Formation
22.0	22.0	0.0	Clay bands		Unnamed Coomandook Clay
22.0	26.5	4.5	Calcisiltite. Pale yellow-brown to dark grey, with 20% Calcarenite (as above) and 10% arenite (as above).		Gambier Limestone

	Unit		702302623		
	Log		Driller		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.3	0.3	Top soil.		Recent
0.3	4.0	3.7	Limestone.		Padthaway Formation
4.0	16.0	12.0	Sandstone.		Coomandook-Bridgewater Formation

16.0	17.0	1.0	Clay.		Unnamed Coomandook Clay
17.0	19.0	2.0	Limestone.		Gambier Limestone

Unit 702302624
Log Driller

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	1.0	1.0	Clay.		Recent
1.0	17.0	16.0	Sandstone.		Coomandook-Bridgewater Formation
17.0	18.0	1.0	Clay.		Unnamed Coomandook Clay
18.0	19.0	1.0	Limestone.		Gambier Limestone

Unit 702302640
Log Bradford

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.3	0.3	Silt. Slightly sandy. Organic pitch non-calcareous. Red brown.		Recent
0.3	1.5	1.2	Limestone. Cryptocrystalline, hard, rubbly, white infilled with red-brown silty clay.		Padthaway Formation
1.5	4.6	3.0	Limestone. Crystalline, hard, white.		Padthaway Formation
4.6	9.1	4.6	Calcrete. Sandy, grains are quartz and mica from silt size to 0.1mm. Sand content 5%. Very strong rubble infilled with calcilutite. Grey and yellow brown.		Coomandook-Bridgewater Formation
9.1	12.2	3.0	Sandstone. Very strongly cemented with calcareous material. Grains are quartz and mica for silt size to 0.1mm.		Coomandook-Bridgewater Formation
12.2	15.2	3.0	Sandstone. Very strongly cemented. Grains as above. Sample contains one shell fragment 1.5cm in size. Also contains rounded nodular sandstone structures that do not contain a nucleus.		Coomandook-Bridgewater Formation
15.2	16.8	1.5	Sandstone. Material as above. Hard rubbly in silty clay.		Coomandook-Bridgewater Formation
16.8	21.3	4.6	Calcisiltite. Slightly sandy poorly cemented. Contains a few calcrete fragments and bryozoa. Greyish Brown.		Gambier Limestone

Unit 702302659
Log Roberts

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.3	0.3	Sand. Clayey, calcareous, rootlets red brown.		Recent
0.3	0.6	0.3	Clay. Slightly sand, red brown.		Recent
0.6	1.8	1.2	Limestone. Strongly cemented fragments. 10mm. White-grey.		Padthaway Formation
1.8	4.3	2.4	Marl. With limestone fragments, white.		Padthaway Formation
4.3	7.6	3.4	Limestone. Slightly sandy. Fragments 10cm occurs 14-19ft, strongly cemented off white and brown.		Padthaway Formation

7.6	7.9	0.3	Limestone. Finely sandy, slightly fossiliferous. Sample mainly sand sizes. Buff.		Coomandook-Bridgewater Formation
7.9	11.3	3.4	Limestone. Finely sandy. Recemented strongly, large fragments, strong solution surfaces. Buff-brown.		Coomandook-Bridgewater Formation
11.3	14.9	3.7	Limestone. Sandy, shelly 37-38ft. Slightly shelly 38-40ft strongly cemented fragments throughout. Buff.		Coomandook-Bridgewater Formation
14.9	15.2	0.3	Limestone. Very sandy. Very fossiliferous. Quartz grains subrounded fine to coarse. Buff.		Coomandook-Bridgewater Formation
15.2	15.5	0.3	Sand. Fine grain, slightly calcareous grey.		Coomandook-Bridgewater Formation
15.5	16.2	0.6	Limestone. Sandy quartz grains medium to coarse subrounded. Buff. Bryozoal.		Coomandook-Bridgewater Formation
16.2	18.6	2.4	Mixture of Clay, limestone and sand. Fossiliferous, clay dark grey, limestone coarse grain, sand quartz fine to coarse grain subrounded.		Unnamed Coomandook Clay
18.6	24.4	5.8	Limestone. Marly (very marly 61-70 ft) fossiliferous, cherty 70-80ft medium grey, bryozoal.		Gambier Limestone

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Unit Log 702302669 Edwards

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	2.0	2.0	Arenite - Calcarenite. 50% brown and clear quartz grains up to 2mm diameter. Average is 0.2mm. The grains are sub-rounded - sub-angular. 50% yellow and white calcareous fragments up to 3.0mm diameter, average size is 0.5mm. Bryozoa sticks, coral fragments, shell chips and echinoid spines are the principle constituents.		Coomandook-Bridgewater Formation
2.0	18.0	16.0	Calcarenite. 80-90% yellow and white calcareous fragments. Bryozoa sticks, coral fragments, shell chips, and echinoid spines are still the principle constituents.		Gambier Limestone
18.0	23.0	5.0	Calcarenite. As above. Flint chips (dark) are present 10% brown and clear quartz grains up to 2.0mm diameter, and average size is 0.2mm, grains are sub-rounded - sub-angular.		Gambier Limestone

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Unit Log 702302678 Driller

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.3	0.3	Top soil (red clay).		Recent
0.3	0.6	0.3	Red clay.		Recent
0.6	1.2	0.6	Limestone.		Padthaway Formation
1.2	2.4	1.2	Broken limestone.		Padthaway Formation
2.4	3.7	1.2	Broken limestone.		Padthaway Formation

3.7	5.2	1.5	Sandstone with gravel.		Padthaway Formation
5.2	6.4	1.2	Limestone, sandstone, gravel.		Coomandook-Bridgewater Formation
6.4	7.6	1.2	Broken limestone.		Coomandook-Bridgewater Formation
7.6	9.1	1.5	Broken limestone.		Coomandook-Bridgewater Formation
9.1	10.7	1.5	Sandstone limestone.		Coomandook-Bridgewater Formation
10.7	12.2	1.5	Sandstone - broken.		Coomandook-Bridgewater Formation
12.2	13.7	1.5	Sandstone gravels.		Coomandook-Bridgewater Formation
13.7	14.3	0.6	Sandstone gravels.		Coomandook-Bridgewater Formation
14.3	15.2	0.9	Hard sandstone.		Coomandook-Bridgewater Formation
15.2	16.5	1.2	Broken hard sandstone.		Coomandook-Bridgewater Formation
16.5	16.8	0.3	Grey clay.		Unnamed Coomandook Clay
16.8	18.3	1.5	Grey sandy clay.		Unnamed Coomandook Clay
18.3	19.2	0.9	Grey sandy clay.		Unnamed Coomandook Clay
19.2	19.8	0.6	Flint stones, sandstone, broken with mixed shells. Quartzite pieces (water).		Gambier Limestone
19.8	21.3	1.5	Light grey sandy clay.		Gambier Limestone
21.3	22.9	1.5	Flint stone, shells and gravel.		Gambier Limestone
22.9	24.4	1.5	Light grey sandy clay.		Gambier Limestone

Unit Log 702302681 Edwards

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.2	0.2	Arenite-Calcarenite. 80-90% sample brown and clear sub-rounded sub-angular quartz grains up to 1.5mm diameter. 10% sample calcarenite (yellow and white) calcareous grains, up to 0.3mm. Some grey organic matter.		Recent
0.2	4.0	3.8	Arenite-Calcarenite. 80-90% sample brown and clear sub-rounded sub-angular quartz grains up to 1.5mm diameter. 10% sample calcarenite (yellow and white) calcareous grains, up to 0.3mm.		Coomandook-Bridgewater Formation
4.0	10.0	6.0	Arenite-Calcarenite. As above. Arenite is well-cemented.		Coomandook-Bridgewater Formation
10.0	16.0	6.0	Arenite-Calcarenite. As 0.2-4m (interval), Arenite = 50%, Calcarenite 50% some shell chips up to 2.5mm.		Coomandook-Bridgewater Formation
16.0	18.0	2.0	Calcisiltite. 60% sample is composed of pale yellow brown grading to dark grey. Calcisiltite. 20% sample is calcarenite grading.		Unnamed Coomandook Clay

18.0	20.0	2.0	Calcarenite. 70-80% sample composed of grey and white calcareous fragments up to 7mm. Coral chips to 7mm, whole shell chips to 2mm, flint chips to 8mm (average grain size is 1-1.5mm). Bryozoa sticks and echinoid spines are also in abundance. 10% of sample is composed arenite, clear and milky quartz grains subrounded to rounded up to 4mm, average grain size 0.2mm. 5-10% sample is dark calcisiltite.		Gambier Limestone

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Unit 702302694
Log Shepherd

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	2.4	2.4	Brown clayey fine sand and brown clay with quartz grit.		Recent
2.4	12.2	9.8	Cream fine grained sandy limestone with fragments of bryozoa and shell fragments.		Padthaway Formation
12.2	16.8	4.6	Yellow fine calcareous sand and mica.		Coomandook-Bridgewater Formation
16.8	18.3	1.5	Yellowish grey clay and shell fragments.		Coomandook-Bridgewater Formation
18.3	19.8	1.5	Grey sandy clay with abundant limestone fragments bryozoa and shell fragments.		Coomandook-Bridgewater Formation
19.8	35.7	15.9	Light grey sandy bryozoal limestone.		Gambier Limestone
35.7	36.6	0.9	Grey clayey bryozoal limestone.		Gambier Limestone

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Unit 702302724
Log Unknown

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.6	0.6	Surface soil.		Recent
0.6	2.7	2.1	Yellow clay.		Recent
2.7	6.1	3.4	Coarse nodular limestone in clay.		Padthaway Formation
6.1	6.7	0.6	Marine limestone.		Padthaway Formation
6.7	16.8	10.1	Marine limestone and fine calcareous sand.		Coomandook-Bridgewater Formation
16.8	17.7	0.9	Soft marine limestone (with hard lumps).		Gambier Limestone
17.7	18.3	0.6	Hard marine limestone.		Gambier Limestone
18.3	22.3	4.0	Fine marine coralline limestone.		Gambier Limestone
22.3	50.3	28.0	Marine polyzoal limestone.		Gambier Limestone
50.3	51.8	1.5	Yellow clay.		Gambier Limestone
51.8	56.7	4.9	Fine sand.		Gambier Limestone

	Unit Log		702302764 Lang		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.0	0.0	Quartz arenite. Brown, angular to rounded (0.06-1.5mm) average grain size 0.2mm. Quartz grains dominantly clear with a fraction rose/orange, occasional well rounded grains, abundant organic matter and rootlets.		Recent
3.0	3.0	0.0	Arenaceous lutite. Buff, subangular to rounded (<0.1mm), average grain size 0.06mm. Lutite is sticky, arenite clear with a fraction rose, minor white calcareous material.		Padthaway Formation
6.0	6.0	0.0	Calcareous quartz arenite. Buff, subangular to well-rounded (0.002-1.5mm) average grain size 0.5mm, quartz grains dominantly clear with a fraction orange/rose. Calcareous material white.		Coomandook-Bridgewater Formation
9.0	10.5	1.5	Quartzose calcarenite. Grey subangular to well-rounded (0.05-1.0mm) average grain size 0.05mm. Calcareous material white yellow. Quartz grains clear with a fraction rose/orange. Micaceous and Glauconitic.		Coomandook-Bridgewater Formation

	Unit Log		702302823 Wilson		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	1.0	1.0	Top soil - Terra rossa. Red brown to brown lutite (clay) fine grained quartz, non-calcareous, weakly cemented.		Recent
1.0	2.2	1.2	Lutite (clay). Pale orange brown, non-calcareous, silty to gritty with angular to rounded quartz. Non-calcareous till approximately 2m. Weakly cemented.		Recent
2.2	4.0	1.8	Calcarenite (limestone). Fine to medium grained with sub-angular to rounded grains, 10-15% quartz as for carbonate. Occasional bryozoal fragments, foraminifera and gastropods. Yellow-brown, moderate cementation. Clay pockets.	Padthaway formation equivalent	Padthaway Formation
4.0	5.0	1.0	Calcarenite (limestone). As above. 10-15% calcisiltite (silty limestone) moderate to good cementation, 20-25% fine quartz. Abundant fossil remains and shell fragments. Grains etc colourless to white, yellow and orange. Overall colour very pale orange brown.	Padthaway formation equivalent	Padthaway Formation
5.0	6.0	1.0	Calcarenite (limestone). As above. Some very well cemented, hard. Brown to orange.	Padthaway formation equivalent	Padthaway Formation

6.0	7.0	1.0	Calcarenite (limestone). As above. Some large well rounded quartz grains to 4mm. Speckled white, pale yellow and orange.	Padthaway formation equivalent	Padthaway Formation
7.0	8.0	1.0	Calcarenite (limestone). As above. Coarser grained and all well cemented.	Padthaway formation equivalent	Padthaway Formation
8.0	9.0	1.0	Calcarenite (limestone). As 5-6mm (interval). Less cemented. Shell fragments to 4mm. Calcirudite 5-10% (gritty).	Padthaway formation equivalent, some possible Coomandook formation equivalent.	Padthaway Formation
9.0	10.0	1.0	Calcarenite (limestone). As above. 30-40% quartz.	Padthaway formation equivalent, some possible Coomandook formation equivalent.	Padthaway Formation
10.0	11.0	1.0	Arenite (sand). Fine to gritty (2-3mm), angular to subrounded grains, 30-40% carbonate grains and matrix, foraminifera, shell fragments, 15-20% siltite. Poor to moderate cementation.	Padthaway formation equivalent, some possible Coomandook formation equivalent.	Coomandook-Bridgewater Formation
11.0	12.0	1.0	Arenite (sand). As above. Very well cemented, silt <5%. Shell fragments to 8mm.	Padthaway formation equivalent, some possible Coomandook formation equivalent.	Coomandook-Bridgewater Formation
12.0	13.0	1.0	Arenite (sand). As above. But softer and few grains to 2mm.	Padthaway formation equivalent, some possible Coomandook formation equivalent.	Coomandook-Bridgewater Formation
13.0	14.0	1.0	Calcarenite (limestone). 20-30% quartz as above. Cementation as for 12-13m (interval) but approximately 50% is very hard as for 11-12m (interval).	Padthaway formation equivalent, some possible Coomandook formation equivalent.	Coomandook-Bridgewater Formation
14.0	15.0	1.0	Calcarenite-Arenite (limestone sand). As above but fine to medium grained - 11 to 14m Silty 10%. Poor cementation.	Padthaway formation equivalent, some possible Coomandook formation equivalent.	Coomandook-Bridgewater Formation
15.0	16.0	1.0	Calcarenite-Arenite (limestone sand). As above. Some well cemented hard zones, few bryozoa, possibly greater percentage of arenite (sand). Silty, clayey-probably from clay layer 15.8-16m.	Padthaway formation equivalent, some possible Coomandook formation equivalent.	Coomandook-Bridgewater Formation
16.0	17.0	1.0	Lutite (clay). Bit sample; Olive, khaki to medium grey, micaceous, calcareous, plastic, some light brown fragile shell remains. Sludge; as for bit sample, but some large fragments of hard, well-cemented calcarenite.	Unnamed Clay	Unnamed Coomandook Clay

17.0	18.0	1.0	Lutite (clay). Bit sample; as above, mainly dark grey, delicate shell fragments, molluscs, gastropods, few subrounded quartz pebbles to 5mm. Sludge; as for bit sample, some calcarenite lumps, possibly contamination.	Unnamed Clay	Unnamed Coomandook Clay
18.0	19.0	1.0	Calcarenite (limestone). Fine to coarse grained, few gritty, 20-30% quartz, rest carbonate grains. About 30-40% calcisiltite, calcilutite. Some dark green glauconite grains <1%. Large variety of shell fragments, foraminifera, bryozoal sticks etc. Generally soft to weakly cemented. Pale grey.	Gambier limestone	Gambier Limestone
19.0	20.0	1.0	Calcisiltite - Calcilutite (silty, marly limestone). 30-40% bryozoal sticks (average 3mm diameter and 12 mm long) small shells and fine to gritty (2-3mm) carbonate grains. Rest as for 18-19m (interval).	Gambier limestone	Gambier Limestone

Unit Log 702302825 Lawson

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	1.0	1.0	Quartz sand. Colourless to frosted, subangular to subrounded, varies 0.2mm to 1.2mm (average 0.2mm). 10% silt - brown.		Recent
1.0	3.0	2.0	Silt. Light orange. 15% quartz sand as above. Slightly calcareous.		Coomandook-Bridgewater Formation
3.0	6.0	3.0	Silt. As above. 10% calcarenite - white, unconsolidated.		Coomandook-Bridgewater Formation
6.0	8.8	2.8	Calcarenite. White to iron stained, strongly cemented. Some reworked fossil fragments. 10% quartz sand as above.		Coomandook-Bridgewater Formation

Unit Log 702302826 Wilson

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.3	0.3	Arenite. Quartz medium to coarse, angular to rounded, clear, milky, rose and Fe stained grains, few well rounded grains, grey to dark brown.		Recent
0.3	1.2	0.9	Siltite. Orange brown, poorly cemented. 10-15% quartz as above, mostly Fe stained <5% Fe grains.	Padthaway Formation equivalent	Padthaway Formation
1.2	2.0	0.8	Siltite. As above. Pale orange brown.	Padthaway Formation equivalent	Padthaway Formation
2.0	3.0	1.0	Siltite. As above. Slightly calcareous.	Padthaway Formation equivalent	Padthaway Formation
3.0	4.0	1.0	Siltite. As above. 10-15% white, medium, carbonate grains.	Padthaway Formation equivalent	Padthaway Formation

4.0	5.0	1.0	Calcarenite. Silt to coarse, white/yellow carbonate grains. 30-40% fine to coarse generally clear, subangular to rounded, few well rounded smokey grains. Well cemented. Minor shell fragments and foraminifera. Fawn.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
5.0	6.0	1.0	Calcarenite. As above. Small percentage of Fe grains.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
6.0	7.0	1.0	Calcarenite. As above. Overall medium to coarse, 30% quartz fragments of recrystallised calcite. Speckled white, orange and brown. Minor bryozoa.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
7.0	8.0	1.0	Calcarenite. As above. Calcarenite fragments layered with recrystallised calcite.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
8.0	9.0	1.0	Calcarenite. As above. Quartz subrounded. Carbonate grains are medium to coarse. Small percentage of fine, shiny black material (glauconite/Fe?).	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
9.0	10.0	1.0	Arenite. Quartz fine to medium, clear, rose, sub angular, few coarse rounded grains, 10-20% fine to medium carbonate grains. 1% shiny black material (glauconite/Fe?). Moderately cemented. Greyish brown.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
10.0	11.0	1.0	Arenite. As above. Few shell fragments.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
11.0	12.0	1.0	Arenite. As above. Generally fine grained, minor mica flakes. Speckled browns to grey.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
12.0	13.0	1.0	Arenite. As above. Greyish brown.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
13.0	14.0	1.0	Arenite. As above. Quartz fine to coarse, 30% fine to coarse carbonate grains. Well cemented. Speckled white, grey and brown.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
14.0	15.0	1.0	Arenite. As above. Poorly cemented, 10% carbonate grains. Quartz silt to coarse. Greyish brown.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
15.0	16.0	1.0	Arenite. As above. Silt to medium overall.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
16.0	17.0	1.0	Arenite. As above.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
17.0	18.0	1.0	Arenite. As above.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
18.0	19.0	1.0	Arenite. As above. Fine to coarse.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
19.0	20.0	1.0	Arenite. As above. Minor shell fragments and foraminifera. 15-20% carbonate grains.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation

20.0	21.0	1.0	Arenite. As above. Quartz silt to medium.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
21.0	22.0	1.0	Arenite. As above. 20% medium carbonate grains, minor green glauconite remains.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
22.0	23.0	1.0	Calcarenite. Silt to coarse, abundance of bryozoal sticks, foraminifera and shell fragments. 5% fine grained quartz. Poorly cemented. 1% glauconite fragments, small percentage of shiny black material (?). Grey.	Gambier Limestone	Gambier Limestone
23.0	24.0	1.0	Calcarenite. As above. Shell fragments to 3mm.	Gambier Limestone	Gambier Limestone
24.0	25.0	1.0	Calcarenite. As above. Flint chips to 3mm, minor fine quartz.	Gambier Limestone	Gambier Limestone
25.0	26.0	1.0	Calcarenite. As above. Silty, abundant flint chips up to 5mm. <1% glauconite. Mid grey.	Gambier Limestone	Gambier Limestone

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Unit Log 702302827
Wilson

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	2.1	2.1	Calcarenite. Silty 5-10%, rest fine to coarse grained. Well cemented, some very hard white chips, rest fawnish to pale cream, some (?) manganese stains.	Padthaway Formation equivalent	Padthaway Formation
2.1	3.0	0.9	Calcarenite. As above. But brownish yellow, some brown to black ferruginous grains and minor white carbonate.	Padthaway Formation equivalent	Padthaway Formation
3.0	4.0	1.0	Calcarenite. As above. 1% quartz, 10-20% siltite, some ferruginised (?) bryozoal stems.	Padthaway Formation equivalent	Padthaway Formation
4.0	5.0	1.0	Calcarenite. As above. But 20-30% fine to coarse subangular quartz.	Padthaway Formation equivalent	Padthaway Formation
5.0	6.0	1.0	Calcarenite. As above. Still well cemented, grey, yellow and brown.	Padthaway Formation equivalent	Padthaway Formation
6.0	7.0	1.0	Calcarenite. Generally soft to weakly cemented, fine to medium grained, silt 10%, 20-30% quartz, some rounded rest angular. Some as above. Few bryozoa, shell fragments and odd foraminifera. White/cream and yellow.	Coomandook-Bridgewater formation equivalent	Coomandook-Bridgewater Formation
7.0	8.0	1.0	Calcarenite. As above. Weakly to moderately cemented. Abundant fossil fragments of white to cream. Minor silt. Some coarse well rounded quartz.	Coomandook-Bridgewater formation equivalent	Coomandook-Bridgewater Formation
8.0	9.0	1.0	Calcarenite. As above. Well cemented, shell fragments to 8mm.	Coomandook-Bridgewater formation equivalent	Coomandook-Bridgewater Formation
9.0	10.0	1.0	Calcarenite. As above. 20-30% coarse to gritty (3mm) subrounded to rounded quartz, shell fragments to 10mm, moderately to well cemented.	Coomandook-Bridgewater formation equivalent	Coomandook-Bridgewater Formation

10.0	11.0	1.0	Arenite. 55-65% quartz, fine to gritty, sub-angular to rounded, clear-white, in calcareous matrix similar to above. Siltite 5%.	Coomandook-Bridgewater formation equivalent	Coomandook-Bridgewater Formation
11.0	12.0	1.0	Arenite. As above. But containing harder calcarenite bands as for 8-10m. Some quartz to 3mm.	Coomandook-Bridgewater formation equivalent	Coomandook-Bridgewater Formation
12.0	13.0	1.0	Calcarenite. As for 8-10m (interval). Moderately to well cemented, very fine to gritty, 35-45% quartz.	Coomandook-Bridgewater formation equivalent	Coomandook-Bridgewater Formation
13.0	17.0	4.0	Arenite with calcarenite. Both similar to above mainly weakly cemented.	Coomandook-Bridgewater formation equivalent	Coomandook-Bridgewater Formation
17.0	20.0	3.0	Calcarenite. Gritty with 25-35% quartz, some rounded to 4mm, clear, white and grey. Shelly bryozoal, foraminifera. Minor siltite. Moderately to well cemented, off-white/cream/brown and pal yellow .Bit Sample; Calcarenite, fine to coarse grained, 20-30% quartz clear to milky and some subrounded, fossiliferous with obvious bryozoal and shell remains, some to 20mm. Sample highly porous - some solution features.	Coomandook-Bridgewater formation equivalent	Coomandook-Bridgewater Formation
20.0	21.0	1.0	Calcirudite. Large bryozoal, fragments to 10mm, some fine grained material, 5% siltite. Minor foraminifera shell fragments and quartz. Some pale grey, fine and well cemented calcarenite. Rest creamy.	Reworked Gambier limestone	Coomandook-Bridgewater Formation
21.0	22.0	1.0	Calcirudite. As above. Some bryozoal fragments to 10mm, 20-30% calcarenite.	Reworked Gambier limestone	Gambier Limestone
22.0	23.0	1.0	Calcirudite. As above. Shell and bryozoal fragments to 10mm, 20-30% calcarenite.	Reworked Gambier limestone	Gambier Limestone
23.0	24.0	1.0	Calcarenite. Fine to coarse, 10-16%% calcirudite (bryozoal), predominantly bryozoal fragments.. Pale grey (fine) to cream (coarse). Moderately to well cemented.	Gambier limestone	Gambier Limestone
24.0	25.0	1.0	Calcarenite. As above. Siltite 20-30% mainly bryozoal remains, fine to 5mm. Fragments of grey flint. Minor dark green glauconite. Rest pale grey.	Gambier limestone	Gambier Limestone
25.0	26.0	1.0	Calcarenite. As above. Mostly fine to coarse grained.	Gambier limestone	Gambier Limestone
26.0	27.0	1.0	Calcarenite. As above. Bryozoa 10mm x 2mm diameter.	Gambier limestone	Gambier Limestone

	Unit	702302828			
	Log	Wilson			
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.2	0.2	Top soil. Grey, lutite, calcareous, abundant organic material.		Recent
0.2	3.0	2.8	Calcisiltite. Very fine quartz 20-30% soft to well cemented 10-20% calcilutite, sticky, pale grey.	Padthaway Formation equivalent	Padthaway Formation
3.0	4.0	1.0	Calcisiltite. As above. Very light grey.	Padthaway Formation equivalent	Padthaway Formation
4.0	5.0	1.0	Calcarenite. Very fine, minor fine quartz, 5-10% calcisiltite, light grey, dark grey and yellow.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
5.0	6.0	1.0	Calcarenite. As above. Some coarser angular to subrounded quartz to 1mm. Some very dark material.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
6.0	7.7	1.7	Calcarenite. As above. But calcisiltite, calcilutite as for 0.2 to 4m (interval).	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
7.7	9.7	2.0	Calcarenite. As for 4-6m (interval). Hard well cemented, light yellow to brown and grey, 20% fine quartz etc. 10-15% calcisiltite.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
9.7	11.7	2.0	Calcarenite. As above. White, light grey and yellow brown.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
11.7	12.7	1.0	Calcarenite. As above. Mainly yellow and brown, fine quartz 20-30%, some ferruginous grains, odd foraminifera. Occasional coarse material to 2mm.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
12.7	13.7	1.0	Arenite. 10-20% siltite, 20-30% calcarenite, rest mostly fine quartz, some foraminifera, shell fragments to 3mm, micaceous, soft, weakly cemented slightly sticky.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
13.7	14.7	1.0	Arenite. As above. 10% lutite fraction sticky.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
14.7	15.7	1.0	Arenite. As above. 45-50% fine angular to sub-angular quartz, few coarser, better rounded, fine to coarse carbonate grains, siltite 10-20%, minor mica. Shell fragments, foraminifera, common. Soft weak cementation, some harder. Pale yellow.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
15.7	16.7	1.0	Arenite. As above. With 15-25% siltite, some brown ferruginous grains, green glauconite and one smokey quartz grains.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
16.7	17.7	1.0	Arenite. As above. With 5-10% lutite, sticky some quartz to 3mm, 5% better rounded, some smokey. Odd bryozoa.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
17.7	18.7	1.0	Arenite. As above. Some better cemented. Bryozoa more common.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation

18.7	19.7	1.0	Arenite. As above. 5% coarse quartz.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
19.7	20.7	1.0	Calcarenite. Fine to coarse grained, abundant bryozoa to 4mm, minor glauconite, moderately well cemented, pale yellowish grey. Possibly Gambier Limestone or reworked Gambier Limestone.	Gambier Limestone	Gambier Limestone
20.7	21.7	1.0	Calcarenite. As above. Abundant pale to dark grey flint, yellowish grey. Reworked (?).	Gambier Limestone	Gambier Limestone
21.7	23.0	1.3	Calcarenite. As above. Abundant flint, bryozoa to 12 mm fine quartz and calcarenite grains possibly contamination from above. Pale grey.	Gambier Limestone	Gambier Limestone
23.0	24.0	1.0	Calcarenite. As above. Mostly flint, large rounded quartz pebbles to 7mm (broken).	Gambier Limestone	Gambier Limestone
24.0	25.0	1.0	Calcarenite. As for 14.7-18.7m (interval).	Gambier Limestone	Gambier Limestone
25.0	26.0	1.0	Calcarenite. As above. Contaminant (?).	Gambier Limestone	Gambier Limestone
26.0	28.0	2.0	Calcarenite. As above. Some flint.	Gambier Limestone	Gambier Limestone
28.0	29.0	1.0	Calcarenite. As above. Abundant flint. Lower 10 metre interval may be material in sinkhole within Gambier or fluvial deposit similar to that in quarry at Wrattonbully.	Gambier Limestone	Gambier Limestone

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Unit 702302829
Log Wilson

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	1.0	1.0	Top soil. Dark grey to black clayey top soil, cracked, well structured and overlying calcarenite, moderately to well cemented, fine to coarse grained, quartz, some bryozoa foraminifera. Cream to white.		Recent
1.0	2.0	1.0	Calcisiltite. Soft to well-cemented, some fine calcarenite, bryozoal, foraminifera, pale grey.	Padthaway Formation equivalent	Padthaway Formation
2.0	3.0	1.0	Calcarenite. 10-15% calcisiltite, fine grained minor quartz, odd bryozoa, pale grey.	Padthaway Formation equivalent	Padthaway Formation
3.0	4.0	1.0	Calcarenite. As above. 5-10% calcisiltite.	Padthaway Formation equivalent	Padthaway Formation
4.0	5.0	1.0	Calcarenite. As above. No obvious fossils.	Padthaway Formation equivalent	Padthaway Formation
5.0	6.0	1.0	Calcarenite. As above. 5-10% fine quartz.	Padthaway Formation equivalent	Padthaway Formation
6.0	8.0	2.0	Calcisiltite. 10% marl, some calcarenite as above, 10-15% quartz, very fine, soft to hard, sticky. Brownish grey.	Padthaway Formation equivalent	Padthaway Formation

8.0	9.0	1.0	Arenite. Quartz, fine angular to subangular to medium subrounded grains, cemented by carbonate matrix 20-30% some carbonate grains. Minor fossils, soft to hard. Cream to pale yellow brown.	Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation
9.0	10.0	1.0	Arenite. As above. Softer.	Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation
10.0	11.0	1.0	Arenite. As above. Few delicate shell fragments - gastropods.	Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation
11.0	12.0	1.0	Arenite. As above. Some well cemented and carbonate matrix 30-40%. (?) Fresh water gastropods.	Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation
12.0	13.0	1.0	Arenite. As above. Mixture of hard and soft bands 10-20% carbonate. Shell fragments to 3mm, some foraminifera. Pale grey to yellow brown. Few marly pods. Quartz to 1mm.	Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation
13.0	14.0	1.0	Arenite. As above. Large shell fragments to 3mm, few if any foraminifera.	Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation
14.0	15.0	1.0	Arenite. As above. 10-15% lutite, siltite, mid brown. Slightly calcarous quartz to 1mm. Small mollusc to 5mm. Mainly soft, weakly cemented. Quartz subrounded.	Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation
15.0	16.0	1.0	Arenite. As above. 20-30% siltite, rest quartz. Subangular to subrounded few carbonate grains, shell fragments. Some cemented material. Micaceous ferruginous 1%. Pal yellow.	Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation
16.0	17.0	1.0	Arenite. As above. 40-50% fine quartz some medium to gritty fraction (3.5mm). Angular to rounded. Abundant mollusc and gastropod remains some with pearly lustre, few foraminifera, bryozoa, 20-30% silty material, calcareous. Soft to well cemented. Yellow grains.	Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation
17.0	18.0	1.0	Arenite. As above. Some orange brown grains, few whole gastropods.	Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation
18.0	19.0	1.0		Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation
19.0	20.0	1.0	Arenite. As above. 15% carbonate grains and shell fragments, bryozoa to 3mm, 20% siltite, weakly cemented, few dark grains of glauconite(?) . Pale grey.	Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation
20.0	21.0	1.0	Arenite. As above. More abundant bryozoa 3-4mm x 1mm, foraminifera and carbonate grains. 1% dark green glauconite, 20-30% siltite, 40-50% quartz, pale grey.	Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation
21.0	22.0	1.0	Arenite. As above. 30-40% siltite, rest very fine.	Bridgewater - Coomandook Formation equivalent	Coomandook-Bridgewater Formation

22.0	23.0	1.0	Calcisiltite. 30-40% calcarenite, 10-20% fine quartz, marly (slightly sticky). 5% glauconite. Poor to weak cementation, pale grey.	Gambier Limestone	Unnamed Coomandook Clay
23.0	24.0	1.0	Calcisiltite. As above. 5-7% quartz.	Gambier Limestone	Gambier Limestone
24.0	26.0	2.0	Calcisiltite. As Above. 10-15% quartz, very fine, some better cemented fine calcarenite.	Gambier Limestone	Gambier Limestone

Unit Log 702302850
Driller & Aslin (17-17.5m)

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.3	0.3	Top soil.		Recent
0.3	0.6	0.3	Clay.		Recent
0.6	5.0	4.4	Limestone.		Padthaway Formation
5.0	17.0	12.0	Sandstone.		Coomandook-Bridgewater Formation
17.0	17.5	0.5	Lutite. Black. 5-10% calcarenite, buff, strongly cemented fragments, shells to 1.5cm. Minor quartz arenite.		Unnamed Coomandook Clay
17.5	19.0	1.5	Limestone.		Gambier Limestone

Unit Log 702302865
Driller

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.6	0.6	Top soil.		Recent
0.6	5.5	4.9	Marl.		Padthaway Formation
5.5	17.1	11.6	Sandstone.		Coomandook-Bridgewater Formation
17.1	18.3	1.2	Clay.		Unnamed Coomandook Clay

Unit Log 702302866
Driller

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.6	0.6	Top soil.		Recent
0.6	7.3	6.7	Limestone marl.		Padthaway Formation
7.3	17.4	10.1	Sandstone.		Coomandook-Bridgewater Formation
17.4	18.3	0.9	Clay.		Unnamed Coomandook Clay

Unit Log 702302869
Roberts

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.6	0.6	Clay. Calcareous, dark brown.		Recent
0.6	1.5	0.9	Marl. With limestone, buff.		Padthaway Formation
1.5	5.2	3.7	Sand. Calcareous, fine grain angular, quartz. Slightly marly to 10ft. Buff.		Coomandook-Bridgewater Formation
5.2	16.8	11.6	Limestone. Sandy, slightly shelly throughout and probably with bands of shells. Mainly strongly cemented. Buff-light brown.		Coomandook-Bridgewater Formation

16.8	18.3	1.5	Mixture of Clay - dark grey, Limestone - Light, Sand - fine to coarse subrounded quartz. Buff. Fossiliferous.		Unnamed Coomandook Clay
18.3	24.4	6.1	Limestone. Cherty, fossiliferous. Strongly cemented. Medium grey.		Gambier Limestone

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Unit Log 702302875
Lawson

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	1.0	1.0	Quartz sand. Colourless to frosted, sub-angular to sub-rounded, varies 0.2mm to 1.2mm (average 0.2mm).		Recent
1.0	3.0	2.0	Silt. Light orange 15% quartz sand - as above. Slightly calcareous.		Padthaway Formation
3.0	6.0	3.0	Silt. As above. 10% calcarenite - white, unconsolidated.		Coomandook-Bridgewater Formation
6.0	8.8	2.8	Calcarenite. White to iron stained, strongly cemented. Some reworked fossil fragments. 10% quartz sand - as above.		Coomandook-Bridgewater Formation

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Unit Log 702302905
Unknown

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.5	0.5	Top soil - lutite. Fine quartz 10-25%, some coarse grains to 1mm, chocolate colour. Dry sample, blocky structure. Minor effervescence with acid - some carbonate.	Padthaway Formation equivalent	Recent
0.5	0.6	0.1	Calcrete. Hard, pinkish brown and cream. Calcarenite, fine to very fine, well cemented, layered in part. Probably fresh water limestone.	Padthaway Formation equivalent	Padthaway Formation
0.6	1.0	0.5	Calcrete. As above. But generally soft and poorly cemented.	Padthaway Formation equivalent	Padthaway Formation
1.0	1.5	0.5	Lutite. 40-50% fine grained calcarenite pebbles, hard, white. Lutite fawn to red brown mottled, plastic.	Padthaway Formation equivalent	Padthaway Formation
1.5	2.0	0.5	Lutite. As above. Pale fawn.	Padthaway Formation equivalent	Padthaway Formation
2.0	4.0	2.0	Lutite. As above. Calcarenite pebbles, grains and pellets, some quite soft. Interval 1-4m probably a clay pocket.	Padthaway Formation equivalent	Padthaway Formation
4.0	4.5	0.5	Calcarenite. Hard, well cemented, fine grained in matrix of fawn lutite with yellow and grey mottling.	Coomandook and Bridgewater Formation equivalents	Coomandook-Bridgewater Formation
4.5	6.0	1.6	Calcarenite. Fine to medium grained, very hard, well cemented, some subrounded quartz to 2mm, stained and clear grains. Some ferruginous grains and minor silt. Few foraminifera. Yellow with white pockets.	Coomandook and Bridgewater Formation equivalents	Coomandook-Bridgewater Formation
6.0	6.3	0.3	Calcarenite. As above. Harder.	Coomandook and Bridgewater Formation equivalents	Coomandook-Bridgewater Formation

6.3	6.5	0.2	Calcarenite. As above. Abundant foraminifera and shells remains. Some well rounded quartz.	Coomandook and Bridgewater Formation equivalents	Coomandook-Bridgewater Formation
6.5	7.0	0.5	Calcarenite. Fine grained, poorly cemented, siltite 5%, mainly white to yellow carbonate grains, 30% quartz, some foraminifera, bryozoa and minor shell fragments. Pale brownish orange.	Coomandook and Bridgewater Formation equivalents	Coomandook-Bridgewater Formation
7.0	7.6	0.6	Calcarenite. As for 6.3-6.5m (interval).	Coomandook and Bridgewater Formation equivalents	Coomandook-Bridgewater Formation
7.6	8.0	0.4	Calcarenite. As above. Passing quickly into calcarenite like that in 6.5-7m (interval).	Coomandook and Bridgewater Formation equivalents	Coomandook-Bridgewater Formation
8.0	10.0	2.0	Calcarenite. As for 6.3-6.5m (interval). Partly calcirudite. Shell fragments to 15mm.	Coomandook and Bridgewater Formation equivalents	Coomandook-Bridgewater Formation
10.0	11.0	1.0	Calcarenite. Fine grained as for 7.6-8m (interval) but well cemented. Silty 5-7%.	Coomandook and Bridgewater Formation equivalents	Coomandook-Bridgewater Formation
11.0	12.0	1.0	Calcarenite. As above. Yellow to pale grey and white.	Coomandook and Bridgewater Formation equivalents	Coomandook-Bridgewater Formation
12.0	14.0	2.0	Calcarenite. As above. 30% fine to very fine quartz. Some black grains. Passing into quartz arenite.	Coomandook and Bridgewater Formation equivalents	Coomandook-Bridgewater Formation
14.0	16.0	2.0	Arenite. Quartz fine to medium grained, silty 10%, poorly cemented. Foraminifera, 20% carbonate grains, some(?) biotite flakes, bryozoa, shell fragments. Black grains <1% .Pale grey.	Mostly Coomandook Formation	Coomandook-Bridgewater Formation
16.0	17.0	1.0	Arenite. As above. Siltite, lutite 15%.	Mostly Coomandook Formation	Coomandook-Bridgewater Formation
17.0	18.0	1.0	Lutite. Calcareous, sticky, plastic, olive grey, some quartz. 17.7m Core description; Lutite. Mid to dark grey, plastic, mollusc remains, bryozoal foraminifera. Contains large nodules to 40mm or more of well cemented fine grained calcarenite, off white to yellow 20-30% quartz, fossiliferous and scattered irregularly throughout core. Some pockets of fine pale yellow cream poorly cemented calcarenite. Core calcareous throughout. 18m Core description; Lutite. Mid to dark grey, non-calcareous, plastic arenite, no visible fossils, pockets of arenite - fine grained subangular quartz, weakly cemented and mottled grey yellow brown.	Mostly Coomandook Formation	Coomandook-Bridgewater Formation

18.0	19.0	1.0	Arenite. Quartz 70%, fine to medium grained subangular, 10% carbonate grains, shell fragments, foraminifera etc. 20% lutite, siltite, well cemented, khaki. 18.08m Core description; Arenite. 99% fine to medium grained subangular quartz, some coarse well rounded grains. Very slightly calcareous, yellow brown and grey mottled, weakly cemented. Few dark grains.	Mostly Coomandook Formation	Gambier Limestone
19.0	19.1	0.1	Siltite-Arenite. 60% pale grey fine quartz. Large gastropod shells. Very calcareous.	Mostly Coomandook Formation	Gambier Limestone
19.1	20.0	0.9	Calcarenite-Calcirudite. Fine to coarse grained well cemented, some glauconite. Large gastropod and bryozoal remains to 15mm. Flint fragments to 20mm, pale to mid grey. 30-50% fine to gritty subangular to well rounded quartz.	Gambier Limestone	Gambier Limestone
20.0	21.0	1.0	Flint. Pale to mid grey, ships to 30mm.	Gambier Limestone	Gambier Limestone
21.0	23.0	2.0	Calcarenite. Fine to coarse grained, silty 20-30% minor fine to gritty quartz, flint chips to 10mm. Some green glauconite grains. Bryozoa and shell fragments to 10mm. Foraminifera. Pale to mid grey.	Gambier Limestone	Gambier Limestone
23.0	25.0	2.0	Calcirudite. 85% bryozoal remains, 5% flint, shell remains to 10mm. Silty 10%.	Gambier Limestone	Gambier Limestone
25.0	27.0	2.0	Flint. 90%, some large bryozoal stems as in 23-25m. Up to 5mm diameter and 20mm long.	Gambier Limestone	Gambier Limestone
27.0	29.0	2.0	Calcirudite. As for 23-25m (interval). Some fine grained calcarenite, white, grey yellow as for 21-23m. Silty 10-15%.	Gambier Limestone	Gambier Limestone
29.0	31.0	2.0	Calcarenite. As for 21-23m (interval). But silty, marly 30-40%. Deep green glauconite staining, minor flint. Mostly bryozoal remains.	Gambier Limestone	Gambier Limestone
31.0	33.0	2.0	Calcarenite. As above. Some well cemented, grey flint abundant.	Gambier Limestone	Gambier Limestone
33.0	37.0	4.0	Calcarenite. As above. Poorly cemented, silt only 5-10%.	Gambier Limestone	Gambier Limestone
37.0	39.0	2.0	Calcisiltite. Calcarenitic, marly, glauconitic shelly fragments to 20mm, bryozoa, foraminifera. Pale grey.	Gambier Limestone	Gambier Limestone
39.0	41.0	2.0	Calcarenite. Silty 20-30%, rest as for 33-37m (interval). 40.38m Core description; Calcarenite. Very fine to fine grained with coarser bryozoal and shell fragments. Foraminifera. Glauconitic silty 20-30%, pale grey, partly cemented, friable.	Gambier Limestone	Gambier Limestone
41.0	43.0	2.0	Calcarenite. As above. Some honey coloured flint.	Gambier Limestone	Gambier Limestone
43.0	45.0	2.0	Calcarenite. As above. Some pinkish and yellow grains.	Gambier Limestone	Gambier Limestone
45.0	47.0	2.0	Calcarenite. As above. Marly, some well cemented.	Gambier Limestone	Gambier Limestone

47.0	49.0	2.0	Calcarenite. As above. Moderately cemented, abundant shell, bryozoal fragments, silty 10%, some flint, pale grey to white.	Gambier Limestone	Gambier Limestone
49.0	51.0	2.0	Calcarenite. As above. 5% siltite, minor glauconite, 25% bryozoal fragments - medium to coarse grained. Soft to weakly cemented.	Gambier Limestone	Gambier Limestone
51.0	53.0	2.0	Calcisiltite. Slightly marly, minor calcarenite mainly bryozoal stems, 1% fine quartz. Black grains probably glauconite. Weak to moderately cemented.	Gambier Limestone	Gambier Limestone
53.0	55.0	2.0	Calcarenite. As for 49-51m (interval). But 10-15% siltite (from above), moderately well cemented.	Gambier Limestone	Gambier Limestone
55.0	59.0	4.0	Calcarenite. As above. Flint to 6mm.	Gambier Limestone	Gambier Limestone
59.0	61.0	2.0	Calcarenite. As above. Fine to medium grained, minor flint.	Gambier Limestone	Gambier Limestone
61.0	65.0	4.0	Calcarenite. As above. Some yellow stained grains, minor honey coloured flint. Glauconitic, odd quartz grains. 60.63m Core description; Calcarenite, fine to medium grained, 5% calcisiltite, mainly bryozoal fragments, some glauconite, foraminifera, minor flint, friable, weakly cemented. Pale grey.	Gambier Limestone	Gambier Limestone
65.0	67.0	2.0	Calcarenite. As above. 20% calcisiltite, some echinoid spinal fragments.	Gambier Limestone	Gambier Limestone
67.0	69.0	2.0	Calcarenite. As above. Poor to moderately cemented.	Gambier Limestone	Gambier Limestone
69.0	71.0	2.0	Calcarenite. As above. 20-30% bryozoal fragments and yellowish carbonate grains. 1% glauconite fragments and pellets. Yellowish grey.	Gambier Limestone	Gambier Limestone
71.0	73.0	2.0	Calcarenite. As above. Greyish yellow, 2% green brown, black glauconite pellets, minor flint.	Gambier Limestone	Gambier Limestone
73.0	75.0	2.0	Calcarenite. As above. 75m bit sample; soft friable weakly cemented calcarenite, speckled cream, khaki and brown.	Gambier Limestone	Gambier Limestone
75.0	77.0	2.0	Calcarenite. As above. Few bryozoal fragments only, minor quartz.	Gambier Limestone	Gambier Limestone
77.0	81.0	4.0	Calcarenite. As above. Bryozoal fragments 10-20% marly, 3-4% glauconite, some fine angular quartz grains, foraminifera. Speckled brown, yellow.	Gambier Limestone	Gambier Limestone
81.0	83.0	2.0	Calcarenite. As above. Marly 10% mid grey.	Gambier Limestone	Gambier Limestone
83.0	85.0	2.0	Calcisiltite-marl. Calcarenitic bryozoal and carbonate fragments, foraminifera, sticky soft, mottled bluish grey, pale grey, mid grey pale yellow, glauconitic, weakly cemented. Bit sample; As above, grey, pale greyish yellow, shelly, bryozoal, calcarenitic sticky.	Narrawaturk Marl	Nirranda Group

85.0	87.0	2.0	Calcarenite. As for 77-81m (interval). Silty 10%, no marl. 86.34m Core description; Calcarenite. soft, friable, speckled black, yellow, white, bryozoal, foraminifera abundant - some replaced by glauconite. Glauconite pellets 3-4%. Overall fine to medium grained. Silty 5-10%. Grading to Arenite. Quartz, fine brown angular grains (iron stained) 5-7% glauconite pellets as above, foraminifera. 5% bryozoa and 20-30% carbonate grains. Silty 10% soft, friable, poorly cemented.	Mepunga Formation	Nirranda Group
87.0	89.0	2.0	Calcarenite. As for 77-81m (interval). Fine with some bryozoal fragments to 4mm. Soft silty 10%, some foraminifera, fine angular quartz, glauconite pellets, brown, green.	Mepunga Formation	Nirranda Group
89.0	90.0	1.0	Calcarenite. As above. Well cemented echinoid spine, some white porous calcarenite.	Mepunga Formation	Nirranda Group
90.0	91.0	1.1	Arenite. Quartz, fine to 2mm, some stained, few bryozoa 5% glauconite as in 87-89m (interval), shell fragments, foraminifera, calcareous grains and fragments to 3mm, white and about 20-30%. 15% siltite, soft weakly cemented.	Mepunga Formation	Nirranda Group
91.0	93.0	2.0	Arenite. As above. 5% silt, brown pellets of glauconite shell fragments, foraminifera. 10% bryozoal fragments and carbonate grains. Few harder cemented fragments. Speckled brown yellow white.	Mepunga Formation	Nirranda Group
93.0	95.0	2.0	Arenite. As above. 10-15% siltite and 10% lutite - sticky.	Mepunga Formation	Nirranda Group
95.0	97.0	2.0	Arenite. As above. 15-20% siltite.	Mepunga Formation	Nirranda Group
97.0	99.0	2.0	Arenite. As above. 5% siltite, 15% bryozoal fragments and carbonate grains. Glauconite 3-4%.	Mepunga Formation	Nirranda Group
99.0	101.0	2.0	Arenite. As above. 10% siltite, 10-15% glauconite as above.	Mepunga Formation	Nirranda Group
101.0	103.0	2.0	Arenite. As above. 7-20% siltite, foraminifera, almost all quartz-clear to yellow brown, many grains stained giving darker overall appearance. 5% bryozoal and carbonate fragments.	Mepunga Formation	Nirranda Group
103.0	105.0	2.0	Arenite. As above. 5-10% siltite, 1% glauconite, few shell fragments. 90% quartz.	Mepunga Formation	Nirranda Group
105.0	107.0	2.0	Arenite. As above. 10% siltite, minor carbonate bryozoa fragments.	Mepunga Formation	Nirranda Group
107.0	109.0	2.0	Arenite. As above. 10-15% siltite.	Mepunga Formation	Nirranda Group
109.0	111.0	2.0	Arenite. As above. 7% carbonate grains, foraminifera bryozoa.	Mepunga Formation	Nirranda Group
111.0	115.0	4.0	Arenite. As above. 2% carbonate grains.	Mepunga Formation	Nirranda Group

115.0	116.0	1.0	Arenite. As for 109-111m (interval). 116.29m Core description; Lutite. Dark grey, 30-50% fine angular to subangular quartz, slightly calcareous, sticky, very plastic, micaceous. (?) Shell fragments. Pockets of arenite, fine silty clayey (10-20%) quartz moderately calcareous, mid brown, moderate sorting. Reasonably well defined contact. Top of core disturbed in parts. 116.63m Core description; (Slightly disturbed) Lutite. Dark grey to brownish black, non-calcareous, sticky, plastic, large pyrite pebbles 25-30mm long. Abundant fine to very fine quartz. Some tube like structures infilled with light grey calcarous material - worm tubes (?). Grading to; Lutite. As above. But some division into brownish black and greyish black areas. White(?) carbonate grains and shell fragments throughout core. Scattered pink grains of unknown mineral. Micaceous.	Mepunga Formation	Nirranda Group
116.0	117.3	1.3	Lutite. Slightly calcareous, sticky, fine grained 20-35% (difficult to estimate) stiff cemented, dark grey - black. 117.3m Bit sample; Lutite. Dark grey, fine quartz (pockets).	Dilwyn Formation	Dilwyn Formation

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Unit Log 702302910 Aslin

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.3	0.3	Soil. Dark red-brown, roots present. 10% quartz arenite, clear rounded grains from <0.1 to 1.5mm, average 0.3mm.	Bridgewater Formation	Recent
0.3	3.3	3.0	Calcarenite. Off white, weakly to strongly cemented. Minor calcisiltite. Minor fine quartz arenite.	Bridgewater Formation	Padthaway Formation
3.3	6.4	3.1	Calcarenite. As above. 10% calcisiltite. Minor khaki lutite blebs present.	Bridgewater Formation	Padthaway Formation
6.4	9.4	3.0	Calcarenite. As above. 30% calcisiltite. Minor khaki lutite blebs present.	Bridgewater Formation	Coomandook-Bridgewater Formation
9.4	10.9	1.5	Calcisiltite. Off white. 20% calcarenite, strongly cemented. 20% quartz arenite, subrounded clear grains average size 0.1mm Mica flakes present.	Bridgewater Formation	Coomandook-Bridgewater Formation
10.9	14.0	3.1	Calcarenite. Buff. Well cemented. 40% quartz arenite, subrounded clear grains, average size 0.1mm. Mica flakes present.	Bridgewater Formation	Coomandook-Bridgewater Formation
14.0	17.0	3.0	Calcarenite. As above. 30% quartz arenite and mica flakes as above.	Bridgewater Formation	Coomandook-Bridgewater Formation
17.0	18.3	1.3	Lutite. Dark grey, plastic. Minor micaceous quartz arenite and calcarenite fragments.	Knight Formation	Unnamed Coomandook Clay

	Unit		702302911		
	Log		Aslin		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.6	0.6			Recent
0.6	3.7	3.1	Calcisiltite. Buff. 40% calcarenite, weakly to strongly cemented. Minor lutite present. Minor quartz arenite (fine).		Padthaway Formation
3.7	9.1	5.4	Calcarenite. Off white to buff, weakly to strongly cemented. 40% calcisiltite.		Coomandook-Bridgewater Formation
9.1	12.2	3.1	Calcisiltite. Mid brown. 10% brown lutite. 20% calcarenite, weakly to strongly cemented. 20% quartz arenite, clear subrounded to rounded grains from <0.1mm to 1.0mm, average 0.2mm.		Coomandook-Bridgewater Formation
12.2	15.2	3.0	Calcarenite. Light brown, weakly to strongly cemented. 20% quartz arenite, clear rounded grains average size 0.2mm. Minor grey lutite blebs. Minor fine mica.		Coomandook-Bridgewater Formation
15.2	17.0	1.8	Arenite. Quartz clear milky and yellow stained subrounded grains average size 0.1mm. Fine mica flakes present. Minor grey lutite blebs.		Coomandook-Bridgewater Formation

	Unit		702302914		
	Log		Driller		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.9	0.9	Red clay.		Recent
0.9	3.0	2.1	Clay and sandstone.		Padthaway Formation
3.0	12.2	9.1	Sandstone.		Coomandook-Bridgewater Formation
12.2	17.7	5.5	Sandstone and sand.		Coomandook-Bridgewater Formation
17.7	19.5	1.8	Blue clay.		Unnamed Coomandook Clay
19.5	21.3	1.8	Limestone pug and black flint.		Gambier Limestone

	Unit		702302917		
	Log		Driller		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.6	0.6	Red clay.		Recent
0.6	2.7	2.1	Clay and rubble.		Padthaway Formation
2.7	5.5	2.7	Sandstone.		Coomandook-Bridgewater Formation
5.5	10.7	5.2	Limestone pug.		Coomandook-Bridgewater Formation
10.7	13.7	3.0	Clay and sand.		Coomandook-Bridgewater Formation
13.7	19.8	6.1	Sandstone.		Coomandook-Bridgewater Formation
19.8	21.3	1.5	Limestone and black flint.		Gambier Limestone

	Unit		702302918		
	Log		Driller		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.3	0.3	Red clay.		Recent
0.3	1.5	1.2	Clay and rubble.		Padthaway Formation
1.5	2.1	0.6	White flint.		Padthaway Formation
2.1	6.7	4.6	Limestone pug.		Coomandook-Bridgewater Formation
6.7	15.2	8.5	Dolomite.		Coomandook-Bridgewater Formation
15.2	18.3	3.0	Sandstone.		Coomandook-Bridgewater Formation
18.3	21.3	3.0	Limestone pug.		Gambier Limestone

	Unit		702302925		
	Log		Ludbrook		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	10.7	10.7	Yellow-brown calcarous sandstone with coarse rounded to fine angular quartz grains, calcite, limonitic clay.		Coomandook-Bridgewater Formation
10.7	76.2	65.5	Cream grading to grey white bryozoal limestone, friable, with Victorialla conoides (=plecte).	Gambier Limestone	Gambier Limestone
76.2	89.9	13.7	Brown bryozoal limestone and ferruginised sandstone with limonite pellets, polished quartz grains coated with limonite.	Compton Conglomerate	Gambier Limestone
89.9	91.5	1.5	Light brown friable ferruginous sandstone with brown subangular quartz grains coated with limonite, limonite pellets, some glauconite.	Compton Conglomerate	Gambier Limestone
91.5	154.0	62.5	No sample.		No data _a
154.0	224.1	70.1	Grey-buff white gritty sand, medium to very coarse, with angular to subangular quartz grains of both clear smoky and grey quartz, some pyrite.	Knight Group	Dilwyn Formation
224.1	243.9	19.8	Light brownish grey medium to coarse sand with carbonaceous matter.	Knight Group	Dilwyn Formation
243.9	250.0	6.1	Fine buff sand with muscovite, pyrite.	Knight Group	Dilwyn Formation
250.0	275.9	25.9	Grey coarse quartz sand, poorly sorted, with fine and coarse subangular quartz grains, pyrite, pyritised wood, carbonaceous matter. Some quartz pebbles to grit size.	Knight Group	Dilwyn Formation
275.9	277.4	1.5	Brown clayey pyritic quartz sand, unsorted, with from fine to coarse mostly subrounded to subangular grains of clear and milky quartz, pyrite, muscovite, plant remains, one pyritised test of Cyclammina.	Knight Group	Dilwyn Formation
277.4	317.1	39.6	Light grey-brown silty pyritic sand with mostly coarse angular to subangular quartz, pyrite, pyritised wood fragments.	Knight Group	Dilwyn Formation

317.1	339.9	22.9	Green grey fine felspathic sandy siltstone with abundant felspar, fine angular quartz, abundant pyrite, green-grey grains, brown mica, carbonised plant fragments, abundant yellow tourmaline (dravite). Megaspores present.	Runnymede Formation (Upper)	Otway Group (Upper)
339.9	344.5	4.6	Green-grey fine felspathic silty sandstone with minerals as above.	Runnymede Formation (Upper)	Otway Group (Upper)
344.5	365.9	21.3	Green grey fine sandy siltstone grading to silty sandstone with angular felspar, quartz, grey-green grains, abundant pyrite, yellow tourmaline, mica, carbonised and pyritised wood fragments.	Runnymede Formation (Upper)	Otway Group (Upper)
365.9	368.9	3.0	Recovered 30ft. Green-grey interbedded siltstone and argillaceous sandstone with fine angular quartz, felspar, abundant grey grains, pyrite, carbonaceous matter, calcite, occasional glauconite grains. Azolla present.	Runnymede Formation (Upper)	Otway Group (Upper)
368.9	397.9	29.0	Greenish-grey siltstone and fine sandstone with fine angular quartz, felspar, green grey grains, carbonaceous matter, pyrite, biotite, chloritic, yellow tourmaline, pyritised wood. Megaspores present, Azolla 1290-1295ft.	Runnymede Formation (Upper)	Otway Group (Upper)
397.9	426.8	29.0	Green-grey felspathic siltstone and argilaceous sandstone with medium angular quartz, felspar, green-grey grains, yellow tourmaline, calcite, carbonaceous matter, abundant pyrite, siderite, biotite, chlorite.	Runnymede Formation (Upper)	Otway Group (Upper)
426.8	432.3	5.5	Recovered 24ft. Greenish-grey siltstone with fine angular quartz, felspar, green grey mineral grains, biotite, muscovite, chlorite, carbonaceous matter, pyrite.	Runnymede Formation (Upper)	Otway Group (Upper)
432.3	490.9	58.5	Greenish-grey siltstone as above. Azolla common at 1490-1500ft. Pyritised wood at 1425-1430ft, pyritised shell fragments at 1510-1515, iridescent spores 1410-1415ft.	Runnymede Formation (Upper)	Otway Group (Upper)
490.9	493.9	3.0	Recovered 30ft. Green-grey micaceous siltstone with fine angular quartz, muscovite, brown mica, green-grey grains, plant fragments.	Runnymede Formation (Upper)	Otway Group (Upper)
493.9	550.3	56.4	Green-grey siltstone with abundant medium angular quartz, green-grey grains, chlorite, pyrite, plant fragments, biotite, tourmaline, felspar. Small spine at 1730-1735ft.	Runnymede Formation (Upper)	Otway Group (Upper)
550.3	553.4	3.0	Recovered 24ft. Green-grey silty mudstone with fine angular quartz grains, felspar, chlorite, green-grey clay minerals, brown mica.	Runnymede Formation (Upper)	Otway Group (Upper)
553.4	609.8	56.4	Green grey mudstone with fine angular quartz, felspar, green and grey quartz grains, plant fragments, pyrite, siderite.	Runnymede Formation (Upper)	Otway Group (Upper)

609.8	612.8	3.0	No sample.	Runnymede Formation (Upper)	Otway Group (Upper)
612.8	615.9	3.0	Recovered 22ft. Grey mudstone with fine angular quartz, felspar, grey and green clay mineral grains, muscovite, brown biotite, few plant remains, pyrite.	Runnymede Formation (Upper)	Otway Group (Upper)
615.9	669.2	53.4	Mudstone, micaceous, as above.	Runnymede Formation (Upper)	Otway Group (Upper)
669.2	670.7	1.5	No sample.	Runnymede Formation (Upper)	Otway Group (Upper)
670.7	673.8	3.0	Recovered 4 feet 2 inches. Top 2 feet light green-grey carbonaceous siltstone with angular fine quartz and felspar, slightly calcareous, abundant chlorite, biotite. Bottom 2 feet light grey slightly carbonaceous mudstone with felspar, mica, green and grey grains, chlorite.	Runnymede Formation (Upper)	Otway Group (Upper)
673.8	725.6	51.8	Mudstone as above.	Runnymede Formation (Upper)	Otway Group (Upper)
725.6	728.7	3.0	Recovered 34ft. Green-grey siltstone with felspar, angular quartz, green and grey grains, chlorite, biotite, plant fragments.	Runnymede Formation (Upper)	Otway Group (Upper)
728.7	788.4	59.8	Green-grey calcareous mudstone, siltstone and fine sandstone with fine angular quartz, felspar, brown clay material, pyrite, calcite cement, dolomite. Small spine at 2490-2495ft.	Runnymede Formation (Upper)	Otway Group (Upper)
788.4	791.5	3.0	Recovered 7 feet. (1) 8 inches from top. Greenish grey arkosic siltstone with plant fragments, fine angular quartz grains, felspar, abundant mica, green grey grains. (2) 46 inches from top. Grey carbonaceous mudstone, with fish tooth. (3) 70 inches from top. Carbonaceous and somewhat pyritic mudstone with zircon. Azolla present.	Runnymede Formation (Upper)	Otway Group (Upper)
791.5	792.7	1.2	No sample.	Runnymede Formation (Upper)	Otway Group (Upper)
792.7	806.4	13.7	Green-grey mudstone with fine angular quartz grains, dolomite, plant fragments, felspar, biotite, pyrite. Fragments of felspathic sandstone 2625-2640ft. Carbonised megaspores of Azolla 2605-2610ft.	Runnymede Formation (Upper)	Otway Group (Upper)
806.4	809.5	3.0	Coal, with well preserved Azolla and other megaspores.	Runnymede Formation (Upper)	Otway Group (Upper)
809.5	844.5	35.1	Green-grey mudstone with fine angular quartz grains, felspar, grey-green grains, dolomite, pyrite, chlorite, biotite, muscovite. Abundant plant remains and coal material. One Hyperammina at 2735-2740.	Runnymede Formation (Upper)	Otway Group (Upper)
844.5	850.6	6.1	Mud and coal.	Runnymede Formation (Upper)	Otway Group (Upper)

850.6	853.0	2.4	Recovered 4 feet. Grey sandy mudstone with abundant megaspores. Core very broken and regarded as unreliable.	Runnymede Formation (Upper)	Otway Group (Upper)
852.1	859.8	7.6	Grey brown mudstone and coal, with pyrite, medium angular quartz, chlorite, felspar.	Runnymede Formation (Upper)	Otway Group (Upper)
859.8	879.6	19.8	Contaminated with sand and cement.	Runnymede Formation (Upper)	Otway Group (Upper)
879.6	911.6	32.0	Green-grey siltstone with fine angular quartz, felspar, green and grey grains, calcite, some coal, and mudstone.	Runnymede Formation (Upper)	Otway Group (Upper)
911.6	914.6	3.0	Recovered 10 feet. Green-grey carbonaceous mudstone and very fine silty sandstone with fine angular quartz and felspar grains, abundant brown mica, abundant plant remains, calcite, chlorite. Megaspores including Azolla present.	Runnymede Formation (Upper)	Otway Group (Upper)
914.6	932.9	18.3	Brownish grey carbonaceous mudstone and siltstone with abundant carbonised plant fragments, fine muscovite.	Runnymede Formation (Upper)	Otway Group (Upper)
932.9	939.0	6.1	Brownish grey felspathic compact sandstone with some mudstone; medium angular quartz grains, micas, abundant plant remains, ferruginous minerals felspar, green-grey grains, rare pyrite.	Runnymede Formation (Upper)	Otway Group (Upper)
939.0	969.5	30.5	Grey calcareous mudstone with some sandstone. Medium angular quartz grains, green and green-grey grains, pyrite, carbonaceous matter, biotite, dolomite globules, chlorite. Abundant carbonised Azolla.	Runnymede Formation (Upper)	Otway Group (Upper)
969.5	972.6	3.0	Recovered10 feet. Greenish grey calcareous fine sandstone and mudstone with fine angular quartz, felspar, mica, plant remains, chlorite, calcite, green-grey grains. Reptilian or amphibian tooth present with Azolla. Ammobaculites fisheri present in cuttings 3185-3190ft.	Runnymede Formation (Upper)	Otway Group (Upper)
972.6	1025.3	52.7	Mudstone and siltstone as above. Hyperammina present 3190-3195. Abundant coaly matter 3210-3220.	Runnymede Formation (Upper)	Otway Group (Upper)
1025.3	1028.4	3.0	Recovered 18 inches. Greenish grey carbonaceous arkosic siltstone with small mud pellets; abundant plant remains, felspar, fine angular quartz grains, brown biotite, coaly material, green-grey grains, chlorite.	Runnymede Formation (Upper)	Otway Group (Upper)
1028.4	1030.5	2.1	No sample.	Runnymede Formation (Upper)	Otway Group (Upper)
1028.4	1071.3	43.0	Grey carbonaceous and calcareous mudstone with angular quartz, felspar, mica, plant remains, pyrite, calcite. Plant megaspores, fish plate 3495-3500ft.	Runnymede Formation (Lower)	Otway Group (Upper)

1071.3	1074.4	3.0	Recovered 6 feet. Medium grey mudstone with scattered carbonised plant fragments. Much very fine clay material, fine mica, rounded aggregates of white clay mineral, rare pyrite, chlorite.	Runnymede Formation (Lower)	Otway Group (Upper)
1074.4	1132.6	58.2	Grey mudstone with fine angular quartz, felspar, clay mineral, mica, carbonised plant fragments, green-grey grains.	Runnymede Formation (Lower)	Otway Group (Upper)
1132.6	1136.9	4.3	Recovered 7 feet. Grey mudstone interbedded with sandstone and siltstone, current bedded in part, mica flakes, chlorite, biotite, pale green-grey scattered medium quartz grain. Abundant plant fragments in places, elsewhere scattered in matrix.	Runnymede Formation (Lower)	Otway Group (Upper)
1136.9	1194.2	57.3	Light grey carbonaceous arkosic sandstone interbedded with mudstone and siltstone as above.	Runnymede Formation (Lower)	Otway Group (Upper)
1194.2	1197.6	3.4	Recovered 2 feet 2 inches. Grey irregularly laminated and current bedded calcareous siltstone with abundant carbonised plant fragments, muscovite and biotite.	Runnymede Formation (Lower)	Otway Group (Upper)
1197.6	1206.4	8.8	Grey mudstone, sandstone and siltstone as above with traces of coal material.	Runnymede Formation (Lower)	Otway Group (Upper)
1206.4	1207.9	1.5	No sample.	Runnymede Formation (Lower)	Otway Group (Upper)
1207.9	1244.5	36.6	Light grey coarse arkosic sandstone with coarse angular quartz grains, coal matte, pyrite, felspar; interbedded with mudstone and micaceous siltstone.	Runnymede Formation (Lower)	Otway Group (Upper)
1244.5	1247.6	3.0	Recovered 7 feet 8 inches. Grey siltstone both sandy and flaky, very micaceous in part with medium ill-sorted angular quartz grains, kaolinitic matter, coal fragments, garnet.	Runnymede Formation (Lower)	Otway Group (Upper)
1247.6	1280.5	32.9	Grey mudstone with coarse quartz grains and carbonaceous material.	Runnymede Formation (Lower)	Otway Group (Upper)
1280.5	1301.8	21.3	Grey micaceous siltstone and mudstone with coarse subangular to subrounded quartz grains scattered throughout a brownish grey matrix with abundant fine plant remains and mica.	Mocamboro Member	Otway Group (Lower)
1301.8	1338.4	36.6	Recovered 4 inches. No sample received. Grey micaceous siltstone and mudstone as 4200-4270ft interval.	Mocamboro Member	Otway Group (Lower)
1338.4	1341.5	3.0	Recovered 10 feet. Grey mudstone crowded with coalified plant remains, crossbedded, with small slump structures, fine quartz grains, abundant fine mica, scattered coarse subrounded quartz. Abundant Taeniopteris spatulata leaves and stems. Apparent dip 15 degrees.	Mocamboro Member	Otway Group (Lower)

1341.5	1402.4	61.0	Brownish grey felspathic siltstone, mudstone and some sandstone with abundant plant remains, pink garnet.	Mocamboro Member	Otway Group (Lower)
1402.4	1408.2	5.8	Recovered 19 feet. Grey carbonaceous siltstone and mudstone interbedded with light grey sandstone with silty patches; abundant biotite and muscovite; small slump structures and cross bedding. Apparent dip about 18 to 25 degrees. Abundant Taeniopteris spatulata, Thinnfeldia and other carbonised plant remains.	Mocamboro Member	Otway Group (Lower)
1408.2	1453.0	44.8	Mudstone siltstone and sandstone as above.	Mocamboro Member	Otway Group (Lower)
1453.0	1456.1	3.0	Recovered 6 feet. Light grey current bedded arkosic sandstone interbedded with grey mudstone and siltstone with abundant carbonised plant remains; micaceous siltstone partings in sandstone which is compact with kaolinitic cement.	Mocamboro Member	Otway Group (Lower)
1456.1	1519.8	63.7	Grey mudstone, siltstone and sandstone as above. Coal band at 4895-4900ft.	Mocamboro Member	Otway Group (Lower)

Unit Log 702302942 O'Driscoll & Chugg (31.1-45.7m)

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.6	0.6	Brown clay soil.		Recent
0.6	2.4	1.8	Grey white travertine.		Padthaway Formation
2.4	4.0	1.5	Cream marl.		Padthaway Formation
4.0	7.3	3.4	Light yellow grey fossiliferous marl.		Padthaway Formation
7.3	11.0	3.7	Light grey white fossiliferous fine very sandy marl.		Coomandook-Bridgewater Formation
11.0	11.6	0.6	Light greenish grey fossiliferous sandy limestone.		Coomandook-Bridgewater Formation
11.6	11.6	0.0	Grey white fossiliferous very sandy limestone.		Coomandook-Bridgewater Formation
11.6	12.8	1.2	Grey white very sandy limestone with Ostrea.		Coomandook-Bridgewater Formation
12.8	15.5	2.7	Grey white sandy limestone.		Coomandook-Bridgewater Formation
15.5	18.9	3.4	Dark greenish grey lignitic fossiliferous clay.		Unnamed Coomandook Clay
18.9	30.5	11.6	Grey white fine sandy limestone with abundant flint.		Gambier Limestone
31.1	45.7	14.6	Light grey calcarenite with abundant bryozoa and flint chips.		Gambier Limestone

	Unit Log		702302990 Aslin		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	10.0	10.0	No sample		
10.0	10.0	0.0	Arenite. Quartz, subangular to subrounded, clear and frosted grains from <0.1mm to 1.0mm. 40% calcarenite, orange brown, strongly cemented, minor silt.		Coomandook-Bridgewater Formation

	Unit Log		702302997 Wilson		
Depth from (m)	**Depth to (m)**	**Interval (m)**	**Description**	**Recorded Formation**	**Classified Formation**
0.0	0.5	0.5	Siltite. Dark grey to black, non cemented silt. 5% medium angular carbonate grains. 30% fine to coarse subangular clear/smokey quartz. Minor organic matter.	Top soil	Recent
0.5	1.0	0.5	Calcisiltite. 70% cream coloured silt, 30% fine to coarse, subangular white and yellow carbonate grains. Minor quartz and cementing. Khaki brown.	Padthaway Formation equivalent	Padthaway Formation
1.0	2.0	1.0	Calcisiltite. As above. Few shell fragments.	Padthaway Formation equivalent	Padthaway Formation
2.0	3.0	1.0	Calcisiltite. As above. Grey to light brown.	Padthaway Formation equivalent	Padthaway Formation
3.0	4.0	1.0	Calcisiltite. As above.	Padthaway Formation equivalent	Padthaway Formation
4.0	5.0	1.0	Calcisiltite. As above. 70-80% cream silt. 5% fine angular clear quartz grains.	Padthaway Formation equivalent	Padthaway Formation
5.0	7.0	2.0	Calcisiltite. As above.	Padthaway Formation equivalent	Padthaway Formation
7.0	8.0	1.0	Calcisiltite. As above. 10% silt to fine angular quartz grains. 10% yellow to light brown carbonate grains.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
8.0	9.0	1.0	Calcisiltite. As above.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
9.0	10.0	1.0	Calcisiltite. As above. 20% quartz as above.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
10.0	11.0	1.0	Calcilutite. 60% light brown sticky soft lutite, slightly plastic. 30% fine to medium well cemented calcareous grains. 10% fine angular clear quartz grains. Minor pale brown silt.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
11.0	12.0	1.0	Calcisiltite. 70% creamy brown silt. 25-30% fine to medium white/yellow carbonate grains, some well cemented. Minor fine clear quartz grains.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
12.0	13.0	1.0	Calcisiltite. As above. Creamy brown in colour.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation

13.0	14.0	1.0	Calcisiltite. As above.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
14.0	15.0	1.0	Calcisiltite. As above. Minor shell chips and bryozoal sticks.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
15.0	16.0	1.0	Calcilutite. 60% brown to grey sticky clay. 30% yellow/brown silt. 10% fine-medium subangular to angular calcareous grains. Minor shell fragments. Very calcareous.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
16.0	17.0	1.0	Calcisiltite. 60% cream silt. 35% fine-medium angular calcarenite grains. Shell fragments present. 5% medium subrounded clear quartz. Very calcareous.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
17.0	18.0	1.0	Calcisiltite. As above. Minor bryozoal sticks.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
18.0	19.0	1.0	Calcisiltite. As above. Minor foraminifera and bryozoal sticks.	Coomandook - Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
19.0	20.0	1.0	Calcarenite. Light brown/grey in colour. 60% fine-coarse, angular to subangular calcarenite. Shell chips and bryozoal sticks present. 40% light brown/grey silt. Very calcareous.	Gambier Limestone	Gambier Limestone
20.0	22.0	2.0	Calcarenite. As above. Minor glauconite.	Gambier Limestone	Gambier Limestone
22.0	24.0	2.0	Calcarenite. As above. Abundance of bryozoal sticks shell fragments and minor foraminifera. 20% grey silt and minor fine clear quartz.	Gambier Limestone	Gambier Limestone
24.0	26.0	2.0	Calcarenite. As above. Some grains well cemented.	Gambier Limestone	Gambier Limestone
26.0	27.0	1.0	Calcarenite. As above. 30% grey silt. Some shell chips to 5mm. Minor glauconite and flint chips.	Gambier Limestone	Gambier Limestone
27.0	29.0	2.0	Calcarenite. As above.	Gambier Limestone	Gambier Limestone
29.0	30.0	1.0	Calcarenite. As above. 10% flint chips up to medium gravel size.	Gambier Limestone	Gambier Limestone
30.0	31.0	1.0	Calcarenite. As above.	Gambier Limestone	Gambier Limestone
31.0	33.0	2.0	Calcarenite. As above. Minor iron pyrites.	Gambier Limestone	Gambier Limestone
33.0	34.0	1.0	Calcarenite. As above. 40% grey silt. Abundance of foraminifera.	Gambier Limestone	Gambier Limestone
34.0	35.0	1.0	Calcarenite. As above.	Gambier Limestone	Gambier Limestone
35.0	36.0	1.0	Calcarenite. As above. 80% calcarenite as above, whole shells, bryozoal sticks and foraminifera present. 15% fine grey silt. Glauconite and flint chips.	Gambier Limestone	Gambier Limestone
36.0	37.0	1.0	Calcarenite. As above. 15% flint.	Gambier Limestone	Gambier Limestone
37.0	38.0	1.0		Gambier Limestone	Gambier Limestone
38.0	50.0	12.0	Calcarenite. As above. Less flint.	Gambier Limestone	Gambier Limestone
50.0	54.0	4.0	Calcarenite. As above. 40-50% bryozoal sticks.	Gambier Limestone	Gambier Limestone

54.0	58.0	4.0	Calcarenite. As above. Minor glauconite. Very calcareous, 20% silt.	Gambier Limestone	Gambier Limestone
58.0	60.0	2.0	Calcarenite. As above. Flint chips 20mm by 20mm.	Gambier Limestone	Gambier Limestone
60.0	68.0	8.0	Calcarenite. As above. No flint.	Gambier Limestone	Gambier Limestone
68.0	74.0	6.0	Calcarenite. As above. Minor glauconite.	Gambier Limestone	Gambier Limestone
74.0	76.0	2.0	Calcarenite. As above. Large flint chips.	Gambier Limestone	Gambier Limestone
76.0	78.0	2.0	Calcarenite. As above. No flint and 30% grey silt.	Gambier Limestone	Gambier Limestone
78.0	80.0	2.0	Calcarenite. As above. 40% bryozoal sticks light brown to grey in colour.	Gambier Limestone	Gambier Limestone
80.0	86.0	6.0	Calcarenite. As above. Mid grey in colour. Minor foraminifera present.	Gambier Limestone	Gambier Limestone
86.0	88.0	2.0	Calcarenite. As above. Change to light grey in colour.	Gambier Limestone	Gambier Limestone
88.0	90.0	2.0	Calcarenite. As above. 90% bryozoal sticks and minor foraminifera. 10% light brown silt.	Gambier Limestone	Gambier Limestone
90.0	92.0	2.0	Calcarenite. As above. 15% light brown calcareous silt.	Gambier Limestone	Gambier Limestone
92.0	94.0	2.0	Calcarenite. As above. 2% glauconite.	Gambier Limestone	Gambier Limestone
94.0	96.0	2.0	Calcarenite. As above. 10% glauconite with minor Fe pebbles. Khaki brown in colour.	Gambier Limestone	Gambier Limestone
96.0	98.0	2.0	Calcarenite. As above. Minor medium to coarse clear quartz grains. Some grains Fe stained.	Gambier Limestone	Gambier Limestone
98.0	102.0	4.0	Calcarenite. As above. 5% quartz grains with minor Fe staining.	Gambier Limestone	Gambier Limestone
102.0	104.0	2.0	Calcarenite. As above. Minor foraminifera.	Gambier Limestone	Gambier Limestone
104.0	106.0	2.0	Calcarenite. As above.	Gambier Limestone	Gambier Limestone
106.0	106.5	0.5	Calcisiltite. Dark grey in colour. 70% dark grey silt. 30% fine subangular calcarenite as above. Moderately cemented.	Narrawaturk Marl Formation	Nirranda Group
106.5	107.0	0.5	Calcilutite. 80% light to dark grey, soft, plastic, sticky lutite. 20% silt fine grained fossiliferous calcarenite. Mildly calcareous. Bit sample; Calcilutite. Dark grey in colour. 70% plastic sticky grey clay. 30% fine to medium calcareous material. Fossiliferous. Minor smokey quartz. Very calcareous.	Narrawaturk Marl Formation	Nirranda Group

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Unit 702302998
Log Wilson

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.4	0.4	Arenite. Quartz grains medium to coarse subangular to subrounded. Quartz grains clear to milky, and minor Fe staining.	Top soil	Recent
0.4	1.4	1.0	Lutite. 80% light brown sticky plastic clay. 20% fine to medium subangular, clear to milky quartz grains.	Padthaway Formation equivalent	Padthaway Formation

1.4	2.0	0.6	Lutite. As above. 70% plastic sticky clay. Buff in colour. 25% quartz as above. 50% fine angular to subangular white calcareous material. Slightly calcareous.	Padthaway Formation equivalent	Padthaway Formation
2.0	3.0	1.0	Lutite. As above. But 20% light brown to yellow silt.	Padthaway Formation equivalent	Padthaway Formation
3.0	4.0	1.0	Lutite. As above.	Padthaway Formation equivalent	Padthaway Formation
4.0	5.0	1.0	Siltite. 60% buff to pale yellow silt. 40% fine to medium subangular to angular clear quartz grains. Minor quartz grains Fe stained.	Padthaway Formation equivalent	Padthaway Formation
5.0	6.0	1.0	Calcarenite. 70% fine to medium subangular white to milky calcarenite grains. Some grains well cemented. 30% yellow sticky clay. Very calcareous.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
6.0	7.0	1.0	Calcarenite. As above. No cementing. Minor bryozoal sticks and fine shell chips present. 30-40% fine subangular to subrounded clear quartz grains. Very calcareous.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
7.0	8.0	1.0	Calcarenite. As above. Some shell chips to 3mm.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
8.0	9.0	1.0	Calcarenite. As above. Strongly cemented. Less quartz grains present. Minor foraminifera.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
9.0	10.0	1.0	Calcarenite. As above. Minor quartz grains up to 1mm	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
10.0	11.0	1.0	Calcarenite. As above. Well cemented.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
11.0	12.0	1.0	Calcarenite. As above. But 20-30% fine subrounded clear quartz grains. Calcarenite grains.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
12.0	12.8	0.8	Calcarenite. As above. Fine to medium grained. As above light brown.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
12.8	13.0	0.2	Arenite. 80% silt to fine grained quartz grains, dominantly clear in colour. 20% fine subangular yellow calcareous material.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
13.0	14.0	1.0	Siltite. 60-70% yellow to brown silt. Silt is slightly calcareous. 20-30% silt to fine clear quartz grains.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
14.0	15.0	1.0	Siltite. As above, 5% fine subangular calcareous grains.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
15.0	16.0	1.0	Siltite. As above.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
16.0	17.0	1.0	Calcisiltite. 80% light brown calcareous silt. Minor fine bryozoal sticks. 15% fine subangular quartz grains and 5% sticky plastic black clay. Very calcareous.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation

17.0	17.7	0.7	Calcisiltite. As above. Minor fine to medium subrounded clear quartz grains. Some grains Fe stained. No black clay.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
17.7	18.0	0.3	Lutite. 95% black clay. Clay is very sticky and plastic to feel. 5% fine to medium angular to subangular calcareous grains.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
18.0	19.0	1.0	Calcarenite. Medium to coarse angular to subangular white calcareous material. Fossiliferous. Abundant shell fragments and bryozoal sticks. Some grains well cemented, very calcareous.	Gambier Limestone	Gambier Limestone
19.0	20.0	1.0	Calcarenite. As above.	Gambier Limestone	Gambier Limestone
20.0	21.0	1.0	Calcarenite. As above. Abundant shell chips bryozoal sticks and foraminifera. Minor coarse rounded clear quartz grains and glauconite.	Gambier Limestone	Gambier Limestone
21.0	22.0	1.0	Calcarenite. As above. Some grains well cemented.	Gambier Limestone	Gambier Limestone
22.0	23.0	1.0	Calcarenite. As above.	Gambier Limestone	Gambier Limestone

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Unit 702302999
Log Wilson

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.5	0.5	Arenite. Quartz grains coarse up to 2mm, clear, milky, Fe stained, subangular to rounded, few well rounded. Few Fe pebbles up to 7mm. Minor grey silt. Pinkish to brown.	Top soil	Recent
0.5	1.0	0.5	Siltite. Pale orange brown, 20% quartz, medium to coarse as above. 5% soft, sticky lutite, slightly plastic.	Padthaway Formation equivalent	Padthaway Formation
1.0	2.0	1.0	Siltite. As above. 2% white medium carbonate grains.	Padthaway Formation equivalent	Padthaway Formation
2.0	3.0	1.0	Siltite. As above. Up to 10% carbonate grains. Minor lutite.	Padthaway Formation equivalent	Padthaway Formation
3.0	4.0	1.0	Siltite. As above. 10-20% fine to coarse, well cemented calcareous grains. 10% quartz fine to coarse, some well rounded. Minor Fe pebbles, no lutite.	Padthaway Formation equivalent	Padthaway Formation
4.0	5.0	1.0	Calcarenite. Fine to medium, angular, few shell fragments. 30-40% fine to medium, subangular clear to orange stained, few rounded coarse quartz grains. Well cemented. Minor glauconite fragments. Cream to light grey.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
5.0	6.0	1.0		Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
6.0	7.0	1.0	Arenite. Quartz fine grained with calcareous matrix, moderately to well cemented, few shell fragments, small percentage of glauconite fragments (?). Orange to mid brown.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation

7.0	8.0	1.0	Arenite. As above. Fine to coarse, angular to rounded clear, Fe stained quartz. 10-20% white/yellow calcarous grains, fine to coarse. Well cemented. 1% glauconite fragments. Minor mica flakes. Pale brown.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
8.0	9.0	1.0	Arenite. As above. 5% calcareous grains, Common black, shiny, angular material (unknown up to 0.04mm).	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
9.0	10.0	1.0	Arenite. As above. Fine angular quartz well cemented with carbonate material, Dark brown.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
10.0	11.0	1.0	Arenite. As above. Quartz clear/orange stained, 20% fine, black shiny material (unknown). Poorly cemented. Mid to dark brown.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
11.0	12.0	1.0	Arenite. As above. Greyish brown, mica flakes common.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
12.0	13.0	1.0	Arenite. As above. Few coarse Fe stained quartz grains.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
13.0	14.0	1.0	Arenite. As above. Occasional foraminifera.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
14.0	15.0	1.0	Arenite. As above. Coarse quartz grains are clear, rose and milky coloured.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
15.0	16.0	1.0	Arenite. As above. Greyish yellow, quartz silt to fine. Abundant mica flakes.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
16.0	17.0	1.0	Arenite. As above. Few medium and coarse, rounded quartz grains.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
17.0	18.0	1.0	Arenite. As above. Mid grey, passing into soft, sticky, dark grey lutite.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
18.0	18.4	0.4	Lutite. (Bit Sample). Dark grey, soft, very sticky plastic, contains shell fragments and foraminifera. 20-30% fine grained quartz. 10% calcareous material.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
18.4	19.0	0.6	Arenite. Fine, angular, clear, orange stained quartz, few coarse rounded grains. 5% fine, white carbonate grains. Abundant mica flakes and black shiny material (unknown). Shell fragments. 5% soft, grey gritty lutite. Overall greyish brown.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
19.0	20.0	1.0	Arenite. As above. Silt to fine. No coarse quartz or lutite. Foraminifera.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
20.0	21.0	1.0	Arenite. As above. Grey to brown, well cemented some bryozoa, foraminifera. Possibly passing into Gambier Limestone. Moderately calcareous.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation

21.0	22.0	1.0	Arenite. As above. Few Fe pebbles.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
22.0	22.5	0.5	Arenite. As above. Becoming very fossiliferous.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
22.5	23.0	0.5	Calcarenite. 60% bryozoal, shell fragments, and foraminifera up to 2mm, rest fine to coarse white carbonate grains. Abundance of glauconite. Minor quartz and silt, moderately cemented. Grey.	Gambier Limestone	Gambier Limestone
23.0	24.0	1.0	Calcarenite. As above. 80-90% fossiliferous material.	Gambier Limestone	Gambier Limestone
24.0	25.0	1.0	Calcarenite. As above. No quartz, 1% glauconite fragments, poorly cemented.	Gambier Limestone	Gambier Limestone

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Unit 702303000
Log Wilson

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.3	0.3	Lutite. Dark grey, slightly sticky, 30% fine, clear, Fe stained quartz, angular to subrounded, 5% organic material.	Top Soil	Recent
0.3	1.5	1.2	Lutite. As above. Mid grey, very sticky, slightly plastic. 20% quartz, 10% fine to medium yellow calcareous material. No organic matter.	Top Soil	Recent
1.5	2.0	0.5	Calcarenite. Fine to coarse, angular, well cemented. 20-30% calcareous silt. Minor quartz and lutite. Off white to light grey.	Padthaway Formation equivalent	Padthaway Formation
2.0	3.0	1.0	Calcarenite. As above. Very well cemented, 10% fine clear quartz. Cream to grey. Minor silt no lutite.	Padthaway Formation equivalent	Padthaway Formation
3.0	4.0	1.0	Calcarenite. As above. Fawn, 30-40% silt.	Padthaway Formation equivalent	Padthaway Formation
4.0	5.0	1.0	Calcarenite. As above. Light brown, fine well cemented. Minor quartz, 20% silt. Few Fe pebbles.	Padthaway Formation equivalent	Padthaway Formation
5.0	6.0	1.0	Calcarenite. As above. Khaki, up to 30% silt. Rest moderately to well cemented.	Padthaway Formation equivalent	Padthaway Formation
6.0	7.0	1.0	Siltite. Soft calcareous, 20% fine angular clear quartz. Some well cemented, fine calcareous grains with quartz cream to fawn.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
7.0	8.0	1.0	Siltite. As above. Very soft. Few cemented carbonate grains.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
8.0	9.0	1.0	Siltite. As above. 50% silt to fine quartz. No cemented. Cream to light grey.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
9.0	10.0	1.0	Arenite. Very fine grained, clear, very angular quartz. 30% silt. 2% fine white carbonate grains. Non cemented. Light grey.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation

10.0	11.0	1.0	Arenite. As above. 15-20% silt. Slightly calcareous. Minor mica flakes.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
11.0	12.0	1.0	Calcarenite. Fine to medium subangular, shell fragments to 9mm, 20% fine clear quartz. 30% calcareous silt. Minor foraminifera poorly-well cemented. Brown. Bit sample; Hard, fine to coarse grained nodules containing 10-20% medium quartz (clear/smokey). Pockets of yellow orange silt. Shell fragments, foraminifera bryozoal sticks. Very well cemented. Mottled browns and greys.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
12.0	13.0	1.0	Calcarenite. As above. Very calcareous, abundant shell fragments and foraminifera. 15-20% medium subrounded quartz. Minor mica flakes.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
13.0	14.0	1.0	Calcarenite. As above. White/yellow, medium to coarse grains. 20% fine-coarse, clear/milky quartz (few rounded to 3mm). Well cemented. Buff.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
14.0	15.0	1.0	Calcarenite. As above. Moderately cemented, becoming more medium grained. Light brown.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
15.0	16.0	1.0	Calcarenite. As above. Fine to medium grained. 15% quartz, 30% silt. Poorly cemented. Light brown.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
16.0	16.9	0.9	Lutite. Black, very sticky, plastic, micaceous, well sorted, non-calcareous. Passing into grey, sandy lutite containing large percentage of silt to fine, clear quartz, slightly sticky and plastic, abundant shell fragments and fossils micaceous, moderately calcareous. Grading to Lutite, combination of black lutite (probably contamination) and sand, grey lutite, and progressively grey, sandy lutite as above. 10% fine, white carbonate grains, abundant shell fragments.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
16.9	17.0	0.1	Siltite. Grey to brown, soft 5-10% fine to medium angular to subrounded quartz. 20-30% calcareous material mainly shell fragments and grey/white carbonate grains. Abundant grey stained foraminifera.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
17.0	18.0	1.0	Siltite. As above. Light grey, 5% quartz. Passing into Gambier Limestone.	Coomandook Bridgewater Formation equivalent	Coomandook-Bridgewater Formation
18.0	19.0	1.0	Calcarenite. White/grey carbonate grains, generally medium angular. Moderately cemented. Shell fragments up to 5mm, bryozoal sticks and foraminifera. Flint chips up to 20mm. 5-10% silt, minor quartz as above. Mid to dark grey.	Gambier Limestone	Gambier Limestone

19.0	20.0	1.0	Flint. Grey, hard chips up to 25mm, few large shell fragments. 10% mid grey silt.	Gambier Limestone	Gambier Limestone
20.0	21.0	1.0	Calcarenite. Fine/coarse, moderately cemented carbonate grains, shell fragments, bryozoal sticks foraminifera. 40% flint chips to 6m. Quartz mid grey.	Gambier Limestone	Gambier Limestone
21.0	22.0	1.0	Calcarenite. As above. 20% flint, 10% grey silt.	Gambier Limestone	Gambier Limestone
22.0	23.0	1.0	Calcarenite. As above. 50% flint chips, Light to dark grey.	Gambier Limestone	Gambier Limestone
23.0	24.0	1.0	Flint. Hard, light to dark grey, few shell fragments and echinoid spines. 10% silt.	Gambier Limestone	Gambier Limestone
24.0	25.0	1.0	Calcarenite. Medium, grey/white carbonate grains. Shell fragments, foraminifera bryozoal sticks. Moderately to well cemented. 10% flint chips, minor quartz. Light grey.	Gambier Limestone	Gambier Limestone

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Unit 702303482
Log Lawson

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.1	0.1	Quartz sand. Colourless, subangular to well rounded; varies 0.1mm to 1.2mm (average 0.3mm). 15% organic material.		Recent
0.1	1.0	0.9	Quartz sand. As above. 40% silt. Brown to grey. Somewhat lutitic when wet. Minor amounts of ironstone.		Recent
1.0	3.0	2.0	Silt. Buff, plastic (almost lutite), 35% quartz sand - as above. Minor amount of calcareous material.		Padthaway Formation
3.0	5.0	2.0	Silt. Off white. 30% calcarenite, buff. 20% quartz sand, as above.		Padthaway Formation
5.0	7.0	2.0	Calcarenite. Pale orange, strongly cemented, coarse fragments. 10-20% quartz sand, clear, angular to subrounded (average 0.1mm to 0.2mm).		Coomandook-Bridgewater Formation
7.0	9.0	2.0	Calcarenite. As above. Shell material appearing.		Coomandook-Bridgewater Formation
9.0	11.0	2.0	Calcarenite. Buff, unconsolidated. Mainly reworked fossil fragments. 15% quartz sand, clear to frosted, well rounded. Some grains to 2.5mm (average 2mm).		Coomandook-Bridgewater Formation
11.0	13.0	2.0	Calcarenite. Buff, strongly cemented chips. 5-10% quartz sand, as above.		Coomandook-Bridgewater Formation
13.0	14.0	1.0	Calcarenite. Buff, uncemented. High percentage shell material (Grit), minor quartz sand and calcisiltite.		Coomandook-Bridgewater Formation
14.0	15.0	1.0	Calcarenite. Buff, strongly cemented. Finely grained to coarsely grained. 10% calcisiltite, buff. Minor quartz sand.		Coomandook-Bridgewater Formation
15.0	17.0	2.0	Calcarenite. White to buff, uncemented. Shell fragments to 1cm. Minor calcisiltite.		Coomandook-Bridgewater Formation

17.0	20.0	3.0	Calcarenite. As above. Fossil quality improving. More bryozoa appearing. Quartz grains to 6mm.		Coomandook-Bridgewater Formation

Unit Log 702303675 Aslin

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	1.0	1.0	Arenite quartz. Colourless <0.1 - 0.4 (average 0.3) subangular, moderately sorted, minor organic matter.	Bridgewater Formation	Recent
1.0	4.0	3.0	Lutite. Yellowish brown, soft moderately plasticity at top to light grey low plasticity at base.	Bridgewater Formation	Padthaway Formation
4.0	6.0	2.0	Calcarenite. Light grey, weakly cemented fine fossil fragments. Minor lutite.	Bridgewater Formation	Coomandook-Bridgewater Formation
6.0	8.0	2.0	Calcarenite. Buff, full cementation range. Rare shell.	Bridgewater Formation	Coomandook-Bridgewater Formation
8.0	10.0	2.0	Calcarenite. Some strongly cemented nodules, increased bivalve fragments.	Bridgewater Formation	Coomandook-Bridgewater Formation
10.0	12.0	2.0	Calcarenite. Uncemented, arenite all 0.1-0.2mm fossil fragments <0.3mm.	Bridgewater Formation	Coomandook-Bridgewater Formation
12.0	14.0	2.0	Calcarenite. Weakly cemented, fine grained as above.	Bridgewater Formation	Coomandook-Bridgewater Formation
14.0	15.0	1.0	Calcarenite. Essentially uncemented. Fine.	Bridgewater Formation	Coomandook-Bridgewater Formation
15.0	18.0	3.0	Calcarenite. Weak-moderately cemented, weaker portions off white, strongly cemented fragments are brown.	Bridgewater Formation	Coomandook-Bridgewater Formation
18.0	22.0	4.0	Fossiliferous calcarenite. Off white bryozoal. Weakly cemented.	Gambier Limestone	Gambier Limestone
22.0	28.0	6.0	Fossiliferous calcarenite. Off white bryozoal. Weakly cemented. Minor cream silt.	Gambier Limestone	Gambier Limestone
28.0	30.0	2.0	Fossiliferous calcarenite. Off white bryozoal. Weakly cemented.	Gambier Limestone	Gambier Limestone
30.0	32.0	2.0	Fossiliferous calcarenite. Weakly cemented. Abundant calcite rhombs; minor fine arenite quartz, trace of fine glauconite, some as replacement.	Gambier Limestone	Gambier Limestone
32.0	34.0	2.0	Fossiliferous calcarenite. Full cementation range, abundant calcite rhombs. Minor fine glauconite.	Gambier Limestone	Gambier Limestone
34.0	36.0	2.0	Fossiliferous calcarenite. Weakly cemented, silty, abundant calcite rhombs.	Gambier Limestone	Gambier Limestone
36.0	38.0	2.0	Fossiliferous calcarenite. As above. Very silty, 10% calcite rhombs, minor fine glauconite.	Gambier Limestone	Gambier Limestone
38.0	40.0	2.0	Fossiliferous calcarenite. Weakly cemented, abundant calcite rhombs, silty.	Gambier Limestone	Gambier Limestone
40.0	42.0	2.0	Fossiliferous calcarenite. Moderately cemented, minor silt abundant calcite rhombs minor fine glauconite.	Gambier Limestone	Gambier Limestone
42.0	50.0	8.0	Fossiliferous calcarenite. Weakly cemented silty minor fine glauconite and fine abundant calcite rhombs.	Gambier Limestone	Gambier Limestone

50.0	52.0	2.0	Fossiliferous calcarenite. Weakly cemented, very silty minor calcite rhombs, minor fine glauconite.	Gambier Limestone	Gambier Limestone
52.0	54.0	2.0	Calcisiltite. Pale grey. Abundant fossiliferous calcarenite as uncemented bryozoa fragments. Abundant calcite rhombs. Minor fine glauconite. Low plasticity.	Gambier Limestone	Gambier Limestone
54.0	64.0	10.0	Calcisiltite. Pale grey. Non-plastic, minor flints abundant calcite rhombs, minor fine glauconite.	Gambier Limestone	Gambier Limestone
64.0	66.0	2.0	Calcisiltite. Pale grey. Low plasticity, as above.	Gambier Limestone	Gambier Limestone
66.0	70.0	4.0	Calcisiltite. Pale grey. Low plasticity, minor fossiliferous calcarenite and flint and pyrite. Abundant calcite rhombs.	Gambier Limestone	Gambier Limestone
70.0	72.0	2.0	Calcisiltite. Pale grey. Low plasticity, minor fossiliferous calcarenite, flint. Abundant calcite rhombs. Trace glauconite.	Gambier Limestone	Gambier Limestone
72.0	76.0	4.0	Calcisiltite. Pale grey. Non plastic, trace of fossiliferous calcarenite, calcite rhombs flint and glauconite.	Gambier Limestone	Gambier Limestone
76.0	78.0	2.0	Calcisiltite. Pale grey. Non-plastic, 20-25% fossiliferous calcarenite. Trace calcite rhombs and flint.	Gambier Limestone	Gambier Limestone
78.0	80.0	2.0	Calcisiltite. Pale grey. Non-plastic, 20-25% fossiliferous calcarenite. Trace calcite rhombs and flint. Trace of pyrite.	Gambier Limestone	Gambier Limestone
80.0	84.0	4.0	Calcisiltite. Pale grey. Non-plastic, 20-25% fossiliferous calcarenite. Trace calcite rhombs and flint.	Gambier Limestone	Gambier Limestone
84.0	86.0	2.0	Flint. Large fragments, minor calcisiltite and fossiliferous calcarenite and calcite rhombs. Trace pyrite.	Gambier Limestone	Gambier Limestone
86.0	88.0	2.0	Calcisiltite. Pale grey, non-plastic. Abundant flint, minor fossiliferous calcarenite, minor calcite rhombs.	Gambier Limestone	Gambier Limestone
88.0	96.0	8.0	Calcisiltite. Pale grey, non-plastic. 20% fossiliferous calcarenite, abundant flint, trace calcite rhombs and glauconite.	Gambier Limestone	Gambier Limestone
96.0	98.0	2.0	Calcisiltite. Pale grey, non-plastic. 20% fossiliferous calcarenite, trace of flint, calcite rhombs and glauconite.	Gambier Limestone	Gambier Limestone
98.0	100.0	2.0	Calcisiltite. Pale grey. Slightly plastic, 20% fossiliferous calcarenite, minor flint, traces of calcite rhombs, glauconite, pyrite.	Gambier Limestone	Gambier Limestone
100.0	102.0	2.0	Calcisiltite. Pale grey. 50% calcisiltite as above, non-plastic. 50% fossiliferous calcarenite essentially as uncemented bryozoa.	Gambier Limestone	Gambier Limestone
102.0	110.0	8.0	Fossiliferous calcarenite. Pale grey, uncemented. Very silty minor flint. Trace calcite rhombs and glauconite.	Gambier Limestone	Gambier Limestone
110.0	112.0	2.0	Fossiliferous calcarenite. As above. 50% fossiliferous calcarenite.	Gambier Limestone	Gambier Limestone

112.0	114.0	2.0	Calcisiltite. Pale grey, non-plastic. 10-15% fossiliferous calcarenite as above. Minor calcite and rhombs and trace glauconite.	Gambier Limestone	Gambier Limestone
114.0	116.0	2.0	Calcisiltite. Pale grey, non-plastic. As above. No glauconite.	Gambier Limestone	Gambier Limestone
116.0	118.0	2.0	Calcisiltite. Pale grey, non-plastic. 30% fossiliferous calcarenite as above. Minor calcite rhombs.	Gambier Limestone	Gambier Limestone
118.0	120.0	2.0	Fossiliferous calcarenite. Pale grey, uncemented, very silty, trace of calcite rhombs, pyrite and glauconite.	Gambier Limestone	Gambier Limestone
120.0	128.0	8.0	Fossiliferous calcarenite. 50% fossiliferous calcarenite as above. 50% calcisiltite as above. Trace of calcite rhombs and glauconite.	Gambier Limestone	Gambier Limestone
128.0	130.0	2.0	Fossiliferous calcarenite. As above. No calcite rhombs but glauconite increased to minor.	Gambier Limestone	Gambier Limestone
130.0	132.0	2.0	Fossiliferous calcarenite. As above. No calcite rhombs but glauconite increased to abundant below 130m.	Gambier Limestone	Gambier Limestone
132.0	138.0	6.0	Fossiliferous calcarenite. 50% fossiliferous calcarenite as above. 50% calcisiltite as above. Trace of calcite rhombs and glauconite.	Gambier Limestone	Gambier Limestone
138.0	140.0	2.0	Fossiliferous calcarenite. As above. Abundant calcite rhombs and abundant glauconite.	Gambier Limestone	Gambier Limestone
140.0	142.0	2.0	Marly calcisiltite. Grey plastic. 30% fossiliferous calcarenite as uncemented. Bryozoa fragments, abundant calcite rhombs and glauconite.	Gambier Limestone	Gambier Limestone
142.0	144.0	2.0	Marly calcisiltite. Grey plastic. As above. 20% fossiliferous calcarenite, 10% flint.	Gambier Limestone	Gambier Limestone
144.0	146.0	2.0	Marly calcisiltite. 50% fossiliferous calcarenite as above. 50% calcisiltite, pale grey, non plastic. Minor flint.	Gambier Limestone	Gambier Limestone
146.0	152.0	6.0	Calcisiltite. Grey, slightly plastic, fossiliferous calcarenite varying between 5 and 25%. Calcite rhombs abundant.	Gambier Limestone	Gambier Limestone
152.0	154.0	2.0	Calcisiltite. Grey, slightly plastic, fossiliferous calcarenite varying between 5 and 25%. Calcite rhombs abundant. Minor glauconite.	Gambier Limestone	Gambier Limestone
154.0	160.0	6.0	Calcisiltite. Grey, slightly plastic, fossiliferous calcarenite varying between 5 and 25%. Minor calcite rhombs. Minor glauconite.	Gambier Limestone	Gambier Limestone
160.0	162.0	2.0	Calcisiltite. Grey, slightly plastic, fossiliferous calcarenite varying between 5 and 25%. Minor calcite rhombs. Minor glauconite. Minor pyrite.	Gambier Limestone	Gambier Limestone
162.0	176.0	14.0	Calcisiltite. Grey, slightly plastic, fossiliferous calcarenite varying between 5 and 25%. Minor calcite rhombs. Minor glauconite.	Gambier Limestone	Gambier Limestone

176.0	178.0	2.0	Calcisiltite. Grey low plasticity, 5-10% fossiliferous calcarenite. Abundant glauconite and fine quartz sand. 176m Bit sample: Calcilutite. Green, low plasticity, minor fossiliferous calcarenite as above, abundant glauconite and fine arenite quartz.	Mepunga Formation	Nirranda Group
178.0	180.0	2.0	Arenite quartz. 0.2-0.4 (average 0.3mm) well sorted subangular-subrounded, colourless and yellow stained. Minor ferruginous grains to 0.3mm. Abundant glauconite in a green calcisiltite matrix. 40-50% silty calcilutite matrix, light green, minor calcite matter.	Mepunga Formation	Nirranda Group
180.0	182.0	2.0	Arenite quartz. 0.2-0.4 (average 0.3mm) well sorted subangular-subrounded, colourless and yellow stained. Minor ferruginous grains to 0.3mm. Abundant glauconite in a green calcisiltite matrix. 20-30% calcisiltite matrix, light green, fossiliferous.	Mepunga Formation	Nirranda Group
182.0	186.0	4.0	Arenite quartz. 0.2-0.4 (average 0.3mm) well sorted subangular-subrounded, colourless and yellow stained. Minor ferruginous grains to 0.3mm. Abundant glauconite in a green calcisiltite matrix. 15-20% as above, light brown at base.	Mepunga Formation	Nirranda Group
186.0	208.0	22.0	Lutite. Dark brown, low to moderately plasticity. Minor ferruginous grains down to 190m. Fine silty arenite quartz increases from minor at top to 50% at 200m tapes off to 5-10% at 206m.	Dilwyn Formation	Dilwyn Formation
208.0	212.0	4.0	Lutite. As above. Arenite increased to 30%. Trace of colourless grains.	Dilwyn Formation	Dilwyn Formation
212.0	216.0	4.0	Lutite. As above. Arenite decreases from 5-10% at top to minor at base.	Dilwyn Formation	Dilwyn Formation
216.0	218.0	2.0	Lutite. As above. Lutite very silty, minor fine arenite, glauconite and ferruginous grains.	Dilwyn Formation	Dilwyn Formation
218.0	224.0	6.0	Lutite. As above. Lutite very dark grey-near black. No inclusions.	Dilwyn Formation	Dilwyn Formation
224.0	226.0	2.0	Lutite. As above. Lutite as above, trace of fine arenite quartz.	Dilwyn Formation	Dilwyn Formation
226.0	227.0	1.0	Lutite. As above. Lutite as above, minor fine arenite quartz.	Dilwyn Formation	Dilwyn Formation
227.0	232.0	5.0	Arenite quartz. Colourless and frosted, 0.1-2.0mm (average 0.7mm). Moderately sorted, subrounded - rounded. Minor lutite. Abundant ferruginous grains.	Dilwyn Formation	Dilwyn Formation
232.0	234.0	2.0	Lutite. Very dark grey, low - moderate plasticity in sludge (but 2 bit samples were highly plastic). Trace to 5% fine arenite quartz. Trace of pyrite in some bags.	Dilwyn Formation	Dilwyn Formation

234.0	240.0	6.0	Lutite. Very dark grey, low - moderate plasticity in sludge (but 2 bit samples were highly plastic). No arenite.	Dilwyn Formation	Dilwyn Formation
240.0	244.0	4.0	Lutite. Very dark grey, low - moderate plasticity in sludge (but 2 bit samples were highly plastic). 30-40% arenite quartz. 0.1-2.0mm (average 0.2mm).	Dilwyn Formation	Dilwyn Formation
244.0	248.0	4.0	Lutite. Very dark grey, low - moderate plasticity in sludge (but 2 bit samples were highly plastic). Approximately 50% arenite quartz 0.1 - 2.0 (average 0.7mm) poorly sorted.	Dilwyn Formation	Dilwyn Formation
248.0	251.0	3.0	Arenite quartz. 0.1 - 3.0 mm moderately sorted. Minor lutite dark grey. Trace of fine pyrite. Average grain size 0.8mm.	Dilwyn Formation	Dilwyn Formation
251.0	263.0	12.0	Arenite quartz. 0.1 - 3.0 mm moderately sorted. Minor lutite dark grey. Trace of fine pyrite. Average grain size 0.5mm.	Dilwyn Formation	Dilwyn Formation
263.0	264.0	1.0	Arenite quartz. 0.1 - 3.0 mm moderately sorted. Minor lutite dark grey. Trace of fine pyrite. Average grain size 0.6mm.	Dilwyn Formation	Dilwyn Formation
264.0	287.0	23.0	Arenite quartz. 0.1 - 3.0 mm moderately sorted. Minor lutite dark grey. Trace of fine pyrite. Average grain size 0.5mm.	Dilwyn Formation	Dilwyn Formation
287.0	290.0	3.0	Arenite quartz. 0.1 - 3.0 mm. Moderately to well sorted. Average grain size 0.3mm. 290m Bit Sample; 50% lutite dark grey, low to moderate plasticity. 50% arenite quartz 0.1 - 1.0 (average 0.2mm) colourless subangular to rounded. Trace of fine pyrite.	Dilwyn Formation	Dilwyn Formation

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Unit Log 702303762
Lawson

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	2.8	2.8	Top soil. Brown organic material. High percentage of clay. Plastic. 15% quartz sand - clear to brown stained, subangular; varies 0.1 - 0.3mm (average 0.2mm). Grading to; Calcarenite. Pale grey. Very strongly cemented fragments with 30-40% unconsolidated sediments. No distinguishable fossil fragments.		Recent
2.8	4.0	1.3	Calcarenite. Off white, well cemented fragments to 3mm - rare fossil fragments. 20% buff calcisiltite. 2% quartz arenite: clear subangular to subrounded fine to 0.5mm diameter grains. Dark grey and orange metallic grains.		Padthaway Formation
4.0	5.0	1.0	Calcarenite. Buff to off white, well cemented fragments to 3mm. 20% calcisiltite - buff. 10% quartz arenite: clear subangular to subrounded grains - fine to 0.7mm.		Coomandook-Bridgewater Formation

5.0	6.0	1.0	Calcarenite. Buff, well cemented fragments to 15mm, ferruginous bands and staining. 10% quartz arenite a.a. Minor calcisiltite - buff.	Coomandook-Bridgewater Formation
6.0	7.0	1.0	Calcarenite. Buff, well cemented with ferruginous bands .10% quartz arenite a.a.	Coomandook-Bridgewater Formation
7.0	8.0	1.0	Calcarenite. Buff, well cemented. Minor foraminifera and fossil fragments. 10% quartz arenite.	Coomandook-Bridgewater Formation
8.0	9.0	1.0	Calcarenite. Buff, well cemented. Off white foraminifera and fossil content inc. 5% quartz arenite.	Coomandook-Bridgewater Formation
9.0	10.0	1.0	Calcarenite. As above. 10% quartz arenite.	Coomandook-Bridgewater Formation
10.0	11.0	1.0		Coomandook-Bridgewater Formation
11.0	12.0	1.0	Calcarenite. As above. Trace glauconite.	Coomandook-Bridgewater Formation
12.0	13.0	1.0	Calcarenite. As above. Minor calcisiltite. Trace mica flakes.	Coomandook-Bridgewater Formation
13.0	15.0	2.0	Calcarenite. As above. Minor calcisiltite. Mollusc fragments.	Coomandook-Bridgewater Formation
15.0	16.0	1.0	Calcarenite. As above. 2% calcisiltite. Fossil fragments inc.	Coomandook-Bridgewater Formation
16.0	18.0	2.0	Calcarenite. Buff to off white, weakly cemented - fossil fragments and foraminifera. 20% grey plastic clay. 5% quartz grains.	Coomandook-Bridgewater Formation
18.0	19.0	1.0	Calcarenite. Buff, well cemented fragments, clear calcite fragments containing glauconite, fossil fragments and foraminifera, + 2 species of freshwater snail shells. 10% grey clay. 5% quartz grains. Minor calcisiltite.	Coomandook-Bridgewater Formation
19.0	20.0	1.0	Calcarenite. Uncemented fossil, mollusc and foraminifera fragments. 20% quartz grains - subrounded clear and milky grains to 4mm. 10% flint fragments. Glauconite present 20-21m. 5% grey calcisiltite.	Coomandook-Bridgewater Formation
20.0	21.0	1.0	Calcarenite. As above. 5% grey calcisiltite.	Gambier Limestone
21.0	23.0	2.0	Flint. Black to grey angular fragments. Minor buff, well cemented calcite fragments and fossil fragments.	Gambier Limestone
23.0	27.0	4.0	Flint. As above. 2% grey calcisiltite.	Gambier Limestone
27.0	31.0	4.0	Flint. Black to grey angular fragments. 2% grey calcisiltite. 10% buff, well cemented calcite and fossil fragments.	Gambier Limestone
31.0	35.0	4.0	Flint. Black to grey angular fragments. 10% buff, well cemented calcite and fossil fragments. Minor glauconite and foraminifera. 2% quartz grains to 3mm - subrounded.	Gambier Limestone

35.0	37.0	2.0	Calcarenite. Fossil fragments and foraminifera - minor buff, well cemented calcite fragments. Glauconite present. 5% flint fragments. Minor calcisiltite.		Gambier Limestone
37.0	40.0	3.0	Calcarenite. Fossil fragments and foraminifera - minor buff, well cemented calcite fragments. Glauconite present. 5% flint fragments.		Gambier Limestone

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Unit Log 702303765 MacKenzie

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	2.4	2.4	Clay. Dark brown, crumbly to moderately plastic. Minor calcarenite grains. Organic material present. Grading to; Limestone. Crumbly limestone but predominately hard calcrete. Some softer, clay pockets. (Numerous soil cores. See file.)		Recent
2.4	4.0	1.7	Limestone. Fine grained, hard, well cemented, orange brown. Fragments of grey calcrete, manganese stained. Minor fine quartz grains. Minor lumps yellow orange, sticky clay.		Padthaway Formation
4.0	6.0	2.0	Marl. Soft, poorly cemented, fawn to grey. Contains small fragments of cemented limestone (sandy). 10% lumps of greyish clay.		Padthaway Formation
6.0	8.0	2.0	Limestone. Very silty/sandy. Fine grained carbonate, some well cemented fragments. Up to 30% fine clear quartz, 0.2mm. Minor clay as above. Buff.		Padthaway Formation
8.0	10.0	2.0	Sand. Clear, fine grained quartz, 10% well cemented fragments of sandstone, some rounded to 5cm (Appear to be suspended in sand - beach deposits). Fossiliferous. 20% carbonate grains, fine to coarse. (?Contamination) Minor clay lumps. Buff.		Coomandook-Bridgewater Formation
10.0	12.0	2.0	Sand. As above. Fine, subangular quartz. 30% fine to medium carbonate grains, some well cemented, abundant foraminifera. Minor bryozoa, shell fragments and mica.		Coomandook-Bridgewater Formation
12.0	14.0	2.0	Sandstone. Well cemented fragments containing quartz as above. 30% carbonate grains as above but fine to coarse. Loose sand may indicate some poorly cemented bands - interbedded. Abundant fossils. Fawn.		Coomandook-Bridgewater Formation
14.0	16.0	2.0	Sandstone. As above. Poorly to well cemented. Up to 50% carbonaceous grains, shell fragments and fossils. 5% lumps of olive grey, soft sticky clay.		Coomandook-Bridgewater Formation

16.0	18.0	2.0	Sandstone. As above. Medium to coarse, mostly shell fragments and fossils, rest white and yellow carbonate grains. 10% medium to coarse clear, sub-rounded quartz. Large fragments of sandstone are well cemented. Loose material indicates interval unconsolidated in part. Fawn to grey.	Coomandook-Bridgewater Formation
18.0	20.0	2.0	Sandstone. As above. With hard well cemented dolomite fragments, grey. Coarse, grey carbonate grains and bryozoa sticks. Minor glauconite (passing into Gambier Limestone).	Coomandook-Bridgewater Formation
20.0	22.0	2.0	Limestone. Fine to coarse grey carbonate grains, moderately cemented. Bryozoal. 30-40% dolomite fragments and flint chips. (Probably interbedded bands). 5% coarse, rounded quartz grains. Grey.	Gambier Limestone
22.0	24.0	2.0	Limestone. As above. Very silty 20-30%, abundant fossil material. 5% flint and dolomite chips. Up to 20% fine, sub-angular quartz. (Contamination from above).	Gambier Limestone
24.0	26.0	2.0	Limestone. As above. 5% silt, up to 40% flint and dolomite chips. Glauconitic.	Gambier Limestone
26.0	28.0	2.0	Limestone. As above. Predominately white and grey carbonate grains and fossils. 20% dolomite and flint. Some coarse rounded quartz. 10-15% silt.	Gambier Limestone
28.0	30.0	2.0	Limestone. As above. Moderately to well cemented. 50% dolomite and flint. Rest as above.	Gambier Limestone
30.0	32.0	2.0	Limestone. As above. Fine to coarse grained, poorly to moderately cemented. Up to 30% fine to medium, clear angular quartz (contamination from up hole). No dolomite, minor pyrite. Silty 15%.	Gambier Limestone
32.0	34.0	2.0	Limestone. As above. Fine to medium. 20-30% Silt. 10-20% fine quartz as above. Poorly cemented. Grey to fawn.	Gambier Limestone
34.0	35.0	1.0	Limestone. As above. Very sandy with 30-40% quartz. 10% silt. Poorly to non-cemented.	Gambier Limestone
35.0	37.0	2.0	Limestone. As above. Medium to coarse, white and pale grey carbonate and fossils. Abundant bryozoa sticks. Moderate to well cemented. Glauconitic. 10% fine quartz as above. Some yellow foraminifera (contamination from up hole). Fawn to pale grey.	Gambier Limestone
37.0	40.0	3.0	Limestone. As above. Mostly coarse carbonate grains and fossils. 1% flint chips. 10% fine quartz and 5% yellow calcareous grains. (Contamination). Minor silt.	Gambier Limestone

40.0	41.0	1.0	Limestone. As above. 2% dolomite fragments, odd coarse rounded quartz grains. Minor contaminated material as above. Moderate to well cemented. Minor greenish cream marl at 41m.		Gambier Limestone
41.0	42.0	1.0	Limestone. As above. Medium to very coarse, 50% bryozoa sticks and fossils. Some hard well cemented limestone fragments. Rest white and pale grey carbonate grains. Glauconitic. No contamination from up hole.		Gambier Limestone

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Unit Log 702303969 Lawson

Depth from (m)	Depth to (m)	Interval (m)	Description	Recorded Formation	Classified Formation
0.0	0.5	0.5	Top Soil. Brown silt, grading towards a clay. 20-30% calcarenite - off white to brown stained, strongly cemented. 5-10% quartz sand - clear, angular to well rounded.		Recent
0.5	2.0	1.5	Calcisiltite. Fawn. 30% calcarenite - cream, strongly cemented. Fine grained. Minor quartz sand.		Padthaway Formation
2.0	4.0	2.0	Marl. Pale yellow, tightly bounded. Plastic. 10-15% calcarenite - as above.	Bridgewater Formation	Coomandook-Bridgewater Formation
4.0	6.0	2.0	Calcarenite - Light brown to pale orange, strongly cemented. Consists of approximately 30% quartz sand cemented with the calcareous material. Iron staining evident. 10-15% marl - pale grey.	Bridgewater Formation	Coomandook-Bridgewater Formation
6.0	8.0	2.0	Calcarenite. As above. Marl absent.	Bridgewater Formation	Coomandook-Bridgewater Formation
8.0	10.0	2.0	Quartz sand. Clear, angular to subangular (average 0.1mm) 30-40% calcarenite - pale orange, strongly cemented to uncemented.	Bridgewater Formation	Coomandook-Bridgewater Formation
10.0	12.0	2.0	Calcarenite. Orange to pale orange, strongly cemented. Varies from fine to coarsely grained. Some reworked fossil material appearing. 15-20% marl - pale yellow.	Bridgewater Formation	Coomandook-Bridgewater Formation
12.0	16.0	4.0	Calcarenite. Off white to pale orange. Mainly strongly cemented. Usual 15-20% quartz sand.	Bridgewater Formation	Coomandook-Bridgewater Formation
16.0	18.0	2.0	Marl. Pale grey. 30% calcarenite - pale brown to light orange, strongly cemented. Minor shell fragments.	Bridgewater Formation	Coomandook-Bridgewater Formation
18.0	20.0	2.0	Calcisiltite. Pale grey. 40% Fossiliferous Calc - light grey, uncemented. Extremely bryozoal.	Gambier Limestone	Gambier Limestone
20.0	22.0	2.0	Calcisiltite. As above. 20-30% Fossiliferous calc - as above. 10-15% partially silicified flint.	Gambier Limestone	Gambier Limestone
22.0	24.0	2.0	Flint. Black to grey, angular fragments. 20% fossiliferous calc - fossil fragments to 1cm, 5-10% calcisiltite - grey.	Gambier Limestone	Gambier Limestone

24.0	26.0	2.0	Flint. As above. No calcisiltite.	Gambier Limestone	Gambier Limestone
26.0	28.0	2.0	Flint. As above. 40% fossiliferous - uncemented. Minor calcisiltite.	Gambier Limestone	Gambier Limestone
28.0	30.0	2.0	Fossiliferous calc. Light grey, uncemented. Essentially bryozoal with shell and coral fragments to 7mm. 5% flint - grey. Minor calcisiltite.	Gambier Limestone	Gambier Limestone
30.0	36.0	6.0	Fossiliferous calc. White, uncemented. Decrease in well preserved bryozoa minor glauconite.	Gambier Limestone	Gambier Limestone
36.0	38.0	2.0	Fossiliferous calc. As above. 10-15% calcisiltite - off white.	Gambier Limestone	Gambier Limestone
38.0	42.0	4.0	Fossiliferous calc. White, uncemented, occasionally strongly cemented. Mainly bryozoal. Minor glauconite and calcisiltite.	Gambier Limestone	Gambier Limestone
42.0	44.0	2.0	Fossiliferous calc. As above. 15% calcisiltite. White.	Gambier Limestone	Gambier Limestone
44.0	48.0	4.0	Fossiliferous calc. As above. 40% calcisiltite. White.	Gambier Limestone	Gambier Limestone
48.0	50.0	2.0	Fossiliferous calc. As above. 20-30% calcisiltite. Minor flint and glauconite.	Gambier Limestone	Gambier Limestone
50.0	54.0	4.0	Fossiliferous calc. As above. 30-40% calcisiltite.	Gambier Limestone	Gambier Limestone
54.0	60.0	6.0	Fossiliferous calc. As above. Very bryozoal. 10-15% calcisiltite.	Gambier Limestone	Gambier Limestone
60.0	64.0	4.0	Calcisiltite. Grey. 40-45% fossiliferous calc - as above.	Gambier Limestone	Gambier Limestone
64.0	72.0	8.0	Fossiliferous calc. White. Strongly cemented to uncemented. Varies from coarse grained to very fine grained.	Gambier Limestone	Gambier Limestone
72.0	74.0	2.0	Fossiliferous calc. Yellow. Strongly cemented to uncemented. Essentially fine grained. Minor glauconite and quartz sand.	Gambier Limestone/Mepunga Formation Appearing	Gambier Limestone
74.0	76.0	2.0	Fossiliferous calc. Yellow uncemented. 5% quartz sand - limonitic grains to iron strained, subrounded (As 0.1 - 0.2) Mepunga Formation. 2-5% glauconite-green.	Gambier Limestone/Mepunga Formation Appearing	Gambier Limestone

APPENDIX 2 – NITRATE IN GROUNDWATER DATA

This appendix lists the collated nitrate concentrations (all units are in mg/L) in groundwater results for all of the wells within the study area. The process for collation of this data is described in Chapter 3.

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702300001	1/11/1982		Nitrate (as N)	13.7		MacKenzie and Stadter (1981) Updated
702300001	7/11/1985	04 85 08628	Nitrate + Nitrite (as N)	11.8		DWLBC Microfiche
702300001	7/08/2003		Nitrate + Nitrite (as N)	19.0		This study
702300003	25/03/1980		Nitrate (as NO3)	52.7		DWLBC Microfiche
702300028	7/03/1979	97755	Nitrate (as N)	12.6		SAGEODATA
702300028	4/06/1979	5122-79	Nitrate (as NO3)	56.0		DWLBC Microfiche
702300028	1/03/1981		Nitrate (as NO3)	58.4		DWLBC Microfiche
702300028	1/11/1982		Nitrate (as NO3)	69.1		DWLBC Microfiche
702300028	13/08/2003		Nitrate (as NO3)	117.0		This study
702300071	2/11/1982		Nitrate (as NO3)	81.9		DWLBC Microfiche
702300078	19/10/1982		Nitrate (as NO3)	26.8		DWLBC Microfiche
702300092	19/10/1982		Nitrate (as NO3)	109.3		DWLBC Microfiche
702300092	16/08/1989	389047	Nitrate + Nitrite (as N)	25.0		SAGEODATA
702300092	14/08/2003		Nitrate (as NO3)	135.4		This study
702300094	27/10/1982		Nitrate (as NO3)	5.3		DWLBC Microfiche
702300094	7/11/1985	04 85 08631	Nitrate (as N)	1.1		DWLBC Microfiche
702300099	26/05/1950	w.1079/50	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702300115	1/03/1981		Nitrate (as NO3)	58.0		DWLBC Microfiche
702300115	1/11/1982		Nitrate (as NO3)	73.5		DWLBC Microfiche
702300115	7/11/1985	04 85 08632	Nitrate (as N)	12.7		DWLBC Microfiche
702300115	1/08/2003		Nitrate + Nitrite (as N)	5.5		This study
702300120	5/06/1943	37/471	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702300121	26/07/1950	w.471/50	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702300123	9/10/1952	w.2573/52	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702300126	7/10/1982		Nitrate (as NO3)	14.3		DWLBC Microfiche
702300126	6/11/1985	04 85 08633	Nitrate (as N)	1.5		DWLBC Microfiche
702300133	4/04/1979	5122-79	Nitrate (as NO3)	64.0		DWLBC Microfiche
702300133	15/06/1979		Nitrate (as N)	14.5		MacKenzie and Stadter (1981) Updated
702300133	1/03/1981		Nitrate (as NO3)	47.4		DWLBC Microfiche
702300133	7/10/1982	7369	Nitrate (as N)	10.7		EPA Laboratory reports
702300133	1/11/1982		Nitrate (as N)	10.7		MacKenzie and Stadter (1981) Updated
702300133	15/08/2003		Nitrate (as NO3)	19.7		This study
702300134	18/10/1982		Nitrate (as NO3)	28.3		DWLBC Microfiche
702300134	6/11/1985	04 85 08634	Nitrate (as N)	2.3		DWLBC Microfiche
702300162	27/06/1951	w.1565/52	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702300305	23/08/1950	w.1122/50	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702300308	15/07/1993	04 93 08797	Nitrate + Nitrite (as N)	13.5		EPA Laboratory reports
702300311	1/03/1981		Nitrate (as NO3)	58.4		DWLBC Microfiche
702300311	5/10/1982	7168	Nitrate + Nitrite (as N)	16.3		EPA Laboratory reports
702300313	1/03/1981		Nitrate (as NO3)	47.8		DWLBC Microfiche
702300313	7/10/1982	7370	Nitrate (as N)	13.5		EPA Laboratory reports
702300313	7/11/1985		Nitrate (as N)	16.3		Misc EPA files
702300313	15/08/1989		Nitrate (as N)	12.0		MacKenzie and Stadter (1981) Updated
702300333	6/04/1950	w.376/50	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702300334	4/04/1950	w.377/50	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702300335	20/04/1950	w.378/50	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702300336	14/04/1950	w.379/50	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702300337	12/04/1950	w.380/50	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702300338	28/05/1986		Nitrate (as N)	0.0	Less than	DWLBC Microfiche
702300338	14/03/1988		Nitrate + Nitrite (as N)	0.0	Less than	DWLBC Microfiche
702300344	25/02/1947		Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702300345	7/03/1947		Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702300345	3/12/1982		Nitrate (as NO3)	1.3		DWLBC Microfiche
702300348	21/02/1947		Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702300354	27/02/1947		Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702300354	25/03/1995		Nitrate (as N)	0.3		Schmidt et. al (1996)
702300361	5/10/1982	7169	Nitrate + Nitrite (as N)	5.4		EPA Laboratory reports
702300374	23/05/1971	w1963/71	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702300374	15/04/2002	556646	Nitrate + Nitrite (as N)	0.0		SAGEODATA
702300374	12/08/2003		Nitrate + Nitrite (as N)	0.1		This study
702300498	7/04/1995	189309	Nitrate + Nitrite (as N)	0.1		SAGEODATA
702300498	3/10/1995	170774	Nitrate + Nitrite (as N)	4.3		SAGEODATA
702300526	20/05/1998	383359	Nitrate (as N)	1.2		SAGEODATA
702300541	3/04/1978	3708-78	Nitrate (as NO3)	22.0		DWLBC Microfiche
702300541	14/03/1988		Nitrate + Nitrite (as N)	5.3		DWLBC Microfiche
702300541	14/03/1989	04 89 03539	Nitrate + Nitrite (as N)	6.5		DWLBC Microfiche
702300541	8/03/1990	04 90 03869	Nitrate + Nitrite (as N)	4.8		DWLBC Microfiche
702300541	8/03/1993	04 90 03110	Nitrate + Nitrite (as N)	4.3		DWLBC Microfiche
702300541	19/03/1996	04 96 03674	Nitrate + Nitrite (as N)	5.3		DWLBC Microfiche
702300541	18/03/2002	556581	Nitrate + Nitrite (as N)	3.0		SAGEODATA
702300541	12/08/2003		Nitrate (as NO3)	16.5		This study
702300557	7/08/2003		Nitrate (as NO3)	63.4		This study
702300570	7/12/1982	9309/82	Nitrate (as NO3)	113.0		DWLBC Microfiche
702300570	20/09/1984	7046/84	Nitrate (as NO3)	93.0		DWLBC Microfiche
702300582	1/11/1982		Nitrate (as NO3)	97.4		DWLBC Microfiche
702300582	7/11/1985	04 85 08636	Nitrate (as N)	17.6		DWLBC Microfiche
702300582	15/08/1989	388993	Nitrate + Nitrite (as N)	13.0		SAGEODATA
702300582	12/08/2003		Nitrate (as NO3)	38.1		This study
702300586	2/11/1982		Nitrate (as NO3)	35.5		DWLBC Microfiche

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702300586	6/11/1985	04 85 08937	Nitrate (as N)	5.4		DWLBC Microfiche
702300590	26/10/1982		Nitrate (as NO3)	74.4		DWLBC Microfiche
702300590	1/11/1985		Nitrate (as N)	13.1		MacKenzie and Stadter (1981) Updated
702300590	8/08/2003		Nitrate + Nitrite (as N)	13.0		This study
702300609	7/11/1985		Nitrate (as N)	49.5		Misc EPA files
702300612	18/02/1993		Nitrate + Nitrite (as N)	2.0		DWLBC Microfiche
702300621	27/10/1982		Nitrate (as NO3)	52.7		DWLBC Microfiche
702300621	7/11/1985	04 85 08639	Nitrate (as N)	10.1		DWLBC Microfiche
702300621	13/08/2003		Nitrate (as NO3)	113.9		This study
702300622	15/07/1993	04 93 08801	Nitrate + Nitrite (as N)	15.4		EPA Laboratory reports
702300625	26/10/1982		Nitrate (as NO3)	77.0		DWLBC Microfiche
702300625	7/11/1985	04 85 08640	Nitrate (as N)	19.4		DWLBC Microfiche
702300625	15/07/1993	04 93 08769	Nitrate + Nitrite (as N)	19.2		EPA Laboratory reports
702300625	13/08/2003		Nitrate + Nitrite (as N)	10.0		This study
702300627	1/03/1981		Nitrate (as NO3)	29.4		DWLBC Microfiche
702300627	8/10/1982	7371	Nitrate (as N)	20.4		EPA Laboratory reports
702300627	1/08/2003		Nitrate + Nitrite (as N)	26.0		This study
702300628	28/10/1982		Nitrate (as NO3)	33.0		DWLBC Microfiche
702300628	7/11/1985	04 85 08641	Nitrate (as N)	8.0		DWLBC Microfiche
702300629	20/10/1982		Nitrate (as NO3)	203.8		DWLBC Microfiche
702300629	7/11/1985	04 85 08642	Nitrate (as N)	41.0		DWLBC Microfiche
702300629	30/07/2003		Nitrate + Nitrite (as N)	2.6		This study
702300631	10/09/1975		Nitrate (as N)	3.6		Emmett (unpublished)
702300631	31/03/1976		Nitrate (as N)	1.6		Emmett (unpublished)
702300631	13/09/1977		Nitrate (as N)	5.0		Emmett (unpublished)
702300631	19/02/1979	95196	Nitrate (as N)	2.8		SAGEODATA
702300631	6/06/1979	5122-79	Nitrate (as NO3)	11.0		DWLBC Microfiche
702300631	1/03/1981		Nitrate (as NO3)	4.0		DWLBC Microfiche
702300636	8/03/1979	95197	Nitrate (as N)	9.8		SAGEODATA
702300636	4/06/1979	5122-79	Nitrate (as NO3)	45.0		DWLBC Microfiche
702300640	1/03/1981		Nitrate (as NO3)	19.3		DWLBC Microfiche
702300640	19/10/1982	7844	Nitrate (as N)	13.7		EPA Laboratory reports
702300667	20/10/1982		Nitrate (as NO3)	65.3		DWLBC Microfiche
702300667	6/11/1985	04 85 08643	Nitrate (as N)	12.3		DWLBC Microfiche
702300667	8/08/2003		Nitrate (as NO3)	54.0		This study
702300689	26/10/1982		Nitrate (as NO3)	56.0		DWLBC Microfiche
702300689	7/11/1985	04 85 08644	Nitrate (as N)	1.6		DWLBC Microfiche
702300696	1/03/1981		Nitrate (as NO3)	4.5		DWLBC Microfiche
702300696	7/10/1982	7372	Nitrate (as N)	4.9		EPA Laboratory reports
702300707	22/12/1992		Nitrate + Nitrite (as N)	0.8		DWLBC Microfiche
702300730	1/03/1981		Nitrate (as NO3)	19.0		DWLBC Microfiche
702300730	5/10/1982	7170	Nitrate + Nitrite (as N)	6.4		EPA Laboratory reports
702300752	6/06/1979	5122-79	Nitrate (as NO3)	1.0	Less than	DWLBC Microfiche
702300752	1/03/1981		Nitrate (as NO3)	0.6		DWLBC Microfiche
702300752	6/10/1982	7373	Nitrate (as N)	0.2		EPA Laboratory reports
702300767	7/11/1985	04 85 08645	Nitrate (as N)	10.2		DWLBC Microfiche
702300769	1/03/1981		Nitrate (as NO3)	34.7		DWLBC Microfiche
702300769	19/10/1982		Nitrate (as NO3)	52.7		DWLBC Microfiche
702300769	1/11/1985		Nitrate (as N)	10.2		MacKenzie and Stadter (1981) Updated
702300772	1/11/1982		Nitrate (as N)	0.9		MacKenzie and Stadter (1981) Updated

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702300772	6/11/1985	04 85 08646	Nitrate (as N)	0.3		DWLBC Microfiche
702300795	7/06/1982		Nitrate (as NO3)	54.0		DWLBC Microfiche
702300795	1/11/1982		Nitrate (as NO3)	89.9		DWLBC Microfiche
702300795	7/11/1985	04 85 08647	Nitrate (as N)	15.7		DWLBC Microfiche
702300805	17/03/1955	95201	Nitrate (as N)	18.8		SAGEODATA
702300807	28/04/1959	95203	Nitrate (as N)	10.7		SAGEODATA
702300808	29/04/1959	95204	Nitrate (as N)	16.1		SAGEODATA
702300832	25/02/1955	95220	Nitrate (as N)	10.7		SAGEODATA
702300901	28/10/1982		Nitrate (as NO3)	105.4		DWLBC Microfiche
702300901	6/11/1985	04 85 08648	Nitrate (as N)	29.3		DWLBC Microfiche
702300901	15/08/1989		Nitrate (as N)	22.0		MacKenzie and Stadter (1981) Updated
702300901	12/08/2003		Nitrate + Nitrite (as N)	15.0		This study
702300904	28/10/1982		Nitrate (as NO3)	213.4		DWLBC Microfiche
702300904	6/11/1985	04 85 08649	Nitrate (as N)	52.4		DWLBC Microfiche
702300904	15/07/1993	04 93 08799	Nitrate + Nitrite (as N)	51.9		EPA Laboratory reports
702300905	28/10/1982		Nitrate (as NO3)	151.8		DWLBC Microfiche
702300905	7/11/1985	04 85 08650	Nitrate (as N)	36.7		DWLBC Microfiche
702300905	14/08/2003		Nitrate + Nitrite (as N)	22.0		This study
702300906	28/10/1982		Nitrate (as NO3)	306.8		DWLBC Microfiche
702300906	7/11/1985	04 85 08651	Nitrate (as N)	49.5		DWLBC Microfiche
702300906	6/07/1987		Nitrate (as NO3)	241.0		DWLBC Microfiche
702300906	15/08/2003		Nitrate (as NO3)	140.7		This study
702300907	7/11/1985	04 85 08652	Nitrate (as N)	42.4		DWLBC Microfiche
702300908	28/10/1982		Nitrate (as NO3)	87.2		DWLBC Microfiche
702300909	28/10/1982		Nitrate (as NO3)	221.4		DWLBC Microfiche
702300909	7/11/1985	04 85 08653	Nitrate (as N)	79.6		DWLBC Microfiche
702300910	1/11/1982		Nitrate (as NO3)	319.6		DWLBC Microfiche
702300910	7/11/1985	04 85 08655	Nitrate (as N)	50.2		DWLBC Microfiche
702300910	12/08/2003		Nitrate + Nitrite (as N)	26.0		This study
702300911	1/11/1982		Nitrate (as NO3)	1.4		DWLBC Microfiche
702300911	13/08/2003		Nitrate + Nitrite (as N)	44.0		This study
702300912	6/12/1982		Nitrate (as NO3)	221.4		DWLBC Microfiche
702300912	7/11/1985	04 85 08656	Nitrate (as N)	31.5		DWLBC Microfiche
702300913	1/11/1982		Nitrate (as NO3)	224.0		DWLBC Microfiche
702300913	7/11/1985	04 85 08657	Nitrate (as N)	37.5		DWLBC Microfiche
702300913	13/08/2003		Nitrate + Nitrite (as N)	28.0		This study
702300947	1/11/1982		Nitrate (as NO3)	102.7		DWLBC Microfiche
702300947	7/11/1985	04 85 08658	Nitrate (as N)	28.1		DWLBC Microfiche
702300947	12/08/2003		Nitrate + Nitrite (as N)	15.0		This study
702300956	1/11/1982		Nitrate (as N)	10.1		MacKenzie and Stadter (1981) Updated
702300956	7/11/1985	04 85 08659	Nitrate (as N)	11.1		DWLBC Microfiche
702300956	14/08/2003		Nitrate (as NO3)	21.8		This study
702300957	26/10/1982		Nitrate (as NO3)	44.7		DWLBC Microfiche
702300961	26/10/1982		Nitrate (as NO3)	287.3		DWLBC Microfiche
702301344	3/08/1949	9844	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702301345	11/08/1949	9845	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301352	15/09/1949	9986	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301353	1/08/1949	9842	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702301357	28/09/1949	9847	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702301358	28/09/1949	9846	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702301359	14/03/1988		Nitrate + Nitrite (as N)	4.9		DWLBC Microfiche

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702301359	13/03/1989	04 89 03545	Nitrate + Nitrite (as N)	5.8		DWLBC Microfiche
702301359	7/03/1990	04 90 03876	Nitrate + Nitrite (as N)	5.6		DWLBC Microfiche
702301359	9/03/1993	83745	Nitrate + Nitrite (as N)	6.1		SAGEODATA
702301359	18/03/1996	04 96 03529	Nitrate + Nitrite (as N)	6.7		DWLBC Microfiche
702301359	6/03/2002	556611	Nitrate + Nitrite (as N)	6.1		SAGEODATA
702301359	30/07/2003		Nitrate + Nitrite (as N)	6.5		This study
702301370	1/03/1962	w919/62	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301380	7/03/1962	w1142/62	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301386	26/05/1960	w1219/60	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301387	26/05/1960	w1221/60	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301395	22/01/2004	640306	Nitrate (as N)	9.0		SAGEODATA
702301397	24/05/1960	AR598/60	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702301435	3/04/1968	w.2029/68	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702301436	24/09/1951	w2128/51	Nitrate (as NO3)	228.7		DWLBC Microfiche
702301449	9/10/1958	w1772/58	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301450	19/08/1952	w2568/52	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702301454	26/02/1957	w865/57	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301454	27/10/1982		Nitrate (as NO3)	41.8		DWLBC Microfiche
702301454	6/11/1985	04 85 08660	Nitrate (as N)	6.6		DWLBC Microfiche
702301463	19/08/1952	w2567/52	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301464	27/11/1972	w4075/72	Nitrate (as NO3)	34.0		DWLBC Microfiche
702301464	8/03/1979	95418	Nitrate (as N)	11.2		SAGEODATA
702301464	4/06/1979	5122-79	Nitrate (as NO3)	50.0		DWLBC Microfiche
702301464	1/03/1981		Nitrate (as NO3)	46.5		DWLBC Microfiche
702301464	19/10/1982	7851	Nitrate (as N)	16.8		EPA Laboratory reports
702301466	19/10/1982		Nitrate (as NO3)	90.8		DWLBC Microfiche
702301466	7/11/1985	04 85 08661	Nitrate (as N)	11.4		DWLBC Microfiche
702301472	6/06/1979	5122-79	Nitrate (as NO3)	3.0		DWLBC Microfiche
702301472	1/03/1981		Nitrate (as NO3)	2.9		DWLBC Microfiche
702301472	5/10/1982	7171	Nitrate + Nitrite (as N)	1.7		EPA Laboratory reports
702301477	22/02/1957	w869/57	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301483	19/10/1982		Nitrate (as NO3)	12.8		DWLBC Microfiche
702301484	8/03/1979	95420	Nitrate (as N)	2.8		SAGEODATA
702301484	6/06/1979	5122-79	Nitrate (as NO3)	13.0		DWLBC Microfiche
702301484	1/03/1981		Nitrate (as NO3)	4.5		DWLBC Microfiche
702301484	7/10/1982	7374	Nitrate (as N)	2.7		EPA Laboratory reports
702301487	20/09/1951	w2126/51	Nitrate (as NO3)	52.0		DWLBC Microfiche
702301488	24/02/1998	376173	Nitrate (as N)	3.8		SAGEODATA
702301488	14/08/2003		Nitrate + Nitrite (as N)	3.3		This study
702301490	8/06/1979	5122-79	Nitrate (as NO3)	13.0		DWLBC Microfiche
702301490	1/03/1981		Nitrate (as NO3)	12.0		DWLBC Microfiche

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702301494	26/08/1953	w1905/53	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301494	1/03/1981		Nitrate (as NO3)	5.9		DWLBC Microfiche
702301494	19/10/1982		Nitrate (as NO3)	8.5		DWLBC Microfiche
702301495	20/02/1957	w870/57	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301501	28/03/1968	w1951/68	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702301504	6/04/1955	w816/55	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702301506	18/02/1957	w871/57	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301507	12/04/1955	w1080/55	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702301525	6/11/1968	2172-79	Nitrate (as NO3)	4.0		DWLBC Microfiche
702301525	7/11/1978	95429	Nitrate (as N)	1.4		SAGEODATA
702301528	5/04/1955	w584/55	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702301536	25/05/1950	w1070/50	Nitrate (as NO3)	54.9		DWLBC Microfiche
702301545	21/05/1971	w1965/71	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702301558	1/03/1981		Nitrate (as NO3)	25.2		DWLBC Microfiche
702301558	7/10/1982	7375	Nitrate (as N)	6.0		EPA Laboratory reports
702301561	27/10/1982		Nitrate (as NO3)	55.3		DWLBC Microfiche
702301561	7/11/1985	04 85 08662	Nitrate (as N)	10.9		DWLBC Microfiche
702301561	5/08/2003		Nitrate + Nitrite (as N)	7.7		This study
702301562	5/08/2003		Nitrate + Nitrite (as N)	12.0		This study
702301564	19/09/1951	w2133/51	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702301566	6/07/1999	428261	Nitrate (as N)	0.6		SAGEODATA
702301567	5/02/1996		Nitrate (as N)	0.5		Schmidt et. al (1996)
702301570	19/09/1962	an1/4/0-1618	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702301574	10/04/1971	w2772/71	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702301575	5/01/1951	w.2247/50	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702301577	8/10/1952	w2560-52	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702301578	1/10/1938	513/38	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702301593	30/10/1950	w2246/50	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702301593	2/11/1950	w2053/50	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702301637	27/09/1976	w4894/76	Nitrate (as NO3)	11.0		DWLBC Microfiche
702301637	13/09/1977		Nitrate (as N)	0.3		Emmett (unpublished)
702301637	1/03/1981		Nitrate (as NO3)	0.1	Less than	DWLBC Microfiche
702301637	5/10/1982	7172	Nitrate + Nitrite (as N)	0.0	Less than	EPA Laboratory reports
702301637	14/03/1988		Nitrate + Nitrite (as N)	0.0	Less than	DWLBC Microfiche
702301637	6/03/1989	04 89 03174	Nitrate + Nitrite (as N)	0.0	Less than	DWLBC Microfiche
702301637	7/03/1990	04 90 03868	Nitrate + Nitrite (as N)	0.0		DWLBC Microfiche
702301637	15/03/1993	04 93 03611	Nitrate + Nitrite (as N)	0.0		DWLBC Microfiche
702301637	18/03/1996	04 96 03528	Nitrate + Nitrite (as N)	0.0	Less than	DWLBC Microfiche
702301637	6/03/2002	556579	Nitrate + Nitrite (as N)	0.0	Less than	SAGEODATA

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702301637	14/08/2003		Nitrate + Nitrite (as N)	0.0		This study
702301656	26/05/1981		Nitrate (as NO3)	31.4		DWLBC Microfiche
702301656	2/12/1981		Nitrate (as NO3)	30.6		DWLBC Microfiche
702301793	15/03/1981		Nitrate (as N)	0.4		MacKenzie and Stadter (1981) Updated
702301793	7/10/1982	7376	Nitrate (as N)	0.5		EPA Laboratory reports
702301793	14/03/1988		Nitrate + Nitrite (as N)	0.4		DWLBC Microfiche
702301884	25/10/1982		Nitrate (as NO3)	1.2		DWLBC Microfiche
702301885	25/10/1982		Nitrate (as NO3)	5.6		DWLBC Microfiche
702301885	6/11/1985	04 85 08663	Nitrate (as N)	1.3		DWLBC Microfiche
702301886	26/10/1982		Nitrate (as NO3)	93.4		DWLBC Microfiche
702301886	7/11/1985	04 85 08664	Nitrate (as N)	26.1		DWLBC Microfiche
702301886	29/07/2003		Nitrate + Nitrite (as N)	13.0		This study
702301887	1/11/1982		Nitrate (as NO3)	159.4		DWLBC Microfiche
702301888	2/11/1982		Nitrate (as NO3)	77.0		DWLBC Microfiche
702301888	6/11/1985	04 85 08665	Nitrate (as N)	14.5		DWLBC Microfiche
702301888	1/08/2003		Nitrate + Nitrite (as N)	20.0		This study
702301889	2/11/1982		Nitrate (as NO3)	56.2		DWLBC Microfiche
702302538	6/11/1985	04 85 0666	Nitrate (as N)	18.2		DWLBC Microfiche
702302604	28/10/1982		Nitrate (as NO3)	57.2		DWLBC Microfiche
702302604	7/11/1985	04 85 08667	Nitrate (as N)	11.4		DWLBC Microfiche
702302604	15/08/2003		Nitrate (as NO3)	90.1		This study
702302605	5/06/1979	w2984/79	Nitrate (as NO3)	45.0		DWLBC Microfiche
702302605	1/03/1981		Nitrate (as NO3)	37.6		DWLBC Microfiche
702302605	5/10/1982	7173	Nitrate + Nitrite (as N)	9.9		EPA Laboratory reports
702302605	15/07/1993	04 93 08800	Nitrate + Nitrite (as N)	7.0		EPA Laboratory reports
702302607	20/10/1982		Nitrate (as NO3)	65.5		DWLBC Microfiche
702302611	29/10/1975		Nitrate (as N)	14.4		Emmett (unpublished)
702302611	13/09/1977		Nitrate (as N)	16.6		Emmett (unpublished)
702302612	1/03/1981		Nitrate (as NO3)	51.2		DWLBC Microfiche
702302612	2/12/1981		Nitrate (as NO3)	78.8		DWLBC Microfiche
702302612	1/11/1982		Nitrate (as N)	22.3		MacKenzie and Stadter (1981) Updated
702302612	7/11/1985	04 85 08668	Nitrate (as N)	19.6		DWLBC Microfiche
702302612	12/08/2003		Nitrate (as NO3)	65.5		This study
702302613	8/11/1973	w5106-73	Nitrate (as NO3)	27.0		DWLBC Microfiche
702302614	1/03/1981		Nitrate (as NO3)	27.0		DWLBC Microfiche
702302614	7/10/1982	7377	Nitrate (as N)	14.6		EPA Laboratory reports
702302624	10/09/1975	6308-14	Nitrate (as N)	2.9		Harvey (unpublished)
702302624	31/03/1976		Nitrate (as N)	0.6		Emmett (unpublished)
702302624	17/02/1993		Nitrate + Nitrite (as N)	0.9		DWLBC Microfiche
702302625	1/03/1981		Nitrate (as NO3)	2.7		DWLBC Microfiche
702302625	19/10/1982		Nitrate (as NO3)	2.5		DWLBC Microfiche
702302625	6/11/1985	04 85 08669	Nitrate (as N)	0.2		DWLBC Microfiche
702302630	1/03/1981		Nitrate (as NO3)	35.4		DWLBC Microfiche
702302630	2/12/1981		Nitrate (as NO3)	38.1		DWLBC Microfiche
702302630	8/10/1982	7378	Nitrate (as N)	9.1		EPA Laboratory reports
702302630	8/08/2003		Nitrate (as NO3)	48.4		This study
702302637	1/03/1981		Nitrate (as NO3)	30.1		DWLBC Microfiche
702302637	20/10/1982		Nitrate (as NO3)	47.9		DWLBC Microfiche
702302637	7/11/1985	04 85 08670	Nitrate (as N)	7.8		DWLBC Microfiche
702302637	18/03/2002	556574	Nitrate + Nitrite (as N)	2.0		SAGEODATA
702302638	1/03/1981		Nitrate (as NO3)	23.9		DWLBC Microfiche
702302638	20/10/1982		Nitrate (as NO3)	32.3		DWLBC Microfiche
702302638	7/11/1985	04 85 08671	Nitrate (as N)	7.4		DWLBC Microfiche

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702302639	1/03/1981		Nitrate (as NO3)	6.4		DWLBC Microfiche
702302639	5/10/1982	7174	Nitrate + Nitrite (as N)	1.5		EPA Laboratory reports
702302640	1/03/1970	w2079/70	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702302642	29/10/1975		Nitrate (as N)	14.1		Emmett (unpublished)
702302642	13/09/1977		Nitrate (as N)	14.5		Emmett (unpublished)
702302642	1/01/1979	95500	Nitrate (as N)	9.8		SAGEODATA
702302642	5/06/1979	w2976/79	Nitrate (as NO3)	48.0		DWLBC Microfiche
702302642	1/03/1981		Nitrate (as NO3)	47.2		DWLBC Microfiche
702302642	5/10/1982	7175	Nitrate + Nitrite (as N)	16.8		EPA Laboratory reports
702302644	18/02/1993		Nitrate + Nitrite (as N)	0.9		DWLBC Microfiche
702302650	20/10/1982		Nitrate (as NO3)	116.4		DWLBC Microfiche
702302650	7/11/1985	04 85 08672	Nitrate (as N)	27.8		DWLBC Microfiche
702302650	18/12/1996	207940	Nitrate (as N)	23.7		SAGEODATA
702302650	30/07/2003		Nitrate + Nitrite (as N)	3.4		This study
702302653	10/09/1975	6308-14	Nitrate (as N)	17.0		Harvey (unpublished)
702302653	31/03/1976		Nitrate (as N)	14.5		Emmett (unpublished)
702302653	13/09/1977		Nitrate (as N)	15.9		Emmett (unpublished)
702302658	1/03/1981		Nitrate (as NO3)	38.1		DWLBC Microfiche
702302659	15/07/1993	04 93 08798	Nitrate + Nitrite (as N)	23.0		EPA Laboratory reports
702302661	1/11/1982	8055	Nitrate (as N)	11.5		EPA Laboratory reports
702302661	7/11/1985	04 85 08673	Nitrate (as N)	7.5		DWLBC Microfiche
702302662	1/03/1981		Nitrate (as NO3)	58.9		DWLBC Microfiche
702302663	27/05/1950	w1076/50	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702302665	21/10/1970	w4759/70	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702302665	1/03/1981		Nitrate (as NO3)	65.5		DWLBC Microfiche
702302665	8/10/1982		Nitrate (as NO3)	81.9		DWLBC Microfiche
702302665	6/11/1985	04 85 08674	Nitrate (as N)	11.8		DWLBC Microfiche
702302665	15/08/1989	389019	Nitrate + Nitrite (as N)	10.0		SAGEODATA
702302665	18/03/2002	556584	Nitrate + Nitrite (as N)	1.6		SAGEODATA
702302665	8/08/2003		Nitrate (as NO3)	43.4		This study
702302666	1/03/1981		Nitrate (as NO3)	1.9		DWLBC Microfiche
702302666	2/12/1981		Nitrate (as NO3)	8.0		DWLBC Microfiche
702302666	7/10/1982	7380	Nitrate (as N)	0.2		EPA Laboratory reports
702302669	20/11/1973	5191-73	Nitrate (as NO3)	1.0	Less than	DWLBC Microfiche
702302669	1/03/1981		Nitrate (as NO3)	0.1	Less than	DWLBC Microfiche
702302669	5/10/1982	7176	Nitrate + Nitrite (as N)	0.0	Less than	EPA Laboratory reports
702302670	1/03/1981		Nitrate (as NO3)	8.4		DWLBC Microfiche
702302670	5/10/1982	7177	Nitrate + Nitrite (as N)	0.0		EPA Laboratory reports
702302671	27/10/1982		Nitrate (as NO3)	101.4		DWLBC Microfiche
702302673	1/03/1981		Nitrate (as NO3)	151.8		DWLBC Microfiche
702302673	2/12/1981		Nitrate (as NO3)	171.0		DWLBC Microfiche
702302673	7/10/1982		Nitrate (as NO3)	157.6		DWLBC Microfiche
702302673	5/11/1985	04 85 08676	Nitrate (as N)	27.5		DWLBC Microfiche
702302673	15/08/1989		Nitrate (as N)	19.0		MacKenzie and Stadter (1981) Updated
702302674	1/03/1981		Nitrate (as NO3)	30.1		DWLBC Microfiche
702302674	20/10/1982	7722	Nitrate (as N)	7.1		EPA Laboratory reports
702302675	5/10/1982		Nitrate (as NO3)	48.3		DWLBC Microfiche
702302676	8/02/1971	w1119/71	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702302677	10/02/1971	w1121/71	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702302678	8/08/2003		Nitrate (as NO3)	10.3		This study
702302679	24/02/1993		Nitrate + Nitrite (as N)	19.5		DWLBC Microfiche
702302681	22/11/1973	w5315-73	Nitrate (as NO3)	1.0	Less than	DWLBC Microfiche
702302681	1/03/1981		Nitrate (as NO3)	0.1	Less than	DWLBC Microfiche
702302681	5/10/1982	7178	Nitrate + Nitrite (as N)	0.0	Less than	EPA Laboratory reports
702302685	12/11/1954	w1938/54	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702302690	25/10/1982		Nitrate (as NO3)	1.2		DWLBC Microfiche
702302690	6/11/1985	04 85 08678	Nitrate (as N)	0.8		DWLBC Microfiche
702302691	25/10/1982		Nitrate (as NO3)	4.4		DWLBC Microfiche
702302696	6/09/1951	w2129/51	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702302698	29/10/1975		Nitrate (as N)	0.0	Less than	Emmett (unpublished)
702302698	13/09/1977		Nitrate (as N)	0.4		Emmett (unpublished)
702302700	22/12/1992		Nitrate + Nitrite (as N)	2.5		DWLBC Microfiche
702302702	4/06/1979	w2971/79	Nitrate (as NO3)	1.0		DWLBC Microfiche
702302702	1/03/1981		Nitrate (as NO3)	7.8		DWLBC Microfiche
702302702	18/10/1982	7864	Nitrate (as N)	1.0		EPA Laboratory reports
702302708	8/06/1979	w2978/79	Nitrate (as NO3)	9.0		DWLBC Microfiche
702302708	1/03/1981		Nitrate (as NO3)	11.5		DWLBC Microfiche
702302708	18/10/1982		Nitrate (as NO3)	17.5		DWLBC Microfiche
702302708	18/03/2002	556583	Nitrate + Nitrite (as N)	2.2		SAGEODATA
702302717	27/10/1982		Nitrate (as NO3)	5.6		DWLBC Microfiche
702302723	8/06/1979	w2970/79	Nitrate (as NO3)	6.0		DWLBC Microfiche
702302725	18/09/1951	w2132/51	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702302751	12/10/1951	w2130/51	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702302752	15/01/1952	w15/52	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702302765	7/10/1982		Nitrate (as NO3)	2.4		DWLBC Microfiche
702302765	7/11/1985	04 85 08677	Nitrate (as N)	1.0		DWLBC Microfiche
702302765	18/03/2002	556577	Nitrate + Nitrite (as N)	2.5		SAGEODATA
702302774	1/11/1982		Nitrate (as N)	1.5		MacKenzie and Stadter (1981) Updated
702302774	5/02/1996		Nitrate (as N)	0.7		Schmidt et. al (1996)
702302783	10/09/1975	6308-14	Nitrate (as N)	0.9		Harvey (unpublished)
702302783	13/09/1977		Nitrate (as N)	0.4		Emmett (unpublished)
702302798	1/11/1982		Nitrate (as N)	27.2		MacKenzie and Stadter (1981) Updated
702302799	20/10/1982		Nitrate (as NO3)	187.3		DWLBC Microfiche
702302799	7/11/1985	04 85 08679	Nitrate (as N)	37.1		DWLBC Microfiche
702302799	5/08/2003		Nitrate + Nitrite (as N)	5.5		This study
702302800	1/03/1981		Nitrate (as NO3)	101.8		DWLBC Microfiche
702302800	5/10/1982	7179	Nitrate + Nitrite (as N)	28.2		EPA Laboratory reports
702302800	5/11/1985	04 85 08680	Nitrate (as N)	26.4		DWLBC Microfiche
702302800	1/01/1993		Nitrate (as N)	18.6		Misc EPA files
702302800	18/02/1993		Nitrate + Nitrite (as N)	20.8		DWLBC Microfiche
702302800	9/05/1995		Nitrate (as N)	18.6		MacKenzie and Stadter (1981) Updated
702302800	21/11/1996	1316000	Nitrate + Nitrite (as N)	14.2		EDMS
702302800	26/11/1997	1891477	Nitrate (as N)	17.1		EDMS

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702302800	16/11/1998	1891436	Nitrate (as N)	18.1		EDMS
702302800	11/11/1999	2108671	Nitrate (as N)	17.8		EDMS
702302800	4/12/2000	2108702	Nitrate (as N)	16.3		EDMS
702302800	5/08/2003		Nitrate (as NO3)	82.8		This study
702302802	1/11/1982		Nitrate (as NO3)	48.7		DWLBC Microfiche
702302802	7/11/1985	04 85 08681	Nitrate (as N)	7.5		DWLBC Microfiche
702302802	15/08/1989	389022	Nitrate + Nitrite (as N)	5.7		SAGEODATA
702302810	29/09/1981		Nitrate (as NO3)	21.7		DWLBC Microfiche
702302815	19/10/1982		Nitrate (as NO3)	3.5		DWLBC Microfiche
702302815	6/11/1985	04 85 08682	Nitrate (as N)	2.0		DWLBC Microfiche
702302824	1/11/1982		Nitrate (as NO3)	203.2		DWLBC Microfiche
702302824	15/08/1989	388986	Nitrate + Nitrite (as N)	4.8		SAGEODATA
702302824	8/08/2003		Nitrate (as NO3)	75.3		This study
702302826	29/10/1976	w5368-76	Nitrate (as NO3)	26.0		DWLBC Microfiche
702302826	1/03/1981		Nitrate (as NO3)	3.4		DWLBC Microfiche
702302826	7/10/1982	7383	Nitrate (as N)	0.7		EPA Laboratory reports
702302827	25/10/1976	w5313-76	Nitrate (as NO3)	9.0		DWLBC Microfiche
702302827	1/03/1981		Nitrate (as NO3)	0.1	Less than	DWLBC Microfiche
702302827	5/10/1982	7180	Nitrate + Nitrite (as N)	0.9		EPA Laboratory reports
702302828	5/10/1976	w4906/76	Nitrate (as NO3)	26.0		DWLBC Microfiche
702302828	1/03/1981		Nitrate (as NO3)	5.0		DWLBC Microfiche
702302828	5/10/1982	7181	Nitrate + Nitrite (as N)	6.7		EPA Laboratory reports
702302829	18/10/1976	w5053/76	Nitrate (as NO3)	33.0		DWLBC Microfiche
702302829	8/03/1979	95514	Nitrate (as N)	5.0		SAGEODATA
702302829	13/09/1979	w1923-79	Nitrate (as NO3)	22.0		DWLBC Microfiche
702302829	1/03/1981		Nitrate (as NO3)	32.3		DWLBC Microfiche
702302829	2/12/1981		Nitrate (as NO3)	25.7		DWLBC Microfiche
702302829	5/10/1982	7182	Nitrate + Nitrite (as N)	7.7		EPA Laboratory reports
702302829	5/11/1985	04 85 08683	Nitrate (as N)	7.4		DWLBC Microfiche
702302829	21/03/1996	188266	Nitrate + Nitrite (as N)	13.3		SAGEODATA
702302829	21/11/1996	1316016	Nitrate + Nitrite (as N)	13.0		EDMS
702302829	26/11/1997	1891512	Nitrate (as N)	16.7		EDMS
702302829	16/11/1998	1891480	Nitrate (as N)	15.8		EDMS
702302829	11/11/1999	2108735	Nitrate (as N)	10.2		EDMS
702302829	4/12/2000	2108766	Nitrate (as N)	9.9		EDMS
702302829	6/03/2002	556578	Nitrate + Nitrite (as N)	7.0		SAGEODATA
702302829	8/08/2003		Nitrate (as NO3)	50.2		This study
702302831	7/03/1979	95515	Nitrate (as N)	7.0		SAGEODATA
702302831	4/06/1979	w2973/79	Nitrate (as NO3)	29.0		DWLBC Microfiche
702302831	1/03/1981		Nitrate (as NO3)	10.6		DWLBC Microfiche
702302831	8/10/1982	7384	Nitrate (as N)	6.0		EPA Laboratory reports
702302835	7/03/1979	97757	Nitrate (as N)	2.8		SAGEODATA
702302835	4/06/1979	w2972/79	Nitrate (as NO3)	10.0		DWLBC Microfiche
702302835	1/03/1981		Nitrate (as NO3)	14.6		DWLBC Microfiche
702302835	18/10/1982	7870	Nitrate (as N)	4.5		EPA Laboratory reports
702302842	21/05/1998	383428	Nitrate (as N)	11.0		SAGEODATA
702302845	25/10/1982		Nitrate (as NO3)	93.4		DWLBC Microfiche
702302845	6/11/1985	04 85 08686	Nitrate (as N)	14.5		DWLBC Microfiche
702302845	1/08/2003		Nitrate + Nitrite (as N)	11.0		This study
702302846	7/03/1979	95516	Nitrate (as N)	18.2		SAGEODATA
702302846	5/06/1979	w2967/79	Nitrate (as NO3)	82.0		DWLBC Microfiche
702302846	1/03/1981		Nitrate (as NO3)	72.9		DWLBC Microfiche
702302846	25/10/1982		Nitrate (as NO3)	98.7		DWLBC Microfiche
702302846	6/11/1985	04 85 08684	Nitrate (as N)	13.4		DWLBC Microfiche
702302846	24/08/1989	389053	Nitrate + Nitrite (as N)	13.0		SAGEODATA
702302846	1/08/2003		Nitrate + Nitrite (as N)	7.5		This study
702302847	17/07/1964	w232/64	Nitrate (as NO3)	50.0		DWLBC Microfiche

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702302854	29/10/1975		Nitrate (as N)	30.6		Emmett (unpublished)
702302854	13/09/1977		Nitrate (as N)	35.0		Emmett (unpublished)
702302854	1/01/1979	95518	Nitrate (as N)	28.0		SAGEODATA
702302854	5/06/1979	w2980/79	Nitrate (as NO3)	124.0		DWLBC Microfiche
702302854	1/03/1981		Nitrate (as NO3)	104.0		DWLBC Microfiche
702302854	6/10/1982	7385	Nitrate (as N)	32.8		EPA Laboratory reports
702302854	5/11/1985	04 85 08683	Nitrate (as N)	31.4		DWLBC Microfiche
702302854	6/07/1989	04 87 07400	Nitrate (as N)	32.6		DWLBC Microfiche
702302854	15/08/1989		Nitrate (as N)	24.0		MacKenzie and Stadter (1981) Updated
702302854	18/02/1993		Nitrate + Nitrite (as N)	22.4		DWLBC Microfiche
702302854	9/05/1995		Nitrate (as N)	2.5		MacKenzie and Stadter (1981) Updated
702302854	21/11/1996	1316191	Nitrate + Nitrite (as N)	5.6		EDMS
702302854	26/11/1997	1891559	Nitrate (as N)	1.0		EDMS
702302854	16/11/1998	1891534	Nitrate (as N)	5.1		EDMS
702302854	11/11/1999	2108799	Nitrate (as N)	2.7		EDMS
702302854	4/12/2000	2108830	Nitrate (as N)	0.2		EDMS
702302854	30/07/2003		Nitrate + Nitrite (as N)	4.9		This study
702302856	20/10/1982		Nitrate (as NO3)	41.1		DWLBC Microfiche
702302856	6/11/1985	04 85 08708	Nitrate (as N)	13.1		DWLBC Microfiche
702302856	15/08/1989	389020	Nitrate + Nitrite (as N)	8.8		SAGEODATA
702302856	30/07/2003		Nitrate + Nitrite (as N)	8.7		This study
702302861	1/01/1979	98331	Nitrate (as N)	7.0		SAGEODATA
702302861	5/06/1979	w2381/79	Nitrate (as NO3)	34.0		DWLBC Microfiche
702302861	1/03/1981		Nitrate (as NO3)	27.0		DWLBC Microfiche
702302861	7/10/1982	7386	Nitrate (as N)	7.1		EPA Laboratory reports
702302863	26/05/1981		Nitrate (as NO3)	259.0		DWLBC Microfiche
702302868	2/04/1959	w899/59	Nitrate (as NO3)	51.3		DWLBC Microfiche
702302869	3/09/1968	w4186/68	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702302869	1/03/1981		Nitrate (as NO3)	51.4		DWLBC Microfiche
702302869	15/12/1981		Nitrate (as N)	13.3		MacKenzie and Stadter (1981) Updated
702302869	8/10/1982		Nitrate (as NO3)	45.2		DWLBC Microfiche
702302869	6/11/1985	04 85 08709	Nitrate (as N)	12.0		DWLBC Microfiche
702302869	18/03/2002	556575	Nitrate + Nitrite (as N)	9.4		SAGEODATA
702302869	8/08/2003		Nitrate (as NO3)	23.6		This study
702302876	1/03/1981		Nitrate (as NO3)	46.9		DWLBC Microfiche
702302876	8/10/1982		Nitrate (as NO3)	88.1		DWLBC Microfiche
702302876	6/11/1985	04 85 08689	Nitrate (as N)	20.5		DWLBC Microfiche
702302876	8/08/2003		Nitrate (as NO3)	12.6		This study
702302877	1/03/1981		Nitrate (as NO3)	26.7		DWLBC Microfiche
702302877	20/10/1982		Nitrate (as NO3)	38.5		DWLBC Microfiche
702302877	6/11/1985		Nitrate (as N)	4.0		Misc EPA files
702302877	18/03/2002	556576	Nitrate + Nitrite (as N)	5.6		SAGEODATA
702302877	14/08/2003		Nitrate (as NO3)	11.2		This study
702302879	2/04/1955	w797/55	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702302880	4/04/1955	w798/55	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702302881	1/03/1981		Nitrate (as NO3)	26.6		DWLBC Microfiche
702302881	8/10/1982		Nitrate (as NO3)	19.2		DWLBC Microfiche
702302881	6/11/1985		Nitrate + Nitrite (as N)	4.1		DWLBC Microfiche
702302882	25/10/1982		Nitrate (as NO3)	47.4		DWLBC Microfiche

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702302885	25/10/1982	7874	Nitrate (as N)	7.0		EPA Laboratory reports
702302897	1/01/1979	95523	Nitrate (as N)	1.4		SAGEODATA
702302897	6/06/1979	w2985/79	Nitrate (as NO3)	5.0		DWLBC Microfiche
702302897	1/03/1981		Nitrate (as NO3)	8.0		DWLBC Microfiche
702302897	6/10/1982	7390	Nitrate (as N)	3.0		EPA Laboratory reports
702302905	25/03/1975	w3139/75	Nitrate (as NO3)	29.0		DWLBC Microfiche
702302905	10/08/1976	w3508/76	Nitrate (as NO3)	9.0		DWLBC Microfiche
702302905	13/09/1979	w1922-79	Nitrate (as NO3)	1.0		DWLBC Microfiche
702302909	1/03/1981		Nitrate (as NO3)	12.2		DWLBC Microfiche
702302909	26/05/1981		Nitrate (as NO3)	46.9		DWLBC Microfiche
702302909	2/12/1981		Nitrate (as NO3)	59.5		DWLBC Microfiche
702302909	18/10/1982		Nitrate (as NO3)	28.3		DWLBC Microfiche
702302909	6/11/1985	04 85 08690	Nitrate (as N)	4.6		DWLBC Microfiche
702302909	15/04/2002	556645	Nitrate + Nitrite (as N)	0.7		SAGEODATA
702302913	29/12/1998	398432	Nitrate (as N)	0.5		SAGEODATA
702302920	18/10/1982		Nitrate (as NO3)	7.9		DWLBC Microfiche
702302920	18/03/1987		Nitrate (as NO3)	2.8		DWLBC Microfiche
702302920	14/03/1988		Nitrate + Nitrite (as N)	0.2		DWLBC Microfiche
702302920	9/03/1989	04 89 03184	Nitrate + Nitrite (as N)	0.5		DWLBC Microfiche
702302920	7/03/1990	04 90 03880	Nitrate + Nitrite (as N)	2.3		DWLBC Microfiche
702302920	23/03/1993	04 93 04054	Nitrate + Nitrite (as N)	0.8		DWLBC Microfiche
702302921	1/11/1982		Nitrate (as N)	1.8		MacKenzie and Stadter (1981) Updated
702302921	6/11/1985	04 85 08691	Nitrate (as N)	1.5		DWLBC Microfiche
702302921	19/12/1990		Nitrate (as NO3)	0.6		DWLBC Microfiche
702302921	18/03/1996	04 96 03526	Nitrate + Nitrite (as N)	1.3		DWLBC Microfiche
702302923	1/04/1947	6143	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702302924	11/02/1948	7008	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702302926	30/10/1967	w13149/67	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702302927	1/11/1967	w3151/67	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702302930	20/02/1947	6051	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702302931	17/03/1947	6081	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702302933	26/02/1947	6052	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702302935	20/10/1954	w1892/54	Nitrate (as NO3)	104.0		DWLBC Microfiche
702302936	26/10/1982		Nitrate (as NO3)	69.1		DWLBC Microfiche
702302936	6/11/1985	04 85 08692	Nitrate (as N)	29.3		DWLBC Microfiche
702302936	31/07/2003		Nitrate + Nitrite (as N)	0.5		This study
702302941	27/09/1954	w1603/54	Nitrate (as NO3)	20.0	Less than (P,T,N)	DWLBC Microfiche
702302942	27/09/1954	w1604/54	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702302942	11/10/1956	w1975/56	Nitrate (as NO3)	49.9		DWLBC Microfiche
702302943	12/10/1956	w1976/56	Nitrate (as NO3)	122.6		DWLBC Microfiche
702302944	13/10/1956	w1977/56	Nitrate (as NO3)	183.8		DWLBC Microfiche
702302945	15/10/1956	w1978/56	Nitrate (as NO3)	5.0	Less than (P,T,N)	DWLBC Microfiche
702302946	28/09/1951	w13/52	Nitrate (as NO3)	20.0	Greater than (P,T,N)	DWLBC Microfiche
702302957	1/01/1979	95536	Nitrate (as N)	8.5		SAGEODATA
702302957	5/06/1979	w2979/79	Nitrate (as NO3)	35.0		DWLBC Microfiche
702302957	1/03/1981		Nitrate (as NO3)	32.8		DWLBC Microfiche
702302957	6/10/1982	7391	Nitrate (as N)	8.2		EPA Laboratory reports

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702302964	10/09/1975	6308-14	Nitrate (as N)	3.6		Harvey (unpublished)
702302964	31/03/1976		Nitrate (as N)	17.0		Emmett (unpublished)
702302964	13/09/1977		Nitrate (as N)	19.1		Emmett (unpublished)
702302964	1/01/1979	95537	Nitrate (as N)	16.8		SAGEODATA
702302964	5/06/1979	w2982/79	Nitrate (as NO3)	77.0		DWLBC Microfiche
702302964	1/03/1981		Nitrate (as NO3)	77.6		DWLBC Microfiche
702302964	6/10/1982	7392	Nitrate (as N)	25.7		EPA Laboratory reports
702302964	5/11/1985	04 85 08693	Nitrate (as N)	22.5		DWLBC Microfiche
702302964	18/02/1993		Nitrate + Nitrite (as N)	1.2		DWLBC Microfiche
702302964	9/05/1995		Nitrate (as N)	15.0		MacKenzie and Stadter (1981) Updated
702302964	21/11/1996	1316053	Nitrate + Nitrite (as N)	16.3		EDMS
702302964	26/11/1997	1891620	Nitrate (as N)	12.3		EDMS
702302964	16/11/1998	1891580	Nitrate (as N)	14.4		EDMS
702302964	11/11/1999	2108863	Nitrate (as N)	12.1		EDMS
702302964	4/12/2000	2108894	Nitrate (as N)	11.9		EDMS
702302964	31/07/2003		Nitrate + Nitrite (as N)	11.0		This study
702302971	1/01/1993		Nitrate (as N)	1.2		Schmidt et. al (1996)
702302974	10/09/1975	6308-14	Nitrate (as N)	3.6		Harvey (unpublished)
702302974	31/03/1976		Nitrate (as N)	4.8		Emmett (unpublished)
702302974	13/09/1977		Nitrate (as N)	6.3		Emmett (unpublished)
702302974	1/01/1979	95538	Nitrate (as N)	1.4		SAGEODATA
702302974	4/06/1979	w2983/79	Nitrate (as NO3)	9.0		DWLBC Microfiche
702302974	1/03/1981		Nitrate (as NO3)	7.3		DWLBC Microfiche
702302974	6/10/1982	7393	Nitrate (as N)	2.4		EPA Laboratory reports
702302974	1/01/1993		Nitrate (as N)	0.6		Misc EPA files
702302974	9/05/1995		Nitrate (as N)	0.6		MacKenzie and Stadter (1981) Updated
702302974	21/11/1996	1316089	Nitrate + Nitrite (as N)	0.7		EDMS
702302979	29/09/1981		Nitrate (as NO3)	36.7		DWLBC Microfiche
702302979	26/10/1982		Nitrate (as NO3)	44.7		DWLBC Microfiche
702302979	6/11/1985	04 85 08694	Nitrate (as N)	7.4		DWLBC Microfiche
702302981	26/05/1981		Nitrate (as NO3)	143.0		DWLBC Microfiche
702302981	25/10/1982		Nitrate (as NO3)	144.8		DWLBC Microfiche
702302981	6/11/1985	04 85 08654	Nitrate (as N)	21.3		DWLBC Microfiche
702302981	12/08/2003		Nitrate (as NO3)	150.6		This study
702302991	7/03/1979	97758	Nitrate (as N)	4.2		SAGEODATA
702302991	6/06/1979	w2990/79	Nitrate (as NO3)	18.0		DWLBC Microfiche
702302991	1/03/1981		Nitrate (as NO3)	32.3		DWLBC Microfiche
702302991	6/10/1982	7394	Nitrate (as N)	7.7		EPA Laboratory reports
702302992	10/09/1975	6308-14	Nitrate (as N)	0.3		Harvey (unpublished)
702302992	31/03/1976		Nitrate (as N)	0.9		Emmett (unpublished)
702302992	8/06/1979	w2991/79	Nitrate (as NO3)	1.0	Less than	DWLBC Microfiche
702302992	1/03/1981		Nitrate (as NO3)	0.8		DWLBC Microfiche
702302992	6/10/1982	7395	Nitrate (as N)	0.0		EPA Laboratory reports
702302992	28/05/1986	470474	Nitrate + Nitrite (as N)	0.1		SAGEODATA
702302993	7/03/1979	95540	Nitrate (as N)	1.4		SAGEODATA
702302993	6/06/1979	w2993/79	Nitrate (as NO3)	4.0		DWLBC Microfiche
702302993	1/03/1981		Nitrate (as NO3)	2.0		DWLBC Microfiche
702302993	18/10/1982		Nitrate (as NO3)	25.6		DWLBC Microfiche
702302993	6/11/1985	04 85 08695	Nitrate (as N)	10.4		DWLBC Microfiche
702302993	28/08/1996	203321	Nitrate (as N)	1.5		SAGEODATA

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702302997	11/01/1977	w1305/77	Nitrate (as NO3)	7.0		DWLBC Microfiche
702302997	1/03/1981		Nitrate (as NO3)	34.5		DWLBC Microfiche
702302997	6/10/1982	7396	Nitrate (as N)	9.1		EPA Laboratory reports
702302997	5/11/1985	04 85 08696	Nitrate (as N)	8.3		DWLBC Microfiche
702302998	17/11/1976	w5517/76	Nitrate (as NO3)	13.0		DWLBC Microfiche
702302998	1/03/1981		Nitrate (as NO3)	0.1	Less than	DWLBC Microfiche
702302998	6/10/1982	7397	Nitrate + Nitrite (as N)	0.0	Less than	EPA Laboratory reports
702302999	4/11/1976	w5658/76	Nitrate (as NO3)	4.0		DWLBC Microfiche
702303000	6/12/1976	w6139/76	Nitrate (as NO3)	41.0		DWLBC Microfiche
702303000	1/03/1981		Nitrate (as NO3)	54.9		DWLBC Microfiche
702303000	2/12/1981		Nitrate (as NO3)	72.2		DWLBC Microfiche
702303000	6/10/1982	7398	Nitrate (as N)	14.6		EPA Laboratory reports
702303000	31/07/2003		Nitrate + Nitrite (as N)	11.0		This study
702303602	1/03/1981		Nitrate (as NO3)	2.9		DWLBC Microfiche
702303602	7/10/1982	7399	Nitrate (as N)	0.9		EPA Laboratory reports
702303603	1/03/1981		Nitrate (as NO3)	9.8		DWLBC Microfiche
702303603	18/10/1982	7881	Nitrate (as N)	3.2		EPA Laboratory reports
702303604	15/03/1981		Nitrate (as N)	0.4		MacKenzie and Stadter (1981) Updated
702303604	7/02/1983		Nitrate (as NO3)	0.0	Less than	DWLBC Microfiche
702303606	1/03/1981		Nitrate (as NO3)	39.0		DWLBC Microfiche
702303606	26/10/1982		Nitrate (as NO3)	74.4		DWLBC Microfiche
702303606	1/11/1985		Nitrate (as N)	14.3		MacKenzie and Stadter (1981) Updated
702303606	15/08/1989		Nitrate (as N)	16.0		MacKenzie and Stadter (1981) Updated
702303606	15/07/1993	04 93 08795	Nitrate + Nitrite (as N)	22.1		EPA Laboratory reports
702303606	15/08/2003		Nitrate (as NO3)	123.6		This study
702303607	1/03/1981		Nitrate (as NO3)	73.0		DWLBC Microfiche
702303607	19/10/1982	7883	Nitrate (as N)	24.7		EPA Laboratory reports
702303607	7/08/2003		Nitrate + Nitrite (as N)	13.0		This study
702303608	1/03/1981		Nitrate (as NO3)	37.0		DWLBC Microfiche
702303608	19/10/1982		Nitrate (as NO3)	101.4		DWLBC Microfiche
702303608	7/11/1985		Nitrate (as N)	22.4		Misc EPA files
702303608	15/08/1989		Nitrate (as N)	18.0		MacKenzie and Stadter (1981) Updated
702303608	7/08/2003		Nitrate (as NO3)	126.1		This study
702303609	1/03/1981		Nitrate (as NO3)	92.7		DWLBC Microfiche
702303609	19/10/1982		Nitrate (as NO3)	123.1		DWLBC Microfiche
702303609	1/11/1985		Nitrate (as N)	21.5		MacKenzie and Stadter (1981) Updated
702303609	7/08/2003		Nitrate (as NO3)	83.5		This study
702303610	1/03/1981		Nitrate (as NO3)	21.0		DWLBC Microfiche
702303610	18/10/1982	7886	Nitrate (as N)	14.9		EPA Laboratory reports
702303611	1/03/1981		Nitrate (as NO3)	12.4		DWLBC Microfiche
702303611	18/10/1982	7887	Nitrate (as N)	8.9		EPA Laboratory reports
702303612	1/03/1981		Nitrate (as NO3)	25.1		DWLBC Microfiche
702303612	18/10/1982	7888	Nitrate (as N)	18.6		EPA Laboratory reports
702303613	1/03/1981		Nitrate (as NO3)	66.4		DWLBC Microfiche
702303613	26/10/1982	7889	Nitrate (as N)	18.1		EPA Laboratory reports
702303614	19/10/1982		Nitrate (as NO3)	58.0		DWLBC Microfiche
702303614	1/11/1985		Nitrate (as N)	11.8		MacKenzie and Stadter (1981) Updated

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702303614	14/08/2003		Nitrate (as NO3)	79.9		This study
702303615	1/03/1981		Nitrate (as NO3)	74.2		DWLBC Microfiche
702303615	19/10/1982	7891	Nitrate (as N)	25.3		EPA Laboratory reports
702303623	20/03/1996	184651	Nitrate + Nitrite (as N)	0.0		SAGEODATA
702303623	3/04/2002	556580	Nitrate + Nitrite (as N)	0.0	Less than	SAGEODATA
702303624	1/03/1981		Nitrate (as NO3)	62.0		DWLBC Microfiche
702303624	7/10/1982	7400	Nitrate (as N)	14.9		EPA Laboratory reports
702303624	7/08/2003		Nitrate (as NO3)	58.4		This study
702303667	8/08/2003		Nitrate (as NO3)	34.5		This study
702303670	1/11/1982	8058	Nitrate (as N)	19.7		EPA Laboratory reports
702303670	17/02/1993		Nitrate + Nitrite (as N)	11.2		DWLBC Microfiche
702303671	25/10/1982		Nitrate (as NO3)	2.2		DWLBC Microfiche
702303713	18/03/2002	556582	Nitrate + Nitrite (as N)	5.1		SAGEODATA
702303713	29/07/2003		Nitrate + Nitrite (as N)	3.0		This study
702303728	4/05/1983		Nitrate (as NO3)	76.7		DWLBC Microfiche
702303729	4/05/1983		Nitrate (as NO3)	25.3		DWLBC Microfiche
702303762	23/06/1983	04 83 04989	Nitrate (as N)	13.4		EPA Laboratory reports
702303762	6/09/1983	04 83 07267	Nitrate (as N)	0.0	Less than	EPA Laboratory reports
702303762	21/08/1984	04 84 06332	Nitrate + Nitrite (as N)	0.0	Less than	EPA Laboratory reports
702303762	5/11/1985		Nitrate (as N)	0.0		Misc EPA files
702303762	20/03/1995	138306	Nitrate + Nitrite (as N)	0.0	Less than	SAGEODATA
702303762	27/04/2004	643176	Nitrate (as N)	0.2	Less than	SAGEODATA
702303763	8/06/1983	04 83 07361	Nitrate (as N)	10.2		DWLBC Microfiche
702303763	8/09/1983	04 83 07361	Nitrate (as N)	10.2		EPA Laboratory reports
702303763	21/08/1984	04 84 06332	Nitrate + Nitrite (as N)	10.8		EPA Laboratory reports
702303763	5/11/1985	04 85 08702	Nitrate (as N)	14.5		DWLBC Microfiche
702303763	5/02/1993		Nitrate + Nitrite (as N)	10.4		DWLBC Microfiche
702303763	9/05/1995		Nitrate (as N)	10.3		MacKenzie and Stadter (1981) Updated
702303763	21/11/1996	1316261	Nitrate + Nitrite (as N)	8.9		EDMS
702303763	26/11/1997	1891655	Nitrate (as N)	9.5		EDMS
702303763	16/11/1998	1891629	Nitrate (as N)	11.3		EDMS
702303763	27/04/2004	643174	Nitrate (as N)	5.2		SAGEODATA
702303764	6/09/1983	04 83 07270	Nitrate (as N)	0.0	Less than	DWLBC Microfiche
702303764	21/08/1984	04 84 06332	Nitrate + Nitrite (as N)	0.0	Less than	EPA Laboratory reports
702303764	5/11/1985	04 85 08703	Nitrate (as N)	0.0	Less than	DWLBC Microfiche
702303764	29/08/1989	388947	Nitrate + Nitrite (as N)	0.0		SAGEODATA
702303764	27/04/2004	643175	Nitrate (as N)	0.2	Less than	SAGEODATA
702303765	12/07/1983	04 83 05648	Nitrate (as N)	18.7		EPA Laboratory reports
702303765	8/09/1983	04 83 07268	Nitrate (as N)	0.0	Less than	EPA Laboratory reports
702303765	21/08/1984	04 84 06337	Nitrate + Nitrite (as N)	0.0	Less than	EPA Laboratory reports
702303765	5/11/1985		Nitrate (as N)	0.1		Misc EPA files
702303765	27/04/2004	643178	Nitrate (as N)	0.2	Less than	SAGEODATA
702303766	26/07/1983	04 83 06191	Nitrate (as N)	23.0		EPA Laboratory reports
702303766	8/09/1983	04 83 07360	Nitrate (as N)	20.3		DWLBC Microfiche
702303766	21/08/1984	04 84 06334	Nitrate + Nitrite (as N)	19.8		EPA Laboratory reports
702303766	5/11/1985	04 85 08705	Nitrate (as N)	22.6		DWLBC Microfiche

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702303766	5/02/1993		Nitrate + Nitrite (as N)	23.2		DWLBC Microfiche
702303766	21/11/1996	1316126	Nitrate + Nitrite (as N)	23.3		EDMS
702303766	26/11/1997	1891704	Nitrate (as N)	23.0		EDMS
702303766	16/11/1998	1891682	Nitrate (as N)	24.0		EDMS
702303766	4/12/2000	2108931	Nitrate (as N)	22.3		EDMS
702303767	6/09/1983	04 83 07269	Nitrate (as N)	0.0	Less than	DWLBC Microfiche
702303767	21/08/1984	04 84 06336	Nitrate + Nitrite (as N)	0.0	Less than	EPA Laboratory reports
702303767	5/11/1985	04 85 08706	Nitrate (as N)	0.0	Less than	DWLBC Microfiche
702303767	27/04/2004	643177	Nitrate (as N)	0.2	Less than	SAGEODATA
702303806	9/11/1982		Nitrate (as NO3)	335.0		DWLBC Microfiche
702303813	3/12/1982		Nitrate (as NO3)	5.3		DWLBC Microfiche
702303942	1/01/1993		Nitrate (as N)	8.4		Schmidt et. al (1996)
702303943	8/08/2003		Nitrate (as NO3)	10.3		This study
702303952	7/11/1985	04 85 08707	Nitrate (as N)	12.7		DWLBC Microfiche
702303952	15/08/1989		Nitrate (as N)	7.6		MacKenzie and Stadter (1981) Updated
702303969	7/02/1985	198689	Nitrate + Nitrite (as N)	0.0	Less than	SAGEODATA
702303977	22/11/1984		Nitrate (as NO3)	38.5		DWLBC Microfiche
702304005	18/02/1993		Nitrate + Nitrite (as N)	7.4		DWLBC Microfiche
702304094	30/07/2003		Nitrate + Nitrite (as N)	4.9		This study
702304147	13/08/2003		Nitrate + Nitrite (as N)	1.0		This study
702304173	15/07/1993	04 93 08794	Nitrate + Nitrite (as N)	15.5		EPA Laboratory reports
702304188	9/03/1989	04 89 03186	Nitrate + Nitrite (as N)	0.0	Less than	DWLBC Microfiche
702304188	7/03/1990	04 90 03882	Nitrate + Nitrite (as N)	0.1		DWLBC Microfiche
702304188	18/03/1993	04 93 03709	Nitrate + Nitrite (as N)	0.1		DWLBC Microfiche
702304188	18/03/1996	04 96 03525	Nitrate + Nitrite (as N)	0.0	Less than	DWLBC Microfiche
702304188	12/08/2003		Nitrate + Nitrite (as N)	0.0		This study
702304209	4/02/1993		Nitrate + Nitrite (as N)	10.5		DWLBC Microfiche
702304209	29/07/2003		Nitrate + Nitrite (as N)	3.1		This study
702304242	14/02/1998	890052	Nitrate (as NO3)	0.1	Less than	DWLBC Microfiche
702304319	18/02/1993		Nitrate + Nitrite (as N)	0.1		DWLBC Microfiche
702304411	30/07/2003		Nitrate + Nitrite (as N)	2.4		This study
702304416	4/04/1996	188986	Nitrate (as N)	5.2		SAGEODATA
702304416	30/07/2003		Nitrate (as NO3)	58.1		This study
702304485	26/08/1997	363535	Nitrate (as N)	7.6		SAGEODATA
702304513	14/03/1996	04 96 03392	Nitrate + Nitrite (as N)	1.1		DWLBC Microfiche
702304572	29/07/2003		Nitrate + Nitrite (as N)	3.9		This study
702304626	4/02/1993		Nitrate + Nitrite (as N)	10.5		DWLBC Microfiche
702304626	29/07/2003		Nitrate + Nitrite (as N)	3.9		This study
702304659	4/02/1993		Nitrate + Nitrite (as N)	3.1		DWLBC Microfiche
702304891	21/10/1993		Nitrate (as NO3)	31.5		DWLBC Microfiche
702305140	8/05/1995		Nitrate (as N)	0.1		Schmidt et. al (1996)
702305162	24/08/1995		Nitrate (as N)	6.2		Schmidt et. al (1996)
702305164	28/06/1995		Nitrate (as N)	11.6		Schmidt et. al (1996)

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702305165	1/08/1995		Nitrate (as N)	14.8		Schmidt et. al (1996)
702305166	21/06/1995		Nitrate (as N)	4.7		Schmidt et. al (1996)
702305167	17/06/1995		Nitrate (as N)	3.8		Schmidt et. al (1996)
702305168	12/06/1995		Nitrate (as N)	3.8		Schmidt et. al (1996)
702305169	22/08/1995		Nitrate (as N)	0.0		Schmidt et. al (1996)
702305169	13/12/1995		Nitrate (as N)	0.1		Schmidt et. al (1996)
702305170	28/06/1995		Nitrate (as N)	4.6		Schmidt et. al (1996)
702305171	16/05/1995		Nitrate (as N)	3.5		Schmidt et. al (1996)
702305172	1/09/1995		Nitrate (as N)	6.1		Schmidt et. al (1996)
702305173	1/09/1995		Nitrate (as N)	7.5		Schmidt et. al (1996)
702305174	1/09/1995		Nitrate (as N)	9.9		Schmidt et. al (1996)
702305175	25/08/1995		Nitrate (as N)	1.6		Schmidt et. al (1996)
702305178	18/12/1995		Nitrate (as N)	0.5		Schmidt et. al (1996)
702305179	18/12/1995		Nitrate (as N)	0.3		Schmidt et. al (1996)
702305180	11/12/1995		Nitrate (as N)	3.5		Schmidt et. al (1996)
702305184	11/12/1995		Nitrate (as N)	1.6		Schmidt et. al (1996)
702305189	14/12/1995		Nitrate (as N)	3.6		Schmidt et. al (1996)
702305190	6/12/1995		Nitrate (as N)	12.4		Schmidt et. al (1996)
702305190	14/08/2003		Nitrate (as NO3)	213.1		This study
702305195	6/12/1995		Nitrate (as N)	41.2		Schmidt et. al (1996)
702305195	30/07/2003		Nitrate + Nitrite (as N)	15.0		This study
702305199	6/12/1995		Nitrate (as N)	8.1		Schmidt et. al (1996)
702305208	5/02/1996		Nitrate (as N)	0.1		Schmidt et. al (1996)
702305212	5/02/1996		Nitrate (as N)	0.3		Schmidt et. al (1996)
702305213	5/02/1996		Nitrate (as N)	3.8		Schmidt et. al (1996)
702305221	2/04/1996		Nitrate (as N)	1.1		Schmidt et. al (1996)
702305222	2/04/1996		Nitrate (as N)	0.1		Schmidt et. al (1996)
702305223	1/04/1996		Nitrate (as N)	0.1		Schmidt et. al (1996)
702305226	15/02/1996		Nitrate (as N)	19.5		Schmidt et. al (1996)
702305243	15/08/1996		Nitrate (as N)	1.7		Schmidt et. al (1996)
702305250	15/02/1996		Nitrate (as N)	0.4		Schmidt et. al (1996)
702305254	9/04/1996		Nitrate (as N)	15.1		Schmidt et. al (1996)
702305255	11/04/1996		Nitrate (as N)	0.2		Schmidt et. al (1996)
702305270	15/08/1996		Nitrate (as N)	7.5		Schmidt et. al (1996)
702305284	28/08/1996		Nitrate (as N)	1.2		Schmidt et. al (1996)
702305285	28/08/1996		Nitrate (as N)	2.7		Schmidt et. al (1996)

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702305289	15/08/1996		Nitrate (as N)	9.2		Schmidt et. al (1996)
702305293	15/08/1996		Nitrate (as N)	13.0		Schmidt et. al (1996)
702305294	15/08/1996		Nitrate (as N)	3.7		Schmidt et. al (1996)
702305300	15/08/1996		Nitrate (as N)	0.5		Schmidt et. al (1996)
702305301	15/08/1996		Nitrate (as N)	10.7		Schmidt et. al (1996)
702305303	15/08/1996		Nitrate (as N)	0.2		Schmidt et. al (1996)
702305304	15/08/1996		Nitrate (as N)	12.7		Schmidt et. al (1996)
702305305	15/08/1996		Nitrate (as N)	0.3		Schmidt et. al (1996)
702305306	15/08/1996		Nitrate (as N)	0.2		Schmidt et. al (1996)
702305307	15/08/1996		Nitrate (as N)	9.2		Schmidt et. al (1996)
702305308	15/08/1996		Nitrate (as N)	9.6		Schmidt et. al (1996)
702305309	2/10/1996		Nitrate (as N)	0.0		Schmidt et. al (1996)
702305311	2/10/1996		Nitrate (as N)	3.1		Schmidt et. al (1996)
702305315	15/08/1996		Nitrate (as N)	2.2		Schmidt et. al (1996)
702305338	14/11/1996	207904	Nitrate (as N)	0.2		SAGEODATA
702305339	23/12/1996	208361	Nitrate (as N)	16.1		SAGEODATA
702305345	20/12/1996	208282	Nitrate (as N)	0.4		SAGEODATA
702305346	20/12/1996	208280	Nitrate (as N)	0.4		SAGEODATA
702305347	19/12/1996	208265	Nitrate (as N)	8.3		SAGEODATA
702305348	18/12/1996	207923	Nitrate (as N)	0.1		SAGEODATA
702305349	14/11/1996	207892	Nitrate (as N)	0.2		SAGEODATA
702305351	2/10/1996	207886	Nitrate (as N)	10.3		SAGEODATA
702305363	18/12/1996	207924	Nitrate (as N)	0.1		SAGEODATA
702305365	18/12/1996	207926	Nitrate (as N)	9.5		SAGEODATA
702305377	20/03/1997	212371	Nitrate (as N)	0.4		SAGEODATA
702305379	18/02/1997	210056	Nitrate (as N)	15.9		SAGEODATA
702305380	20/03/1997	212380	Nitrate (as N)	0.2		SAGEODATA
702305390	8/05/1997	216351	Nitrate (as N)	0.5		SAGEODATA
702305396	18/02/1997	210077	Nitrate (as N)	1.3		SAGEODATA
702305397	30/01/1997	209145	Nitrate (as N)	0.2		SAGEODATA
702305398	30/01/1997	209155	Nitrate (as N)	0.1		SAGEODATA
702305399	9/05/1997	368046	Nitrate (as N)	1.3		SAGEODATA
702305400	9/05/1997	368300	Nitrate (as N)	0.2		SAGEODATA
702305401	18/02/1997	210046	Nitrate (as N)	3.1		SAGEODATA
702305402	18/02/1997	210047	Nitrate (as N)	2.1		SAGEODATA
702305403	18/02/1997	210048	Nitrate (as N)	2.0		SAGEODATA
702305404	20/03/1997	212364	Nitrate (as N)	0.0		SAGEODATA
702305422	23/06/1997	368333	Nitrate (as N)	1.4		SAGEODATA
702305423	23/06/1997	368335	Nitrate (as N)	5.0		SAGEODATA
702305426	23/06/1997	368342	Nitrate (as N)	13.9		SAGEODATA
702305429	23/06/1997	368359	Nitrate (as N)	0.3		SAGEODATA
702305444	22/09/1997	368775	Nitrate (as N)	0.0		SAGEODATA
702305450	26/08/1997	363556	Nitrate (as N)	0.1		SAGEODATA
702305451	26/08/1997	363571	Nitrate (as N)	0.3		SAGEODATA
702305453	26/08/1997	363560	Nitrate (as N)	0.0		SAGEODATA
702305456	14/07/1997	368426	Nitrate (as N)	8.9		SAGEODATA
702305457	14/07/1997	368428	Nitrate (as N)	16.9		SAGEODATA
702305458	14/07/1997	368399	Nitrate (as N)	11.7		SAGEODATA
702305459	14/07/1997	368407	Nitrate (as N)	3.8		SAGEODATA
702305462	14/07/1997	368403	Nitrate (as N)	0.1		SAGEODATA
702305463	2/10/1997	368857	Nitrate (as N)	3.6		SAGEODATA
702305464	14/07/1997	368398	Nitrate (as N)	3.3		SAGEODATA
702305466	22/09/1997	368733	Nitrate (as N)	0.3		SAGEODATA
702305469	25/09/1997	368789	Nitrate (as N)	15.0		SAGEODATA
702305481	10/11/1992	368880	Nitrate (as N)	1.4		SAGEODATA
702305482	22/01/1998	372099	Nitrate (as N)	3.2		SAGEODATA
702305488	10/11/1997	368875	Nitrate (as N)	0.1		SAGEODATA
702305489	2/10/1997	368846	Nitrate (as N)	0.1		SAGEODATA

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702305490	10/11/1997	368877	Nitrate (as N)	5.7		SAGEODATA
702305491	10/11/1997	368879	Nitrate (as N)	6.2		SAGEODATA
702305499	10/11/1997	368874	Nitrate (as N)	7.4		SAGEODATA
702305500	30/12/1997	372222	Nitrate (as N)	2.6		SAGEODATA
702305503	30/12/1997	372218	Nitrate (as N)	0.0		SAGEODATA
702305505	31/12/1997	372183	Nitrate (as N)	5.7		SAGEODATA
702305506	30/12/1997	372210	Nitrate (as N)	18.6		SAGEODATA
702305507	30/12/1997	372208	Nitrate (as N)	1.8		SAGEODATA
702305508	31/12/1997	372170	Nitrate (as N)	1.4		SAGEODATA
702305511	22/01/1998	372106	Nitrate (as N)	3.9		SAGEODATA
702305512	22/01/1998	372114	Nitrate (as N)	1.5		SAGEODATA
702305513	6/02/1998	372798	Nitrate (as N)	2.8		SAGEODATA
702305519	24/02/1998	376170	Nitrate (as N)	8.3		SAGEODATA
702305520	24/04/1998	379782	Nitrate (as N)	2.3		SAGEODATA
702305528	21/05/1998	383440	Nitrate (as N)	0.1		SAGEODATA
702305535	20/03/1998	383333	Nitrate (as N)	2.1		SAGEODATA
702305536	20/03/1998	383345	Nitrate (as N)	0.2		SAGEODATA
702305537	20/03/1998	383346	Nitrate (as N)	11.5		SAGEODATA
702305538	20/03/1998	383344	Nitrate (as N)	4.1		SAGEODATA
702305541	21/05/1998	383441	Nitrate (as N)	3.2		SAGEODATA
702305542	10/07/1998	385144	Nitrate (as N)	0.0		SAGEODATA
702305550	10/07/1998	385158	Nitrate (as N)	3.5		SAGEODATA
702305554	10/07/1998	385140	Nitrate (as N)	1.5		SAGEODATA
702305587	21/05/1998	383424	Nitrate (as N)	3.4		SAGEODATA
702305604	12/08/2003		Nitrate (as NO3)	121.6		This study
702305622	2/09/1998	388834	Nitrate (as N)	0.2		SAGEODATA
702305624	2/09/1998	388816	Nitrate (as N)	0.1		SAGEODATA
702305625	5/08/1998	386186	Nitrate (as N)	12.3		SAGEODATA
702305628	2/09/1998	388837	Nitrate (as N)	1.5		SAGEODATA
702305629	5/08/1998	386170	Nitrate (as N)	0.0		SAGEODATA
702305630	5/08/1998	386179	Nitrate (as N)	0.1		SAGEODATA
702305631	2/09/1998	388836	Nitrate (as N)	11.0		SAGEODATA
702305639	2/10/1998	388864	Nitrate (as N)	0.0		SAGEODATA
702305640	2/09/1998	388803	Nitrate (as N)	0.1		SAGEODATA
702305641	2/10/1998	388872	Nitrate (as N)	0.3		SAGEODATA
702305642	2/09/1998	388800	Nitrate (as N)	9.0		SAGEODATA
702305645	29/12/1998	398352	Nitrate (as N)	2.4		SAGEODATA
702305646	9/10/1998	388982	Nitrate (as N)	1.5		SAGEODATA
702305647	29/12/1998	398395	Nitrate (as N)	0.2		SAGEODATA
702305651	9/10/1998	388968	Nitrate (as N)	6.5		SAGEODATA
702305654	29/12/1998	398422	Nitrate (as N)	7.4		SAGEODATA
702305655	9/10/1998	388992	Nitrate (as N)	0.5		SAGEODATA
702305656	29/12/1998	398420	Nitrate (as N)	2.0		SAGEODATA
702305658	29/12/1998	398423	Nitrate (as N)	11.5		SAGEODATA
702305661	30/12/1998	398678	Nitrate (as N)	0.6		SAGEODATA
702305663	30/12/1998	398663	Nitrate (as N)	2.2		SAGEODATA
702305666	30/12/1998	398641	Nitrate (as N)	4.7		SAGEODATA
702305668	30/12/1998	398609	Nitrate (as N)	4.9		SAGEODATA
702305669	30/12/1998	398605	Nitrate (as N)	1.8		SAGEODATA
702305672	30/12/1998	398599	Nitrate (as N)	0.6		SAGEODATA
702305673	29/12/1998	398440	Nitrate (as N)	0.8		SAGEODATA
702305674	30/12/1998	398640	Nitrate (as N)	16.9		SAGEODATA
702305675	30/12/1998	398654	Nitrate (as N)	18.2		SAGEODATA
702305676	29/12/1998	398446	Nitrate (as N)	4.8		SAGEODATA
702305685	19/01/1999	398980	Nitrate (as N)	15.8		SAGEODATA
702305696	15/02/1999	401008	Nitrate (as N)	17.2		SAGEODATA
702305697	16/03/1999	408858	Nitrate (as N)	0.0		SAGEODATA
702305709	16/03/1999	408875	Nitrate (as N)	0.2		SAGEODATA
702305711	16/03/1999	408838	Nitrate (as N)	0.7		SAGEODATA
702305716	14/05/1999	428160	Nitrate (as N)	0.3		SAGEODATA
702305717	14/05/1999	428163	Nitrate (as N)	0.6		SAGEODATA
702305718	19/05/1999	428203	Nitrate (as N)	0.0		SAGEODATA
702305719	14/05/1999	428158	Nitrate (as N)	0.6		SAGEODATA
702305720	14/05/1999	428159	Nitrate (as N)	4.7		SAGEODATA
702305721	14/05/1999	428145	Nitrate (as N)	0.0		SAGEODATA
702305722	19/05/1999	428191	Nitrate (as N)	2.1		SAGEODATA
702305726	14/05/1999	428139	Nitrate (as N)	0.0		SAGEODATA
702305727	14/05/1999	428141	Nitrate (as N)	3.2		SAGEODATA
702305728	14/05/1999	428151	Nitrate (as N)	1.8		SAGEODATA
702305738	8/06/1999	428527	Nitrate (as N)	10.3		SAGEODATA
702305761	14/05/1999	428127	Nitrate (as N)	0.1		SAGEODATA
702305762	14/05/1999	428128	Nitrate (as N)	0.0		SAGEODATA

Bore Number	Sampling Date	Laboratory Report	Analysis	Value (mg/L)	Value Detail	Data Source
702305763	8/06/1999	428531	Nitrate (as N)	9.1		SAGEODATA
702305768	15/02/1999	400996	Nitrate (as N)	0.7		SAGEODATA
702305852	13/08/2003		Nitrate (as NO3)	166.2		This study
702305873	8/08/2003		Nitrate (as NO3)	31.8		This study
702305926	1/08/2003		Nitrate + Nitrite (as N)	1.1		This study

APPENDIX 3 – BORES FOR GROUNDWATER TREND ANALYSIS

This appendix lists the 21 bores that were used in the trend analysis of nitrate concentrations reported in Chapter 3, and presents the individual nitrate trends over time. The bores (with the number of nitrate records in brackets) used in this assessment were as follows, with nitrate concentrations data listed in Appendix 2;

7023-0028	(5)	7023-2829	(15)	7023-2974	(10)
7023-0133	(6)	7023-2846	(7)	7023-2993	(6)
7023-0541	(8)	7023-2854	(17)	7023-3000	(5)
7023-1359	(7)	7023-2869	(7)	7023-3606	(6)
7023-2612	(5)	7023-2877	(5)	7023-3608	(5)
7023-2665	(7)	7023-2909	(6)	7023-3763	(10)
7023-2800	(12)	7023-2964	(15)	7023-3766	(9)

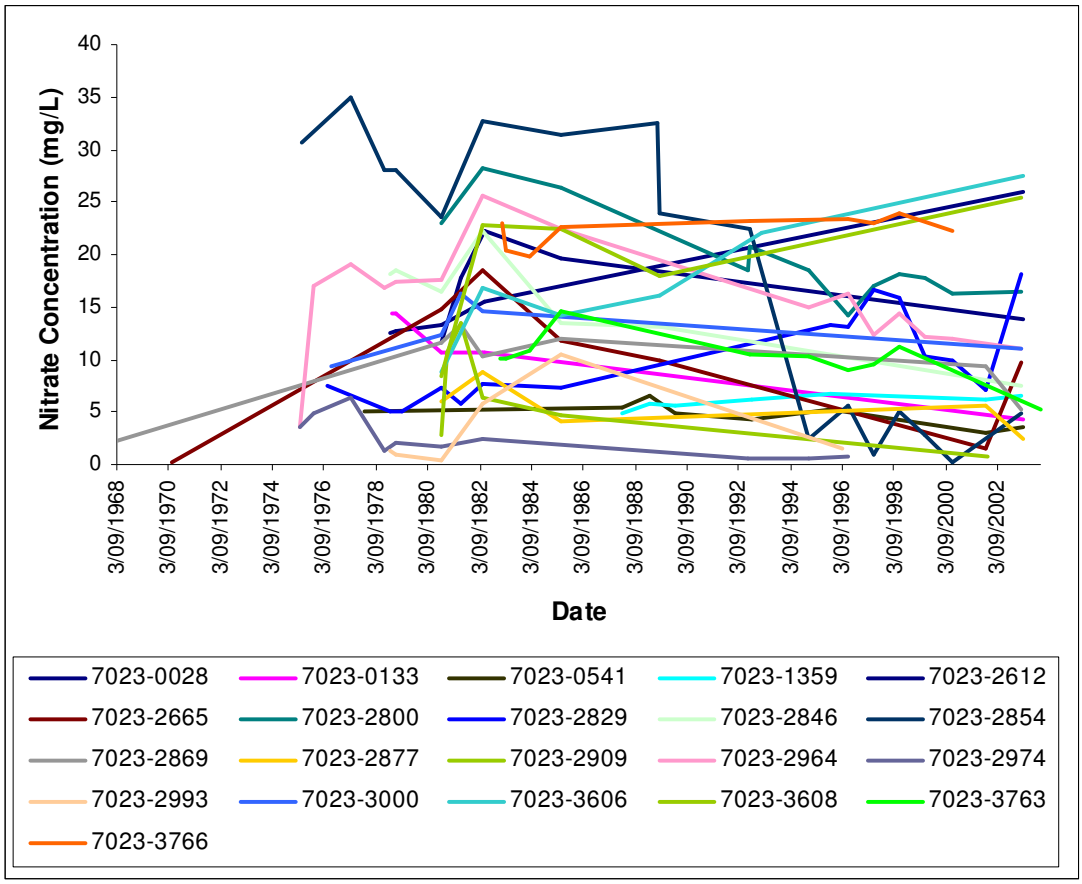

Figure A3.1: The individual trends of nitrate concentration in bores with repeated sampling (n≥5)

APPENDIX 4 – BORE DETAILS FOR TRITIUM MODEL INPUT

This appendix lists the 36 bores that were used in the tritium modelling described in Chapter 4 with the total depth of the bore and the depth to standing water (both below ground level).

Bore Number	Bore Depth (m)	Depth to water for each date of sampling (m)					
		Sept 1975	Feb 1976	July 1976	Oct 1976	Mar 1977	Sept 1977
702300028	5.25			1.6	1.5	2.3	
702300133	6.1				0.6	2.4	
702300310	4.55				1.85	2.8	
702300374	18.3					1.6	
702300504	24.7					3.8	
702300631	9.15	0.95	1.3	2.59	2.59	2.59	
702300636	4.26				1.4	1.95	
702300752	8			3.3	3.3	3.3	
702300903	4.4		2.5	2.5	2.5		2.5
702301464	5				1.2	2.4	
702301472	9.14			2.37	2.37	2.37	2.37
702301484	6.13				3.1		
702301490	8.48			3.64	3.64	3.64	
702301573	22					14.49	
702302605	9.21			1.81	1.5	1.81	
702302611	3.65		2.37	1.88	1.88	1.88	
702302624	18.5	2.68	3.3	3.29	3.29	3.29	
702302642	7.9		2.45	1.53	1.53	1.53	
702302653	7.6	2.1	2.96	2.1	2.1	2.1	2.1
702302702	5.61				1.63	3	
702302708	8.65			3	3	3	
702302723	7			5	4.5	5.4	
702302750	7.57				3.8	3.8	
702302831	3.82				0.91	1.9	
702302835	5.17				1	2.1	
702302846	4.5			3.1	2.3	3.2	
702302854	9.8		1.7	1.7	1.7	1.7	
702302861	4.9		2.65	1.9	1.9	1.9	
702302897	4.26				1.51		
702302957	7.1		1.8	1.1	1.1	1.1	
702302964	7.57	1.29	2	1.35	1.35	1.35	
702302974	8.02	2.57	3.15	2.65	2.65	2.65	
702302991	6.12				2.27	3.4	
702302992	9	1.9	2.52	1.6	0.8	1.8	
702302993	6.72				1.07		
702302999	25					3.2	

APPENDIX 5 – TRITIUM PRECIPITATION AND TRITIUM INPUT FUNCTION DATA

This appendix lists the collated monthly tritium concentrations in rainfall (all values are in Tritium Units) and the monthly concentration adopted for the Tritium Input Function. The process for adjusting the reported values from Allison and Hughes (1977) and constructing the TIF is described in Chapter 4.

The modelled TIF is presented as the second table.

Month	Tritium Measured in Rainfall			Estimated Tritium by Allison and Hughes (1977)		Monthly Tritium for TIF
	Adelaide	Kaitoke	Melbourne	Original	Seasonally adjusted	
July 1953				5	5.8	5.8
August 1953				5	6.4	6.4
September 1953				5	6.7	6.7
October 1953				5	6.5	6.5
November 1953				5	6.0	6.0
December 1953				5	5.1	5.1
January 1954				5	4.1	4.1
February 1954				5	3.5	3.5
March 1954				5	3.3	3.3
April 1954				5	3.5	3.5
May 1954				5	4.1	4.1
June 1954				5	4.9	4.9
July 1954				8	9.3	9.3
August 1954				8	10.3	10.3
September 1954				8	10.7	10.7
October 1954				8	10.4	10.4
November 1954				8	9.5	9.5
December 1954				8	8.2	8.2
January 1955				8	6.6	6.6
February 1955				8	5.6	5.6
March 1955				8	5.3	5.3
April 1955				8	5.6	5.6
May 1955				8	6.6	6.6
June 1955				8	7.9	7.9
July 1955				6	6.9	6.9
August 1955				6	7.7	7.7
September 1955				6	8.0	8.0
October 1955				6	7.8	7.8
November 1955				6	7.1	7.1
December 1955				6	6.2	6.2
January 1956				6	5.0	5.0
February 1956				6	4.2	4.2
March 1956				6	4.0	4.0

Month	Tritium Measured in Rainfall			Estimated Tritium by Allison and Hughes (1977)		Monthly Tritium for TIF
	Adelaide	Kaitoke	Melbourne	Original	Seasonally adjusted	
April 1956				6	4.2	4.2
May 1956				6	4.9	4.9
June 1956				6	5.9	5.9
July 1956				5	5.8	5.8
August 1956				5	6.4	6.4
September 1956				5	6.7	6.7
October 1956				5	6.5	6.5
November 1956				5	6.0	6.0
December 1956				5	5.1	5.1
January 1957				5	4.1	4.1
February 1957				5	3.5	3.5
March 1957				5	3.3	3.3
April 1957				5	3.5	3.5
May 1957				5	4.1	4.1
June 1957				5	4.9	4.9
July 1957				22	25.5	25.5
August 1957				22	28.3	28.3
September 1957				22	29.5	29.5
October 1957				22	28.7	28.7
November 1957				22	26.2	26.2
December 1957				22	22.6	22.6
January 1958				22	18.3	18.3
February 1958				22	15.5	15.5
March 1958				22	14.5	14.5
April 1958				22	15.4	15.4
May 1958				22	18.1	18.1
June 1958				22	21.7	21.7
July 1958				45	52.1	52.1
August 1958				45	57.9	57.9
September 1958				45	60.3	60.3
October 1958				45	58.8	58.8
November 1958				45	53.6	53.6
December 1958				45	46.2	46.2
January 1959				45	37.3	37.3
February 1959				45	31.8	31.8
March 1959				45	29.7	29.7
April 1959				45	31.5	31.5
May 1959				45	36.9	36.9
June 1959				45	44.4	44.4
July 1959				29	33.6	33.6
August 1959				29	37.3	37.3
September 1959				29	38.9	38.9
October 1959				29	37.9	37.9
November 1959				29	34.5	34.5
December 1959				29	29.8	29.8
January 1960			13.9	29	24.1	13.9
February 1960			13.5	29	20.5	13.5
March 1960			21.5	29	19.1	21.5
April 1960			8.3	29	20.3	8.3
May 1960			9.1	29	23.8	9.1
June 1960			5.9	29	28.6	5.9
July 1960		9	11.2	23	26.6	11.2
August 1960		12.7	28.2	23	29.6	28.2

Month	Tritium Measured in Rainfall			Estimated Tritium by Allison and Hughes (1977)		Monthly Tritium for TIF
	Adelaide	Kaitoke	Melbourne	Original	Seasonally adjusted	
September 1960		16.6	32.3	23	30.8	32.3
October 1960		14.7	19.6	23	30.0	19.6
November 1960		11.3		23	27.4	27.4
December 1960		10.6		23	23.6	23.6
January 1961		10.6		23	19.1	19.1
February 1961		8.3		23	16.2	16.2
March 1961		7.5		23	15.2	15.2
April 1961		5.6		23	16.1	16.1
May 1961		5.5		23	18.9	18.9
June 1961		6.3		23	22.7	22.7
July 1961		7.3		18	20.8	20.8
August 1961		10		18	23.2	23.2
September 1961		13.2		18	24.1	24.1
October 1961		9.9		18	23.5	23.5
November 1961		8.4		18	21.4	21.4
December 1961		8		18	18.5	18.5
January 1962		8		18	14.9	14.9
February 1962		7.8	17.8	18	12.7	17.8
March 1962		6.7		18	11.9	11.9
April 1962	147	8.7		18	12.6	147.0
May 1962	93.3	10.8	8.5	18	14.8	50.9
June 1962	81.5	12.5		18	17.8	81.5
July 1962	62.4	11.3	25.5	24	27.8	44.0
August 1962		13.7		24	30.9	30.9
September 1962		17.2	26.6	24	32.2	26.6
October 1962		19.9		24	31.3	31.3
November 1962		20.1	29.8	24	28.6	29.8
December 1962		19.7		24	24.6	24.6
January 1963	36	18.1	44.9	24	19.9	40.5
February 1963		11.5	33.5	24	16.9	33.5
March 1963		16	20.6	24	15.8	20.6
April 1963	41	12.6		24	16.8	41.0
May 1963	21	11.2	21	24	19.7	21.0
June 1963	29.9	11.1	28.5	24	23.7	29.2
July 1963	33.6	26	30.7			32.2
August 1963	93.3	44.9	76.2			84.8
September 1963	43.8	33.6	61.4			52.6
October 1963	60	35.6	71.7			65.9
November 1963		21.3	105.1			105.1
December 1963		16.9	55			55.0
January 1964		20.6	19.8			19.8
February 1964	40.7	24.5	39.5			40.1
March 1964		22.4	56.3			56.3
April 1964	38.3	20.6	23			30.7
May 1964	24.8	11.6	36			30.4
June 1964	30.7	27	38.1			34.4
July 1964	160	51.5	57.6			108.8
August 1964	42.6	63.7	63.7			53.2
September 1964	279	57.8				279.0
October 1964	61.4	38.1	88.9			75.2
November 1964	84.9	34.1	74.5			79.7
December 1964	93.6	34.6	63.2			78.4
January 1965	37.8	38.1	69.1			53.5

Month	Tritium Measured in Rainfall			Estimated Tritium by Allison and Hughes (1977)		Monthly Tritium for TIF
	Adelaide	Kaitoke	Melbourne	Original	Seasonally adjusted	
February 1965		43.9				43.9
March 1965		30.5	33.9			33.9
April 1965	35.3	25.9	73.7			54.5
May 1965	23.1	16.5	31.5			27.3
June 1965	53.9	19.1	45.2			49.6
July 1965	63.7	37.6	35.5			49.6
August 1965	82.3	46.4	31.1			56.7
September 1965	90.2	51.3	117.7			104.0
October 1965	64.6	38.9	50.3			57.5
November 1965	37.5	33.8	54.2			45.9
December 1965	76.8	27	73.1			75.0
January 1966	46	32.2	58.1			52.1
February 1966	35.1	22.4	60.1			47.6
March 1966	57.2	27.8	23.7			40.5
April 1966	18.4	17.3	38.4			28.4
May 1966	25.1	35.6	56.2			40.7
June 1966	22.9	22.4	35			29.0
July 1966	38.1	30.7	37.7			37.9
August 1966	44.9	45.4	55.9			50.4
September 1966	80.3	75.2	93.3			86.8
October 1966	67.8	34.8	89.1			78.5
November 1966	66.9	37.1	63.8			65.4
December 1966	74.7	35.7	51.6			63.2
January 1967	37.1	20	29.9			33.5
February 1967	43.7	25.6	32.6			38.2
March 1967	71.9	15.8	36.8			54.4
April 1967	40.5	15.4	37.5			39.0
May 1967	39.5	22.9	36.7			38.1
June 1967	28.3	20.3	24.1			26.2
July 1967	49.7	18.6	121			85.4
August 1967	71.4	42.9	58.8			65.1
September 1967	32.5	48.3	85.2			58.9
October 1967	60.2	28.7	75.8			68.0
November 1967		30.6	30.6			30.6
December 1967	36.3	29.1	43.5			39.9
January 1968	33.3	38.4	48.1			40.7
February 1968	80.7	31.7	32.9			56.8
March 1968	31.1	12.8	23			27.1
April 1968	15.2	15.5	28.5			21.9
May 1968		20.4	23.3			23.3
June 1968	21.9	15.4	26.4			24.2
July 1968	35.2	22.2	54.5			44.9
August 1968	30	44.2	69			49.5
September 1968	69.1	40.6	71.8			70.5
October 1968	29	35.1	51.2			40.1
November 1968		21	41.1			41.1
December 1968	40.2	26.4	57.6			48.9
January 1969	31.5	37.3	42.4			37.0
February 1969	104.9	22.4	34.7			69.8
March 1969	28.9	15.8	23.7			26.3
April 1969	85.6	22.9	21.5			53.6
May 1969	24.3	17.8	26.4			25.4
June 1969	26.4	15.6	27.6			27.0

Month	Tritium Measured in Rainfall			Estimated Tritium by Allison and Hughes (1977)		Monthly Tritium for TIF
	Adelaide	Kaitoke	Melbourne	Original	Seasonally adjusted	
July 1969	43.3	13.8	46.3			44.8
August 1969	115	53.1	59.7			87.4
September 1969	37.4	53.4	63.9			50.7
October 1969		30.4	59.3			59.3
November 1969	50.1	27.6	34			42.1
December 1969	26.9	33.9	42.1			34.5
January 1970	21	24.3	53.3			37.2
February 1970		19.7	23.4			23.4
March 1970	25.4	20.9	32.2			28.8
April 1970	25.5	16.9	24			24.8
May 1970	16.4	26.2	29.8			23.1
June 1970	31	39.6	38.2			34.6
July 1970	18.6	23.2	28.5			23.6
August 1970	30.7	34.6	52			41.4
September 1970	82.6	41.2	77.1			79.9
October 1970	54.7	26.4	50.2			52.5
November 1970	38.2	20.6	106			72.1
December 1970	53.6	22.1	36.3			45.0
January 1971	25.4	24.2	39.9			32.7
February 1971		15.2	37.4			37.4
March 1971	22.2	19.2	15.5			18.9
April 1971	18.8	17	24.8			21.8
May 1971	16.5	13.5	29.4			23.0
June 1971	14.2	16.7	20.1			17.2
July 1971	33.1	17	29.3			31.2
August 1971	40.9	29.5	43.4			42.2
September 1971	36.3	35.2	53.6			45.0
October 1971		27.9	43.7			43.7
November 1971	28	39.3	34.8			31.4
December 1971	41.7	28.4	40.5			41.1
January 1972	67.1	23.7	32.3			49.7
February 1972	15.9	19.9	42.2			29.1
March 1972		8.6	28.4			28.4
April 1972	19.2	13.2	25.4			22.3
May 1972	12.4	11.5	15.9			14.2
June 1972	14.9	9.5	20.1			17.5
July 1972	13.8	11.2	17.9			15.9
August 1972	30.9	29.3	44.2			37.6
September 1972	28.6	19.6	39.9			34.3
October 1972	16.3	19.1	30.8			23.6
November 1972		10.4	34.5			34.5
December 1972	23.6	14				23.6
January 1973	19.5	15.4	27.6			23.6
February 1973	11.8	9.9	17.2			14.5
March 1973	13.5	14.2	16.7			15.1
April 1973	16.2	9.7	20.3			18.3
May 1973	13.8	10.1	15.4			14.6
June 1973	12	9	16.2			14.1
July 1973	13.5	11.6	14.3			13.9
August 1973	20	13.7	23.4			21.7
September 1973	28.7	20.8	30.7			29.7
October 1973	28.4	12.5	27.3			27.9
November 1973	12.1	10.3	15.2			13.7

Month	Tritium Measured in Rainfall			Estimated Tritium by Allison and Hughes (1977)		Monthly Tritium for TIF
	Adelaide	Kaitoke	Melbourne	Original	Seasonally adjusted	
December 1973	19.4	11.5	17.6			18.5
January 1974	8.8	7.6	16.5			12.7
February 1974	9.5	7.3	13.6			11.6
March 1974	19	7.9	16			17.5
April 1974	12.9	6.8	10.3			11.6
May 1974	13.8	6.5	10.3			12.1
June 1974	10.4	4.2	11.4			10.9
July 1974	11.7	9	9.8			10.8
August 1974	16.6	14.8	19.8			18.2
September 1974	20.2	11.1	24			22.1
October 1974	26.1	13.3	25			25.6
November 1974	31.8	13.1	17.4			24.6
December 1974	13.8	11.6	15.6			14.7
January 1975	14.9	23.6	17.9			16.4
February 1975	23.7	6.9	18.5			21.1
March 1975	11	6	16.1			13.6
April 1975	12.5	5.8	13.9			13.2
May 1975	6.5	6.4	11.9			9.2
June 1975	9.7	6.9	9.9			9.8
July 1975	12.6		14.6			13.6
August 1975	13.7	11.4	15.7			14.7
September 1975	19.2	13.6	18.9			19.1
October 1975	18.8	12.8	24.1			21.5
November 1975	24.6	10.8	23			23.8
December 1975	24.3	6.9	14.9			19.6
January 1976	15.6	7	12.4			14.0
February 1976	11.9	8.1	14.9			13.4
March 1976		5	17.9			17.9
April 1976	12.6	5.9	10.8			11.7
May 1976	6.6	5.4	11.8			9.2
June 1976	6.8	5	9.5			8.2
July 1976	7.5	6.8	11			9.3
August 1976	8.9	8.7	11.4			10.2
September 1976	12.5		17.6			15.1
October 1976	11.1	7.6				11.1
November 1976	13	8.9	15			14.0
December 1976	8	7.7	17.9			13.0
January 1977		8.1	18.1			18.1
February 1977		8.6	8.2			8.2
March 1977		13.6	11.8			11.8
April 1977		5	7.2			7.2
May 1977		6.2	9.9			9.9
June 1977		5.1	10.3			10.3
July 1977		6.9	6.8			6.8
August 1977		6.7	18.6			18.6
September 1977		7.2	14.6			14.6
October 1977		7.7	10.1			10.1
November 1977		7	11.2			11.2
December 1977		6	8.8			8.8

Tritium Input Function values (Tritium concentrations in TU)

Year	Weighted T	Year	Weighted T	Year	Weighted T
1900	5.2	1926	5.2	1952	5.2
1901	5.2	1927	5.4	1953	5.6
1902	5.6	1928	5.2	1954	6.7
1903	5.3	1929	5.2	1955	7.1
1904	5.2	1930	5.7	1956	5.6
1905	5.4	1931	5.2	1957	17.1
1906	5.4	1932	5.3	1958	42.1
1907	5.3	1933	5.3	1959	37.8
1908	5.4	1934	5.5	1960	15.5
1909	5.2	1935	5.4	1961	20.6
1910	5.5	1936	5.5	1962	57.8
1911	5.2	1937	5.6	1963	45.4
1912	5.6	1938	5.0	1964	92.7
1913	5.7	1939	5.2	1965	52.9
1914	4.8	1940	5.2	1966	47.5
1915	5.5	1941	5.6	1967	66.2
1916	5.3	1942	5.4	1968	36.1
1917	5.4	1943	5.5	1969	48.9
1918	5.4	1944	4.9	1970	36.3
1919	5.6	1945	5.7	1971	30.4
1920	5.5	1946	5.5	1972	24.6
1921	5.6	1947	5.4	1973	19.5
1922	5.4	1948	5.1	1974	14.3
1923	5.4	1949	5.4	1975	13.2
1924	5.4	1950	5.5	1976	10.8
1925	5.2	1951	5.2	1977	10.6

APPENDIX 6 – WATER QUALITY DATA FOR DEPTH PROFILES

This appendix lists the water quality data for the samples collected at depths within the aquifer as profiled and discussed in Chapter 5, and applied to generate Figures 5.7 and 5.8.

The data source for the water quality records are presented to a reference for the origin of the data; being:

a – Laboratory report from DWLBC microfiche records

b – Laboratory report (from AMDEL Laboratories) from DWLBC microfishe

c – Laboratory report from the SA WATER Australian Water Quality Centre

All concentration values are in the form listed in the table (e.g. "*Nitrate as (NO3)*" values were converted from these values to Nitrate as N prior to profiling in Chapter 5).

The depth of the sample is in metres below the top of casing.

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
702301637	27/09/1976	w4894/76	Bicarbonate	383	mg/L	*a*	4
702301637	27/09/1976	w4894/76	Calcium	102	mg/L	*a*	4
702301637	27/09/1976	w4894/76	Carbonate Hardness (asCaCO)	314	mg/L	*a*	4
702301637	27/09/1976	w4894/76	Chloride	271	mg/L	*a*	4
702301637	27/09/1976	w4894/76	Electrical Conductivity	1459	us/cm	*a*	4
702301637	27/09/1976	w4894/76	Magnesium	19	mg/L	*a*	4
702301637	27/09/1976	w4894/76	Nitrate (as NO3)	11	mg/L	*a*	4
702301637	27/09/1976	w4894/76	pH	7.4	pH Units	*a*	4
702301637	27/09/1976	w4894/76	Potassium	5	mg/L	*a*	4
702301637	27/09/1976	w4894/76	Sodium	176	mg/L	*a*	4
702301637	27/09/1976	w4894/76	Sulphide	42	mg/L	*a*	4
702301637	27/09/1976	w4894/76	Total Hardness (as CaCO3)	333	mg/L	*a*	4
702301637	7/10/1976	w4904/76	Bicarbonate	427	mg/L	*a*	30
702301637	7/10/1976	w4904/76	Calcium	110	mg/L	*a*	30
702301637	7/10/1976	w4904/76	Carbonate Hardness (asCaCO)	350	mg/L	*a*	30
702301637	7/10/1976	w4904/76	Chloride	250	mg/L	*a*	30
702301637	7/10/1976	w4904/76	Electrical Conductivity	1412	us/cm	*a*	30
702301637	7/10/1976	w4904/76	Magnesium	19	mg/L	*a*	30
702301637	7/10/1976	w4904/76	Nitrate (as NO3)	3	mg/L	*a*	30
702301637	7/10/1976	w4904/76	pH	7.4	pH Units	*a*	30
702301637	7/10/1976	w4904/76	Potassium	5	mg/L	*a*	30
702301637	7/10/1976	w4904/76	Sodium	165	mg/L	*a*	30
702301637	7/10/1976	w4904/76	Sulphide	28	mg/L	*a*	30
702301637	7/10/1976	w4904/76	Total Hardness (as CaCO3)	353	mg/L	*a*	30
702302826	29/10/1976	w5368-76	Bicarbonate	380	mg/L	*b*	4
702302826	29/10/1976	w5368-76	Calcium	42	mg/L	*b*	4
702302826	29/10/1976	w5368-76	Carbonate Hardness	158	mg/L	*b*	4

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
			(asCaCO)				
702302826	29/10/1976	w5368-76	Chloride	83	mg/L	*b*	4
702302826	29/10/1976	w5368-76	Electrical Conductivity	924	us/cm	*b*	4
702302826	29/10/1976	w5368-76	Magnesium	13	mg/L	*b*	4
702302826	29/10/1976	w5368-76	Nitrate (as NO3)	26	mg/L	*b*	4
702302826	29/10/1976	w5368-76	pH	7.8	pH Units	*b*	4
702302826	29/10/1976	w5368-76	Potassium	3	mg/L	*b*	4
702302826	29/10/1976	w5368-76	Sodium	148	mg/L	*b*	4
702302826	29/10/1976	w5368-76	Sulphide	16	mg/L	*b*	4
702302826	29/10/1976	w5368-76	Total Hardness (as CaCO3)	158	mg/L	*b*	4
702302826	3/11/1976	w5378-76	Bicarbonate	441	mg/L	*b*	26
702302826	3/11/1976	w5378-76	Calcium	140	mg/L	*b*	26
702302826	3/11/1976	w5378-76	Carbonate Hardness (asCaCO)	362	mg/L	*b*	26
702302826	3/11/1976	w5378-76	Chloride	325	mg/L	*b*	26
702302826	3/11/1976	w5378-76	Electrical Conductivity	1702	us/cm	*b*	26
702302826	3/11/1976	w5378-76	Magnesium	21	mg/L	*b*	26
702302826	3/11/1976	w5378-76	Nitrate (as NO3)	3	mg/L	*b*	26
702302826	3/11/1976	w5378-76	pH	7.2	pH Units	*b*	26
702302826	3/11/1976	w5378-76	Potassium	3	mg/L	*b*	26
702302826	3/11/1976	w5378-76	Sodium	203	mg/L	*b*	26
702302826	3/11/1976	w5378-76	Sulphide	26	mg/L	*b*	26
702302826	3/11/1976	w5378-76	Total Hardness (as CaCO3)	436	mg/L	*b*	26
702302827	25/10/1976	w5313-76	Bicarbonate	374	mg/L	*b*	3
702302827	25/10/1976	w5313-76	Calcium	104	mg/L	*b*	3
702302827	25/10/1976	w5313-76	Carbonate Hardness (asCaCO)	307	mg/L	*b*	3
702302827	25/10/1976	w5313-76	Chloride	280	mg/L	*b*	3
702302827	25/10/1976	w5313-76	Electrical Conductivity	1518	us/cm	*b*	3
702302827	25/10/1976	w5313-76	Magnesium	22	mg/L	*b*	3
702302827	25/10/1976	w5313-76	Nitrate (as NO3)	9	mg/L	*b*	3
702302827	25/10/1976	w5313-76	pH	7.3	pH Units	*b*	3
702302827	25/10/1976	w5313-76	Potassium	7	mg/L	*b*	3
702302827	25/10/1976	w5313-76	Sodium	182	mg/L	*b*	3
702302827	25/10/1976	w5313-76	Sulphide	41	mg/L	*b*	3
702302827	25/10/1976	w5313-76	Total Hardness (as CaCO3)	350	mg/L	*b*	3
702302827	27/10/1976	w5322-76	Bicarbonate	383	mg/L	*b*	27
702302827	27/10/1976	w5322-76	Calcium	106	mg/L	*b*	27
702302827	27/10/1976	w5322-76	Carbonate Hardness (asCaCO)	314	mg/L	*b*	27
702302827	27/10/1976	w5322-76	Chloride	282	mg/L	*b*	27
702302827	27/10/1976	w5322-76	Electrical Conductivity	1525	us/cm	*b*	27
702302827	27/10/1976	w5322-76	Magnesium	22	mg/L	*b*	27
702302827	27/10/1976	w5322-76	Nitrate (as NO3)	16	mg/L	*b*	27
702302827	27/10/1976	w5322-76	pH	7.2	pH Units	*b*	27
702302827	27/10/1976	w5322-76	Potassium	7	mg/L	*b*	27
702302827	27/10/1976	w5322-76	Sodium	180	mg/L	*b*	27
702302827	27/10/1976	w5322-76	Sulphide	41	mg/L	*b*	27
702302827	27/10/1976	w5322-76	Total Hardness (as CaCO3)	355	mg/L	*b*	27
702302828	5/10/1976	w4906/76	Bicarbonate	307	mg/L	*b*	3.4
702302828	5/10/1976	w4906/76	Calcium	95	mg/L	*b*	3.4
702302828	5/10/1976	w4906/76	Carbonate Hardness (asCaCO)	252	mg/L	*b*	3.4
702302828	5/10/1976	w4906/76	Chloride	298	mg/L	*b*	3.4
702302828	5/10/1976	w4906/76	Electrical Conductivity	1471	us/cm	*b*	3.4
702302828	5/10/1976	w4906/76	Magnesium	26	mg/L	*b*	3.4
702302828	5/10/1976	w4906/76	Nitrate (as NO3)	26	mg/L	*b*	3.4
702302828	5/10/1976	w4906/76	pH	7.7	pH Units	*b*	3.4
702302828	5/10/1976	w4906/76	Potassium	4	mg/L	*b*	3.4
702302828	5/10/1976	w4906/76	Sodium	164	mg/L	*b*	3.4
702302828	5/10/1976	w4906/76	Sulphide	29	mg/L	*b*	3.4
702302828	5/10/1976	w4906/76	Total Hardness (as CaCO3)	344	mg/L	*b*	3.4
702302828	13/10/1976	w4916/76	Bicarbonate	363	mg/L	*b*	29
702302828	13/10/1976	w4916/76	Calcium	114	mg/L	*b*	29

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
702302828	13/10/1976	w4916/76	Carbonate Hardness (asCaCO)	298	mg/L	*b*	29
702302828	13/10/1976	w4916/76	Chloride	332	mg/L	*b*	29
702302828	13/10/1976	w4916/76	Electrical Conductivity	1629	us/cm	*b*	29
702302828	13/10/1976	w4916/76	Magnesium	30	mg/L	*b*	29
702302828	13/10/1976	w4916/76	Nitrate (as NO3)	33	mg/L	*b*	29
702302828	13/10/1976	w4916/76	pH	7.7	pH Units	*b*	29
702302828	13/10/1976	w4916/76	Potassium	3	mg/L	*b*	29
702302828	13/10/1976	w4916/76	Sodium	176	mg/L	*b*	29
702302828	13/10/1976	w4916/76	Sulphide	32	mg/L	*b*	29
702302828	13/10/1976	w4916/76	Total Hardness (as CaCO3)	408	mg/L	*b*	29
702302829	18/10/1976	w5053/76	Bicarbonate	377	mg/L	*b*	3
702302829	18/10/1976	w5053/76	Calcium	80	mg/L	*b*	3
702302829	18/10/1976	w5053/76	Carbonate Hardness (asCaCO)	282	mg/L	*b*	3
702302829	18/10/1976	w5053/76	Chloride	185	mg/L	*b*	3
702302829	18/10/1976	w5053/76	Electrical Conductivity	1185	us/cm	*b*	3
702302829	18/10/1976	w5053/76	Magnesium	20	mg/L	*b*	3
702302829	18/10/1976	w5053/76	Nitrate (as NO3)	33	mg/L	*b*	3
702302829	18/10/1976	w5053/76	pH	7.3	pH Units	*b*	3
702302829	18/10/1976	w5053/76	Potassium	5	mg/L	*b*	3
702302829	18/10/1976	w5053/76	Sodium	153	mg/L	*b*	3
702302829	18/10/1976	w5053/76	Sulphide	29	mg/L	*b*	3
702302829	18/10/1976	w5053/76	Total Hardness (as CaCO3)	282	mg/L	*b*	3
702302829	22/10/1976	w5062/76	Bicarbonate	380	mg/L	*b*	26
702302829	22/10/1976	w5062/76	Calcium	85	mg/L	*b*	26
702302829	22/10/1976	w5062/76	Carbonate Hardness (asCaCO)	299	mg/L	*b*	26
702302829	22/10/1976	w5062/76	Chloride	208	mg/L	*b*	26
702302829	22/10/1976	w5062/76	Electrical Conductivity	1282	us/cm	*b*	26
702302829	22/10/1976	w5062/76	Magnesium	21	mg/L	*b*	26
702302829	22/10/1976	w5062/76	Nitrate (as NO3)	33	mg/L	*b*	26
702302829	22/10/1976	w5062/76	pH	7.9	pH Units	*b*	26
702302829	22/10/1976	w5062/76	Potassium	3	mg/L	*b*	26
702302829	22/10/1976	w5062/76	Sodium	155	mg/L	*b*	26
702302829	22/10/1976	w5062/76	Sulphide	27	mg/L	*b*	26
702302829	22/10/1976	w5062/76	Total Hardness (as CaCO3)	299	mg/L	*b*	26
702302905	25/03/1975	w3139/75	Bicarbonate	337	mg/L	*b*	4.45
702302905	25/03/1975	w3139/75	Calcium	103	mg/L	*b*	4.45
702302905	25/03/1975	w3139/75	Carbonate Hardness (asCaCO)	276	mg/L	*b*	4.45
702302905	25/03/1975	w3139/75	Chloride	319	mg/L	*b*	4.45
702302905	25/03/1975	w3139/75	Electrical Conductivity	1866	us/cm	*b*	4.45
702302905	25/03/1975	w3139/75	Magnesium	28	mg/L	*b*	4.45
702302905	25/03/1975	w3139/75	Nitrate (as NO3)	29	mg/L	*b*	4.45
702302905	25/03/1975	w3139/75	pH	7.7	pH Units	*b*	4.45
702302905	25/03/1975	w3139/75	Potassium	7	mg/L	*b*	4.45
702302905	25/03/1975	w3139/75	Sodium	190	mg/L	*b*	4.45
702302905	25/03/1975	w3139/75	Sulphide	35	mg/L	*b*	4.45
702302905	25/03/1975	w3139/75	Total Hardness (as CaCO3)	372	mg/L	*b*	4.45
702302905	25/03/1975	w3139/75	Total Phosphorous (as P)	50	ug/L	*b*	4.45
702302905	25/03/1975	w3149/75	Bicarbonate	230	mg/L	*b*	104
702302905	25/03/1975	w3149/75	Calcium	69	mg/L	*b*	104
702302905	25/03/1975	w3149/75	Carbonate Hardness (asCaCO)	189	mg/L	*b*	104
702302905	25/03/1975	w3149/75	Chloride	242	mg/L	*b*	104
702302905	25/03/1975	w3149/75	Electrical Conductivity	1287	us/cm	*b*	104
702302905	25/03/1975	w3149/75	Magnesium	25	mg/L	*b*	104
702302905	25/03/1975	w3149/75	Nitrate (as NO3)	1	mg/L	*b*	104
702302905	25/03/1975	w3149/75	pH	7.4	pH Units	*b*	104
702302905	25/03/1975	w3149/75	Potassium	7	mg/L	*b*	104
702302905	25/03/1975	w3149/75	Sodium	133	mg/L	*b*	104
702302905	25/03/1975	w3149/75	Sulphide	25	mg/L	*b*	104
702302905	25/03/1975	w3149/75	Total Hardness (as	275	mg/L	*b*	104

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
			CaCO3)				
702302905	25/03/1975	w3151/75	Bicarbonate	247	mg/L	*b*	117
702302905	25/03/1975	w3151/75	Calcium	68	mg/L	*b*	117
702302905	25/03/1975	w3151/75	Carbonate Hardness (asCaCO)	202	mg/L	*b*	117
702302905	25/03/1975	w3151/75	Chloride	239	mg/L	*b*	117
702302905	25/03/1975	w3151/75	Electrical Conductivity	1232	us/cm	*b*	117
702302905	25/03/1975	w3151/75	Magnesium	24	mg/L	*b*	117
702302905	25/03/1975	w3151/75	Nitrate (as NO3)	1	mg/L	*b*	117
702302905	25/03/1975	w3151/75	pH	7.6	pH Units	*b*	117
702302905	25/03/1975	w3151/75	Potassium	7	mg/L	*b*	117
702302905	25/03/1975	w3151/75	Sodium	130	mg/L	*b*	117
702302905	25/03/1975	w3151/75	Sulphide	12	mg/L	*b*	117
702302905	25/03/1975	w3151/75	Total Hardness (as CaCO3)	269	mg/L	*b*	117
702302905	25/03/1975	w3151/75	Total Phosphorous (as P)	30	ug/L	*b*	117
702302997	11/01/1977	w1305/77	Bicarbonate	293	mg/L	*b*	1.5
702302997	11/01/1977	w1305/77	Calcium	39	mg/L	*b*	1.5
702302997	11/01/1977	w1305/77	Carbonate	8	mg/L	*b*	1.5
702302997	11/01/1977	w1305/77	Carbonate Hardness (asCaCO)	240	mg/L	*b*	1.5
702302997	11/01/1977	w1305/77	Chloride	484	mg/L	*b*	1.5
702302997	11/01/1977	w1305/77	Electrical Conductivity	2249	us/cm	*b*	1.5
702302997	11/01/1977	w1305/77	Magnesium	47	mg/L	*b*	1.5
702302997	11/01/1977	w1305/77	Nitrate (as NO3)	7	mg/L	*b*	1.5
702302997	11/01/1977	w1305/77	pH	8.5	pH Units	*b*	1.5
702302997	11/01/1977	w1305/77	Potassium	19	mg/L	*b*	1.5
702302997	11/01/1977	w1305/77	Sodium	335	mg/L	*b*	1.5
702302997	11/01/1977	w1305/77	Sulphide	133	mg/L	*b*	1.5
702302997	11/01/1977	w1305/77	Total Hardness (as CaCO3)	291	mg/L	*b*	1.5
702302997	9/02/1977	w1327/77	Bicarbonate	369	mg/L	*b*	106
702302997	9/02/1977	w1327/77	Calcium	106	mg/L	*b*	106
702302997	9/02/1977	w1327/77	Carbonate Hardness (asCaCO)	303	mg/L	*b*	106
702302997	9/02/1977	w1327/77	Chloride	265	mg/L	*b*	106
702302997	9/02/1977	w1327/77	Electrical Conductivity	1421	us/cm	*b*	106
702302997	9/02/1977	w1327/77	Magnesium	31	mg/L	*b*	106
702302997	9/02/1977	w1327/77	Nitrate (as NO3)	14	mg/L	*b*	106
702302997	9/02/1977	w1327/77	pH	7.4	pH Units	*b*	106
702302997	9/02/1977	w1327/77	Potassium	7	mg/L	*b*	106
702302997	9/02/1977	w1327/77	Sodium	129	mg/L	*b*	106
702302997	9/02/1977	w1327/77	Sulphide	15	mg/L	*b*	106
702302997	9/02/1977	w1327/77	Total Hardness (as CaCO3)	392	mg/L	*b*	106
702302998	17/11/1976	w5517/76	Bicarbonate	503	mg/L	*b*	5.4
702302998	17/11/1976	w5517/76	Calcium	101	mg/L	*b*	5.4
702302998	17/11/1976	w5517/76	Carbonate Hardness (asCaCO)	376	mg/L	*b*	5.4
702302998	17/11/1976	w5517/76	Chloride	297	mg/L	*b*	5.4
702302998	17/11/1976	w5517/76	Electrical Conductivity	1754	us/cm	*b*	5.4
702302998	17/11/1976	w5517/76	Magnesium	30	mg/L	*b*	5.4
702302998	17/11/1976	w5517/76	Nitrate (as NO3)	13	mg/L	*b*	5.4
702302998	17/11/1976	w5517/76	pH	7.6	pH Units	*b*	5.4
702302998	17/11/1976	w5517/76	Potassium	6	mg/L	*b*	5.4
702302998	17/11/1976	w5517/76	Sodium	239	mg/L	*b*	5.4
702302998	17/11/1976	w5517/76	Sulphide	55	mg/L	*b*	5.4
702302998	17/11/1976	w5517/76	Total Hardness (as CaCO3)	376	mg/L	*b*	5.4
702302998	18/11/1976	w5524/76	Bicarbonate	395	mg/L	*b*	23
702302998	18/11/1976	w5524/76	Calcium	110	mg/L	*b*	23
702302998	18/11/1976	w5524/76	Carbonate Hardness (asCaCO)	324	mg/L	*b*	23
702302998	18/11/1976	w5524/76	Chloride	306	mg/L	*b*	23
702302998	18/11/1976	w5524/76	Electrical Conductivity	1587	us/cm	*b*	23
702302998	18/11/1976	w5524/76	Magnesium	25	mg/L	*b*	23
702302998	18/11/1976	w5524/76	Nitrate (as NO3)	8	mg/L	*b*	23
702302998	18/11/1976	w5524/76	pH	7.6	pH Units	*b*	23

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
702302998	18/11/1976	w5524/76	Potassium	7	mg/L	*b*	23
702302998	18/11/1976	w5524/76	Sodium	178	mg/L	*b*	23
702302998	18/11/1976	w5524/76	Sulphide	31	mg/L	*b*	23
702302998	18/11/1976	w5524/76	Total Hardness (as CaCO3)	378	mg/L	*b*	23
702302999	4/11/1976	w5658/76	Bicarbonate	414	mg/L	*b*	4
702302999	4/11/1976	w5658/76	Calcium	111	mg/L	*b*	4
702302999	4/11/1976	w5658/76	Carbonate Hardness (asCaCO)	339	mg/L	*b*	4
702302999	4/11/1976	w5658/76	Chloride	382	mg/L	*b*	4
702302999	4/11/1976	w5658/76	Electrical Conductivity	1915	us/cm	*b*	4
702302999	4/11/1976	w5658/76	Magnesium	29	mg/L	*b*	4
702302999	4/11/1976	w5658/76	Nitrate (as NO3)	4	mg/L	*b*	4
702302999	4/11/1976	w5658/76	pH	7.4	pH Units	*b*	4
702302999	4/11/1976	w5658/76	Potassium	3	mg/L	*b*	4
702302999	4/11/1976	w5658/76	Sodium	233	mg/L	*b*	4
702302999	4/11/1976	w5658/76	Sulphide	54	mg/L	*b*	4
702302999	4/11/1976	w5658/76	Total Hardness (as CaCO3)	397	mg/L	*b*	4
702302999	12/11/1976	w5667/76	Bicarbonate	394	mg/L	*b*	25
702302999	12/11/1976	w5667/76	Calcium	104	mg/L	*b*	25
702302999	12/11/1976	w5667/76	Carbonate Hardness (asCaCO)	323	mg/L	*b*	25
702302999	12/11/1976	w5667/76	Chloride	360	mg/L	*b*	25
702302999	12/11/1976	w5667/76	Electrical Conductivity	1785	us/cm	*b*	25
702302999	12/11/1976	w5667/76	Magnesium	27	mg/L	*b*	25
702302999	12/11/1976	w5667/76	Nitrate (as NO3)	1	mg/L	*b*	25
702302999	12/11/1976	w5667/76	pH	7.4	pH Units	*b*	25
702302999	12/11/1976	w5667/76	Potassium	4	mg/L	*b*	25
702302999	12/11/1976	w5667/76	Sodium	215	mg/L	*b*	25
702302999	12/11/1976	w5667/76	Sulphide	27	mg/L	*b*	25
702302999	12/11/1976	w5667/76	Total Hardness (as CaCO3)	371	mg/L	*b*	25
702303000	6/12/1976	w6139/76	Bicarbonate	324	mg/L	*b*	2.8
702303000	6/12/1976	w6139/76	Calcium	93	mg/L	*b*	2.8
702303000	6/12/1976	w6139/76	Carbonate Hardness (asCaCO)	266	mg/L	*b*	2.8
702303000	6/12/1976	w6139/76	Chloride	253	mg/L	*b*	2.8
702303000	6/12/1976	w6139/76	Electrical Conductivity	1544	us/cm	*b*	2.8
702303000	6/12/1976	w6139/76	Magnesium	21	mg/L	*b*	2.8
702303000	6/12/1976	w6139/76	Nitrate (as NO3)	41	mg/L	*b*	2.8
702303000	6/12/1976	w6139/76	pH	7.4	pH Units	*b*	2.8
702303000	6/12/1976	w6139/76	Potassium	8	mg/L	*b*	2.8
702303000	6/12/1976	w6139/76	Sodium	161	mg/L	*b*	2.8
702303000	6/12/1976	w6139/76	Sulphide	26	mg/L	*b*	2.8
702303000	6/12/1976	w6139/76	Total Hardness (as CaCO3)	319	mg/L	*b*	2.8
702303000	10/12/1976	w6146/76	Bicarbonate	346	mg/L	*b*	25
702303000	10/12/1976	w6146/76	Calcium	90	mg/L	*b*	25
702303000	10/12/1976	w6146/76	Carbonate Hardness (asCaCO)	284	mg/L	*b*	25
702303000	10/12/1976	w6146/76	Chloride	263	mg/L	*b*	25
702303000	10/12/1976	w6146/76	Electrical Conductivity	1450	us/cm	*b*	25
702303000	10/12/1976	w6146/76	Magnesium	25	mg/L	*b*	25
702303000	10/12/1976	w6146/76	Nitrate (as NO3)	12	mg/L	*b*	25
702303000	10/12/1976	w6146/76	pH	7.5	pH Units	*b*	25
702303000	10/12/1976	w6146/76	Potassium	7	mg/L	*b*	25
702303000	10/12/1976	w6146/76	Sodium	159	mg/L	*b*	25
702303000	10/12/1976	w6146/76	Sulphide	23	mg/L	*b*	25
702303000	10/12/1976	w6146/76	Total Hardness (as CaCO3)	328	mg/L	*b*	25
702303762	23/06/1983	04 83 04989	Ammonia (as N)	0.88	mg/L	*c*	4.7
702303762	23/06/1983	04 83 04989	Chloride	196	mg/L	*c*	4.7
702303762	23/06/1983	04 83 04989	Electrical Conductivity	1280	us/cm	*c*	4.7
702303762	23/06/1983	04 83 04989	Nitrate (as N)	13.37	mg/L	*c*	4.7
702303762	23/06/1983	04 83 04989	Nitrate + Nitrite (as N)	13.4	mg/L	*c*	4.7
702303762	23/06/1983	04 83 04989	Nitrite (as N)	0.03	mg/L	*c*	4.7
702303762	23/06/1983	04 83 04989	pH	7.3	pH Units	*c*	4.7

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
702303762	23/06/1983	04 83 04989	Phosphorus (total as P)	18	ug/L	*c*	4.7
702303762	23/06/1983	04 83 04989	Potassium	5.7	mg/L	*c*	4.7
702303762	23/06/1983	04 83 04989	Sodium	118	mg/L	*c*	4.7
702303762	23/06/1983	04 83 04989	Sulphate	34	mg/L	*c*	4.7
702303762	23/06/1983	04 83 04989	Total Dissolved Solids (by EC)	710	mg/L	*c*	4.7
702303762	23/06/1983	04 83 04989	Total Kjeldahl Nitrogen (as N)	0.88	mg/L	*c*	4.7
702303762	23/06/1983	05 83 01690	Total Organic Carbon	3	mg/L	*c*	4.7
702303762	23/06/1983	04 83 04990	Ammonia (as N)	0.107	mg/L	*c*	6
702303762	23/06/1983	04 83 04990	Chloride	174	mg/L	*c*	6
702303762	23/06/1983	04 83 04990	Electrical Conductivity	1220	us/cm	*c*	6
702303762	23/06/1983	04 83 04990	Nitrate (as N)	13.57	mg/L	*c*	6
702303762	23/06/1983	04 83 04990	Nitrate + Nitrite (as N)	13.6	mg/L	*c*	6
702303762	23/06/1983	04 83 04990	Nitrite (as N)	0.03	mg/L	*c*	6
702303762	23/06/1983	04 83 04990	pH	7.4	pH Units	*c*	6
702303762	23/06/1983	04 83 04990	Phosphorus (total as P)	8	ug/L	*c*	6
702303762	23/06/1983	04 83 04990	Potassium	4.4	mg/L	*c*	6
702303762	23/06/1983	04 83 04990	Sodium	102	mg/L	*c*	6
702303762	23/06/1983	04 83 04990	Sulphate	28	mg/L	*c*	6
702303762	23/06/1983	04 83 04990	Total Dissolved Solids (by EC)	670	mg/L	*c*	6
702303762	23/06/1983	04 83 04990	Total Kjeldahl Nitrogen (as N)	0.46	mg/L	*c*	6
702303762	23/06/1983	05 83 01691	Total Organic Carbon	3	mg/L	*c*	6
702303762	23/06/1983	04 83 04991	Ammonia (as N)	0.268	mg/L	*c*	7
702303762	23/06/1983	04 83 04991	Chloride	177	mg/L	*c*	7
702303762	23/06/1983	04 83 04991	Electrical Conductivity	1230	us/cm	*c*	7
702303762	23/06/1983	04 83 04991	Nitrate (as N)	12.79	mg/L	*c*	7
702303762	23/06/1983	04 83 04991	Nitrate + Nitrite (as N)	12.8	mg/L	*c*	7
702303762	23/06/1983	04 83 04991	Nitrite (as N)	0.01	mg/L	*c*	7
702303762	23/06/1983	04 83 04991	pH	7.4	pH Units	*c*	7
702303762	23/06/1983	04 83 04991	Phosphorus (total as P)	3.8	ug/L	*c*	7
702303762	23/06/1983	04 83 04991	Potassium	3.8	mg/L	*c*	7
702303762	23/06/1983	04 83 04991	Sodium	106	mg/L	*c*	7
702303762	23/06/1983	04 83 04991	Sulphate	33	mg/L	*c*	7
702303762	23/06/1983	04 83 04991	Total Dissolved Solids (by EC)	680	mg/L	*c*	7
702303762	23/06/1983	04 83 04991	Total Kjeldahl Nitrogen (as N)	0.68	mg/L	*c*	7
702303762	23/06/1983	05 83 01692	Total Organic Carbon	2	mg/L	*c*	7
702303762	23/06/1983	05 83 01693	Total Organic Carbon	3	mg/L	*c*	8
702303762	23/06/1983	05 83 01694	Total Organic Carbon	3	mg/L	*c*	9
702303762	24/06/1983	04 83 05073	Chloride	177	mg/L	*c*	8
702303762	24/06/1983	04 83 05073	Electrical Conductivity	1220	us/cm	*c*	8
702303762	24/06/1983	04 83 05073	Nitrate (as N)	12.79	mg/L	*c*	8
702303762	24/06/1983	04 83 05073	Nitrate + Nitrite (as N)	12.8	mg/L	*c*	8
702303762	24/06/1983	04 83 05073	Nitrite (as N)	0.01	mg/L	*c*	8
702303762	24/06/1983	04 83 05073	pH	7.4	pH Units	*c*	8
702303762	24/06/1983	04 83 05073	Phosphorus (total as P)	8	ug/L	*c*	8
702303762	24/06/1983	04 83 05073	Potassium	3.7	mg/L	*c*	8
702303762	24/06/1983	04 83 05073	Sodium	110	mg/L	*c*	8
702303762	24/06/1983	04 83 05073	Sulphate	33	mg/L	*c*	8
702303762	24/06/1983	04 83 05073	Total Dissolved Solids (by EC)	670	mg/L	*c*	8
702303762	25/06/1983	04 83 05074	Chloride	181	mg/L	*c*	9
702303762	25/06/1983	04 83 05074	Electrical Conductivity	1230	us/cm	*c*	9
702303762	25/06/1983	04 83 05074	Nitrate (as N)	12.37	mg/L	*c*	9

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
702303762	25/06/1983	04 83 05074	Nitrate + Nitrite (as N)	12.4	mg/L	*c*	9
702303762	25/06/1983	04 83 05074	Nitrite (as N)	0.03	mg/L	*c*	9
702303762	25/06/1983	04 83 05074	pH	7.4	pH Units	*c*	9
702303762	25/06/1983	04 83 05074	Phosphorus (total as P)	13	ug/L	*c*	9
702303762	25/06/1983	04 83 05074	Potassium	3.1	mg/L	*c*	9
702303762	25/06/1983	04 83 05074	Sodium	111	mg/L	*c*	9
702303762	25/06/1983	04 83 05074	Sulphate	31	mg/L	*c*	9
702303762	25/06/1983	04 83 05074	Total Dissolved Solids (by EC)	680	mg/L	*c*	9
702303762	25/06/1983	04 83 05075	Chloride	181	mg/L	*c*	10
702303762	25/06/1983	04 83 05075	Electrical Conductivity	1230	us/cm	*c*	10
702303762	25/06/1983	04 83 05075	Nitrate (as N)	12.17	mg/L	*c*	10
702303762	25/06/1983	04 83 05075	Nitrate + Nitrite (as N)	12.2	mg/L	*c*	10
702303762	25/06/1983	04 83 05075	Nitrite (as N)	0.03	mg/L	*c*	10
702303762	25/06/1983	04 83 05075	pH	7.4	pH Units	*c*	10
702303762	25/06/1983	04 83 05075	Phosphorus (total as P)	11	ug/L	*c*	10
702303762	25/06/1983	04 83 05075	Potassium	4	mg/L	*c*	10
702303762	25/06/1983	04 83 05075	Sodium	115	mg/L	*c*	10
702303762	25/06/1983	04 83 05075	Sulphate	30	mg/L	*c*	10
702303762	25/06/1983	04 83 05075	Total Dissolved Solids (by EC)	680	mg/L	*c*	10
702303762	25/06/1983	05 83 01695	Total Organic Carbon	4	mg/L	*c*	10
702303762	25/06/1983	04 83 05076	Chloride	180	mg/L	*c*	11
702303762	25/06/1983	04 83 05076	Electrical Conductivity	1260	us/cm	*c*	11
702303762	25/06/1983	04 83 05076	Nitrate (as N)	9.97	mg/L	*c*	11
702303762	25/06/1983	04 83 05076	Nitrate + Nitrite (as N)	10	mg/L	*c*	11
702303762	25/06/1983	04 83 05076	Nitrite (as N)	0.03	mg/L	*c*	11
702303762	25/06/1983	04 83 05076	pH	7.4	pH Units	*c*	11
702303762	25/06/1983	04 83 05076	Phosphorus (total as P)	16	ug/L	*c*	11
702303762	25/06/1983	04 83 05076	Potassium	3.2	mg/L	*c*	11
702303762	25/06/1983	04 83 05076	Sodium	125	mg/L	*c*	11
702303762	25/06/1983	04 83 05076	Sulphate	29	mg/L	*c*	11
702303762	25/06/1983	04 83 05076	Total Dissolved Solids (by EC)	690	mg/L	*c*	11
702303762	25/06/1983	05 83 01696	Total Organic Carbon	3	mg/L	*c*	11
702303762	25/06/1983	04 83 05077	Chloride	190	mg/L	*c*	12
702303762	25/06/1983	04 83 05077	Electrical Conductivity	1270	us/cm	*c*	12
702303762	25/06/1983	04 83 05077	Nitrate (as N)	10.97	mg/L	*c*	12
702303762	25/06/1983	04 83 05077	Nitrate + Nitrite (as N)	11	mg/L	*c*	12
702303762	25/06/1983	04 83 05077	Nitrite (as N)	0.03	mg/L	*c*	12
702303762	25/06/1983	04 83 05077	pH	7.4	pH Units	*c*	12
702303762	25/06/1983	04 83 05077	Phosphorus (total as P)	16	ug/L	*c*	12
702303762	25/06/1983	04 83 05077	Potassium	3.8	mg/L	*c*	12
702303762	25/06/1983	04 83 05077	Sodium	126	mg/L	*c*	12
702303762	25/06/1983	04 83 05077	Sulphate	31	mg/L	*c*	12
702303762	25/06/1983	04 83 05077	Total Dissolved Solids (by EC)	700	mg/L	*c*	12
702303762	25/06/1983	05 83 01697	Total Organic Carbon	5	mg/L	*c*	12
702303762	25/06/1983	04 83 05078	Chloride	196	mg/L	*c*	13
702303762	25/06/1983	04 83 05078	Electrical Conductivity	1290	us/cm	*c*	13
702303762	25/06/1983	04 83 05078	Nitrate (as N)	10.77	mg/L	*c*	13
702303762	25/06/1983	04 83 05078	Nitrate + Nitrite (as N)	10.8	mg/L	*c*	13
702303762	25/06/1983	04 83 05078	Nitrite (as N)	0.03	mg/L	*c*	13
702303762	25/06/1983	04 83 05078	pH	7.3	pH Units	*c*	13
702303762	25/06/1983	04 83 05078	Phosphorus (total as P)	11	ug/L	*c*	13
702303762	25/06/1983	04 83 05078	Potassium	3.6	mg/L	*c*	13
702303762	25/06/1983	04 83 05078	Sodium	130	mg/L	*c*	13

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702303762	25/06/1983	04 83 05078	Sulphate	31	mg/L	*c*	13
702303762	25/06/1983	04 83 05078	Total Dissolved Solids (by EC)	710	mg/L	*c*	13
702303762	25/06/1983	05 83 01698	Total Organic Carbon	3	mg/L	*c*	13
702303762	27/06/1983	04 83 05079	Ammonia (as N)	0.08	mg/L	*c*	13
702303762	27/06/1983	04 83 05080	Ammonia (as N)	0.121	mg/L	*c*	15
702303762	27/06/1983	04 83 05080	Chloride	216	mg/L	*c*	15
702303762	27/06/1983	04 83 05080	Electrical Conductivity	1300	us/cm	*c*	15
702303762	27/06/1983	04 83 05080	Nitrate (as N)	9.6	mg/L	*c*	15
702303762	27/06/1983	04 83 05080	Nitrate + Nitrite (as N)	9.8	mg/L	*c*	15
702303762	27/06/1983	04 83 05080	Nitrite (as N)	0.2	mg/L	*c*	15
702303762	27/06/1983	04 83 05080	pH	7.5	pH Units	*c*	15
702303762	27/06/1983	04 83 05080	Phosphorus (total as P)	42	ug/L	*c*	15
702303762	27/06/1983	04 83 05080	Potassium	3.9	mg/L	*c*	15
702303762	27/06/1983	04 83 05080	Sodium	138	mg/L	*c*	15
702303762	27/06/1983	04 83 05080	Sulphate	39	mg/L	*c*	15
702303762	27/06/1983	04 83 05080	Total Dissolved Solids (by EC)	720	mg/L	*c*	15
702303762	27/06/1983	04 83 05080	Total Kjeldahl Nitrogen (as N)	0.57	mg/L	*c*	15
702303762	27/06/1983	05 83 01700	Total Organic Carbon	4	mg/L	*c*	15
702303762	27/06/1983	04 83 05081	Ammonia (as N)	0.073	mg/L	*c*	17
702303762	27/06/1983	04 83 05081	Chloride	220	mg/L	*c*	17
702303762	27/06/1983	04 83 05081	Electrical Conductivity	1360	us/cm	*c*	17
702303762	27/06/1983	04 83 05081	Nitrate (as N)	9.77	mg/L	*c*	17
702303762	27/06/1983	04 83 05081	Nitrate + Nitrite (as N)	9.8	mg/L	*c*	17
702303762	27/06/1983	04 83 05081	Nitrite (as N)	0.03	mg/L	*c*	17
702303762	27/06/1983	04 83 05081	pH	7.4	pH Units	*c*	17
702303762	27/06/1983	04 83 05081	Phosphorus (total as P)	16	ug/L	*c*	17
702303762	27/06/1983	04 83 05081	Potassium	4	mg/L	*c*	17
702303762	27/06/1983	04 83 05081	Sodium	140	mg/L	*c*	17
702303762	27/06/1983	04 83 05081	Sulphate	34	mg/L	*c*	17
702303762	27/06/1983	04 83 05081	Total Dissolved Solids (by EC)	750	mg/L	*c*	17
702303762	27/06/1983	04 83 05081	Total Kjeldahl Nitrogen (as N)	0.51	mg/L	*c*	17
702303762	27/06/1983	05 83 01701	Total Organic Carbon	5	mg/L	*c*	17
702303762	27/06/1983	04 83 05082	Ammonia (as N)	0.053	mg/L	*c*	19
702303762	27/06/1983	04 83 05082	Chloride	229	mg/L	*c*	19
702303762	27/06/1983	04 83 05082	Electrical Conductivity	1400	us/cm	*c*	19
702303762	27/06/1983	04 83 05082	Nitrate (as N)	8.56	mg/L	*c*	19
702303762	27/06/1983	04 83 05082	Nitrate + Nitrite (as N)	8.6	mg/L	*c*	19
702303762	27/06/1983	04 83 05082	Nitrite (as N)	0.04	mg/L	*c*	19
702303762	27/06/1983	04 83 05082	pH	7.4	pH Units	*c*	19
702303762	27/06/1983	04 83 05082	Phosphorus (total as P)	8	ug/L	*c*	19
702303762	27/06/1983	04 83 05082	Potassium	4.4	mg/L	*c*	19
702303762	27/06/1983	04 83 05082	Sodium	137	mg/L	*c*	19
702303762	27/06/1983	04 83 05082	Sulphate	32	mg/L	*c*	19
702303762	27/06/1983	04 83 05082	Total Dissolved Solids (by EC)	770	mg/L	*c*	19
702303762	27/06/1983	04 83 05082	Total Kjeldahl Nitrogen (as N)	0.54	mg/L	*c*	19
702303762	27/06/1983	05 83 01702	Total Organic Carbon	5	mg/L	*c*	19
702303762	27/06/1983	04 83 08083	Ammonia (as N)	0.078	mg/L	*c*	21
702303762	27/06/1983	04 83 08083	Chloride	227	mg/L	*c*	21
702303762	27/06/1983	04 83 08083	Electrical Conductivity	1370	us/cm	*c*	21
702303762	27/06/1983	04 83 08083	Nitrate (as N)	7.64	mg/L	*c*	21
702303762	27/06/1983	04 83 08083	Nitrate + Nitrite (as N)	7.8	mg/L	*c*	21
702303762	27/06/1983	04 83 08083	Nitrite (as N)	0.16	mg/L	*c*	21

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
702303762	27/06/1983	04 83 08083	pH	7.4	pH Units	*c*	21
702303762	27/06/1983	04 83 08083	Phosphorus (total as P)	11	ug/L	*c*	21
702303762	27/06/1983	04 83 08083	Potassium	5	mg/L	*c*	21
702303762	27/06/1983	04 83 08083	Sodium	132	mg/L	*c*	21
702303762	27/06/1983	04 83 08083	Sulphate	30	mg/L	*c*	21
702303762	27/06/1983	04 83 08083	Total Dissolved Solids (by EC)	750	mg/L	*c*	21
702303762	27/06/1983	04 83 08083	Total Kjeldahl Nitrogen (as N)	0.57	mg/L	*c*	21
702303762	27/06/1983	05 83 01703	Total Organic Carbon	3	mg/L	*c*	21
702303762	28/06/1983	04 83 05084	Ammonia (as N)	0.089	mg/L	*c*	23
702303762	28/06/1983	04 83 05084	Chloride	225	mg/L	*c*	23
702303762	28/06/1983	04 83 05084	Electrical Conductivity	1380	us/cm	*c*	23
702303762	28/06/1983	04 83 05084	Nitrate (as N)	8.35	mg/L	*c*	23
702303762	28/06/1983	04 83 05084	Nitrate + Nitrite (as N)	8.6	mg/L	*c*	23
702303762	28/06/1983	04 83 05084	Nitrite (as N)	0.25	mg/L	*c*	23
702303762	28/06/1983	04 83 05084	pH	7.4	pH Units	*c*	23
702303762	28/06/1983	04 83 05084	Phosphorus (total as P)	18	ug/L	*c*	23
702303762	28/06/1983	04 83 05084	Potassium	4.6	mg/L	*c*	23
702303762	28/06/1983	04 83 05084	Sodium	131	mg/L	*c*	23
702303762	28/06/1983	04 83 05084	Sulphate	33	mg/L	*c*	23
702303762	28/06/1983	04 83 05084	Total Dissolved Solids (by EC)	760	mg/L	*c*	23
702303762	28/06/1983	04 83 05084	Total Kjeldahl Nitrogen (as N)	0.49	mg/L	*c*	23
702303762	28/06/1983	05 83 01704	Total Organic Carbon	3	mg/L	*c*	23
702303762	28/06/1983	04 83 05085	Ammonia (as N)	0.112	mg/L	*c*	25
702303762	28/06/1983	04 83 05085	Chloride	227	mg/L	*c*	25
702303762	28/06/1983	04 83 05085	Electrical Conductivity	1360	us/cm	*c*	25
702303762	28/06/1983	04 83 05085	Nitrate (as N)	8.37	mg/L	*c*	25
702303762	28/06/1983	04 83 05085	Nitrate + Nitrite (as N)	8.6	mg/L	*c*	25
702303762	28/06/1983	04 83 05085	Nitrite (as N)	0.23	mg/L	*c*	25
702303762	28/06/1983	04 83 05085	pH	7.4	pH Units	*c*	25
702303762	28/06/1983	04 83 05085	Phosphorus (total as P)	42	ug/L	*c*	25
702303762	28/06/1983	04 83 05085	Potassium	4.9	mg/L	*c*	25
702303762	28/06/1983	04 83 05085	Sodium	137	mg/L	*c*	25
702303762	28/06/1983	04 83 05085	Sulphate	34	mg/L	*c*	25
702303762	28/06/1983	04 83 05085	Total Dissolved Solids (by EC)	750	mg/L	*c*	25
702303762	28/06/1983	04 83 05085	Total Kjeldahl Nitrogen (as N)	0.4	mg/L	*c*	25
702303762	28/06/1983	05 83 01705	Total Organic Carbon	4	mg/L	*c*	25
702303762	28/06/1983	04 83 05086	Ammonia (as N)	0.21	mg/L	*c*	27
702303762	28/06/1983	04 83 05086	Chloride	228	mg/L	*c*	27
702303762	28/06/1983	04 83 05086	Electrical Conductivity	1360	us/cm	*c*	27
702303762	28/06/1983	04 83 05086	Nitrate (as N)	8.18	mg/L	*c*	27
702303762	28/06/1983	04 83 05086	Nitrate + Nitrite (as N)	8.4	mg/L	*c*	27
702303762	28/06/1983	04 83 05086	Nitrite (as N)	0.22	mg/L	*c*	27
702303762	28/06/1983	04 83 05086	pH	7.5	pH Units	*c*	27
702303762	28/06/1983	04 83 05086	Phosphorus (total as P)	74	ug/L	*c*	27
702303762	28/06/1983	04 83 05086	Potassium	6.1	mg/L	*c*	27
702303762	28/06/1983	04 83 05086	Sodium	140	mg/L	*c*	27
702303762	28/06/1983	04 83 05086	Sulphate	37	mg/L	*c*	27
702303762	28/06/1983	04 83 05086	Total Dissolved Solids (by EC)	750	mg/L	*c*	27
702303762	28/06/1983	04 83 05086	Total Kjeldahl Nitrogen (as N)	1.36	mg/L	*c*	27
702303762	28/06/1983	05 83 01706	Total Organic Carbon	3	mg/L	*c*	27
702303762	29/06/1983	04 83 05157	Ammonia (as N)	0.118	mg/L	*c*	29
702303762	29/06/1983	04 83 05157	Chloride	266	mg/L	*c*	29

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702303762	29/06/1983	04 83 05157	Electrical Conductivity	1450	us/cm	*c*	29
702303762	29/06/1983	04 83 05157	Nitrate (as N)	2.73	mg/L	*c*	29
702303762	29/06/1983	04 83 05157	Nitrate + Nitrite (as N)	2.8	mg/L	*c*	29
702303762	29/06/1983	04 83 05157	Nitrite (as N)	0.07	mg/L	*c*	29
702303762	29/06/1983	04 83 05157	pH	7.4	pH Units	*c*	29
702303762	29/06/1983	04 83 05157	Phosphorus (total as P)	22	ug/L	*c*	29
702303762	29/06/1983	04 83 05157	Potassium	6	mg/L	*c*	29
702303762	29/06/1983	04 83 05157	Sodium	152	mg/L	*c*	29
702303762	29/06/1983	04 83 05157	Sulphate	26	mg/L	*c*	29
702303762	29/06/1983	04 83 05157	Total Dissolved Solids (by EC)	800	mg/L	*c*	29
702303762	29/06/1983	04 83 05157	Total Kjeldahl Nitrogen (as N)	0.36	mg/L	*c*	29
702303762	29/06/1983	05 83 01770	Total Organic Carbon	3	mg/L	*c*	29
702303762	29/06/1983	04 83 05158	Ammonia (as N)	0.146	mg/L	*c*	31
702303762	29/06/1983	04 83 05158	Chloride	251	mg/L	*c*	31
702303762	29/06/1983	04 83 05158	Electrical Conductivity	1390	us/cm	*c*	31
702303762	29/06/1983	04 83 05158	Nitrate (as N)	5.5	mg/L	*c*	31
702303762	29/06/1983	04 83 05158	Nitrate + Nitrite (as N)	5.6	mg/L	*c*	31
702303762	29/06/1983	04 83 05158	Nitrite (as N)	0.1	mg/L	*c*	31
702303762	29/06/1983	04 83 05158	pH	7.4	pH Units	*c*	31
702303762	29/06/1983	04 83 05158	Phosphorus (total as P)	36	ug/L	*c*	31
702303762	29/06/1983	04 83 05158	Potassium	4.9	mg/L	*c*	31
702303762	29/06/1983	04 83 05158	Sodium	143	mg/L	*c*	31
702303762	29/06/1983	04 83 05158	Sulphate	33	mg/L	*c*	31
702303762	29/06/1983	04 83 05158	Total Dissolved Solids (by EC)	770	mg/L	*c*	31
702303762	29/06/1983	04 83 05158	Total Kjeldahl Nitrogen (as N)	0.41	mg/L	*c*	31
702303762	29/06/1983	05 83 01771	Total Organic Carbon	3	mg/L	*c*	31
702303762	29/06/1983	04 83 05159	Ammonia (as N)	0.258	mg/L	*c*	33
702303762	29/06/1983	04 83 05159	Chloride	253	mg/L	*c*	33
702303762	29/06/1983	04 83 05159	Electrical Conductivity	1400	us/cm	*c*	33
702303762	29/06/1983	04 83 05159	Nitrate (as N)	4.69	mg/L	*c*	33
702303762	29/06/1983	04 83 05159	Nitrate + Nitrite (as N)	4.7	mg/L	*c*	33
702303762	29/06/1983	04 83 05159	Nitrite (as N)	0.01	mg/L	*c*	33
702303762	29/06/1983	04 83 05159	pH	7.5	pH Units	*c*	33
702303762	29/06/1983	04 83 05159	Phosphorus (total as P)	28	ug/L	*c*	33
702303762	29/06/1983	04 83 05159	Potassium	4.8	mg/L	*c*	33
702303762	29/06/1983	04 83 05159	Sodium	143	mg/L	*c*	33
702303762	29/06/1983	04 83 05159	Sulphate	33	mg/L	*c*	33
702303762	29/06/1983	04 83 05159	Total Dissolved Solids (by EC)	770	mg/L	*c*	33
702303762	29/06/1983	04 83 05159	Total Kjeldahl Nitrogen (as N)	0.45	mg/L	*c*	33
702303762	29/06/1983	05 83 01772	Total Organic Carbon	3	mg/L	*c*	33
702303762	29/06/1983	04 83 05160	Ammonia (as N)	0.08	mg/L	*c*	35
702303762	29/06/1983	04 83 05160	Chloride	251	mg/L	*c*	35
702303762	29/06/1983	04 83 05160	Electrical Conductivity	1430	us/cm	*c*	35
702303762	29/06/1983	04 83 05160	Nitrate (as N)	5.39	mg/L	*c*	35
702303762	29/06/1983	04 83 05160	Nitrite (as N)	0.01	mg/L	*c*	35
702303762	29/06/1983	04 83 05160	pH	7.4	pH Units	*c*	35
702303762	29/06/1983	04 83 05160	Phosphorus (total as P)	5	ug/L	*c*	35
702303762	29/06/1983	04 83 05160	Potassium	4.4	mg/L	*c*	35
702303762	29/06/1983	04 83 05160	Sodium	143	mg/L	*c*	35
702303762	29/06/1983	04 83 05160	Sulphate	30	mg/L	*c*	35
702303762	29/06/1983	04 83 05160	Total Dissolved Solids (by EC)	790	mg/L	*c*	35
702303762	29/06/1983	04 83 05160	Total Kjeldahl Nitrogen (as N)	0.38	mg/L	*c*	35

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
702303762	29/06/1983	05 83 01773	Total Organic Carbon	2	mg/L	*c*	35
702303762	8/07/1983	04 83 05554	Chloride	278	mg/L	*c*	36
702303762	8/07/1983	04 83 05554	Electrical Conductivity	1400	us/cm	*c*	36
702303762	8/07/1983	04 83 05554	Nitrate (as N)	1.74	mg/L	*c*	36
702303762	8/07/1983	04 83 05554	Nitrate + Nitrite (as N)	2	mg/L	*c*	36
702303762	8/07/1983	04 83 05554	Nitrite (as N)	0.26	mg/L	*c*	36
702303762	8/07/1983	04 83 05554	pH	7.4	pH Units	*c*	36
702303762	8/07/1983	04 83 05554	Phosphorus (total as P)	8	ug/L	*c*	36
702303762	8/07/1983	04 83 05554	Potassium	4.9	mg/L	*c*	36
702303762	8/07/1983	04 83 05554	Sodium	148	mg/L	*c*	36
702303762	8/07/1983	04 83 05554	Sulphate	25	mg/L	*c*	36
702303762	8/07/1983	04 83 05554	Total Dissolved Solids (by EC)	770	mg/L	*c*	36
702303762	8/07/1983	04 83 05554	Total Kjeldahl Nitrogen (as N)	0.41	mg/L	*c*	36
702303762	8/07/1983	04 83 05555	Chloride	260	mg/L	*c*	37
702303762	8/07/1983	04 83 05555	Electrical Conductivity	1270	us/cm	*c*	37
702303762	8/07/1983	04 83 05555	Nitrate (as N)	2.18	mg/L	*c*	37
702303762	8/07/1983	04 83 05555	Nitrate + Nitrite (as N)	2.3	mg/L	*c*	37
702303762	8/07/1983	04 83 05555	Nitrite (as N)	0.12	mg/L	*c*	37
702303762	8/07/1983	04 83 05555	pH	7.4	pH Units	*c*	37
702303762	8/07/1983	04 83 05555	Phosphorus (total as P)	6	ug/L	*c*	37
702303762	8/07/1983	04 83 05555	Potassium	5	mg/L	*c*	37
702303762	8/07/1983	04 83 05555	Sodium	145	mg/L	*c*	37
702303762	8/07/1983	04 83 05555	Sulphate	26	mg/L	*c*	37
702303762	8/07/1983	04 83 05555	Total Dissolved Solids (by EC)	700	mg/L	*c*	37
702303762	8/07/1983	04 83 05555	Total Kjeldahl Nitrogen (as N)	0.44	mg/L	*c*	37
702303762	8/07/1983	04 83 05556	Chloride	285	mg/L	*c*	38
702303762	8/07/1983	04 83 05556	Electrical Conductivity	1410	us/cm	*c*	38
702303762	8/07/1983	04 83 05556	Nitrate (as N)	2.35	mg/L	*c*	38
702303762	8/07/1983	04 83 05556	Nitrate + Nitrite (as N)	2.4	mg/L	*c*	38
702303762	8/07/1983	04 83 05556	Nitrite (as N)	0.05	mg/L	*c*	38
702303762	8/07/1983	04 83 05556	pH	7.4	pH Units	*c*	38
702303762	8/07/1983	04 83 05556	Phosphorus (total as P)	8	ug/L	*c*	38
702303762	8/07/1983	04 83 05556	Potassium	4.5	mg/L	*c*	38
702303762	8/07/1983	04 83 05556	Sodium	145	mg/L	*c*	38
702303762	8/07/1983	04 83 05556	Sulphate	25	mg/L	*c*	38
702303762	8/07/1983	04 83 05556	Total Dissolved Solids (by EC)	780	mg/L	*c*	38
702303762	8/07/1983	04 83 05556	Total Kjeldahl Nitrogen (as N)	0.56	mg/L	*c*	38
702303762	8/07/1983	04 83 05557	Chloride	303	mg/L	*c*	39
702303762	8/07/1983	04 83 05557	Electrical Conductivity	1450	us/cm	*c*	39
702303762	8/07/1983	04 83 05557	Nitrate (as N)	0.38	mg/L	*c*	39
702303762	8/07/1983	04 83 05557	Nitrate + Nitrite (as N)	0.42	mg/L	*c*	39
702303762	8/07/1983	04 83 05557	Nitrite (as N)	0.04	mg/L	*c*	39
702303762	8/07/1983	04 83 05557	pH	7.4	pH Units	*c*	39
702303762	8/07/1983	04 83 05557	Phosphorus (total as P)	5	ug/L	*c*	39
702303762	8/07/1983	04 83 05557	Potassium	5	mg/L	*c*	39
702303762	8/07/1983	04 83 05557	Sodium	145	mg/L	*c*	39
702303762	8/07/1983	04 83 05557	Sulphate	23	mg/L	*c*	39
702303762	8/07/1983	04 83 05557	Total Dissolved Solids (by EC)	800	mg/L	*c*	39
702303762	8/07/1983	04 83 05557	Total Kjeldahl Nitrogen (as N)	0.56	mg/L	*c*	39
702303762	8/07/1983	04 83 05558	Chloride	300	mg/L	*c*	40
702303762	8/07/1983	04 83 05558	Electrical Conductivity	1450	us/cm	*c*	40
702303762	8/07/1983	04 83 05558	Nitrate (as N)	0.25	mg/L	*c*	40

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
702303762	8/07/1983	04 83 05558	Nitrate + Nitrite (as N)	0.26	mg/L	*c*	40
702303762	8/07/1983	04 83 05558	Nitrite (as N)	0.01	mg/L	*c*	40
702303762	8/07/1983	04 83 05558	pH	7.3	pH Units	*c*	40
702303762	8/07/1983	04 83 05558	Phosphorus (total as P)	5	ug/L	*c*	40
702303762	8/07/1983	04 83 05558	Potassium	4.6	mg/L	*c*	40
702303762	8/07/1983	04 83 05558	Sodium	152	mg/L	*c*	40
702303762	8/07/1983	04 83 05558	Sulphate	22	mg/L	*c*	40
702303762	8/07/1983	04 83 05558	Total Dissolved Solids (by EC)	800	mg/L	*c*	40
702303762	8/07/1983	04 83 05558	Total Kjeldahl Nitrogen (as N)	0.76	mg/L	*c*	40
702303765	12/07/1983	04 83 05648	Chloride	73	mg/L	*c*	5
702303765	12/07/1983	04 83 05648	Electrical Conductivity	835	us/cm	*c*	5
702303765	12/07/1983	04 83 05648	Nitrate (as N)	18.69	mg/L	*c*	5
702303765	12/07/1983	04 83 05648	Nitrate + Nitrite (as N)	18.7	mg/L	*c*	5
702303765	12/07/1983	04 83 05648	Nitrite (as N)	0.01	mg/L	*c*	5
702303765	12/07/1983	04 83 05648	pH	7.5	pH Units	*c*	5
702303765	12/07/1983	04 83 05648	Phosphorus (total as P)	176	ug/L	*c*	5
702303765	12/07/1983	04 83 05648	Potassium	1.9	mg/L	*c*	5
702303765	12/07/1983	04 83 05648	Sodium	71	mg/L	*c*	5
702303765	12/07/1983	04 83 05648	Sulphate	44	mg/L	*c*	5
702303765	12/07/1983	04 83 05648	Total Dissolved Solids (by EC)	460	mg/L	*c*	5
702303765	12/07/1983	04 83 05648	Total Kjeldahl Nitrogen (as N)	0.16	mg/L	*c*	5
702303765	12/07/1983	04 83 05649	Chloride	67	mg/L	*c*	6
702303765	12/07/1983	04 83 05649	Electrical Conductivity	859	us/cm	*c*	6
702303765	12/07/1983	04 83 05649	Nitrate (as N)	21.49	mg/L	*c*	6
702303765	12/07/1983	04 83 05649	Nitrate + Nitrite (as N)	21.5	mg/L	*c*	6
702303765	12/07/1983	04 83 05649	Nitrite (as N)	0.01	mg/L	*c*	6
702303765	12/07/1983	04 83 05649	pH	7.4	pH Units	*c*	6
702303765	12/07/1983	04 83 05649	Phosphorus (total as P)	10	ug/L	*c*	6
702303765	12/07/1983	04 83 05649	Potassium	2.1	mg/L	*c*	6
702303765	12/07/1983	04 83 05649	Sodium	78	mg/L	*c*	6
702303765	12/07/1983	04 83 05649	Sulphate	44	mg/L	*c*	6
702303765	12/07/1983	04 83 05649	Total Dissolved Solids (by EC)	470	mg/L	*c*	6
702303765	12/07/1983	04 83 05649	Total Kjeldahl Nitrogen (as N)	0.6	mg/L	*c*	6
702303765	14/07/1983	04 83 05669	Chloride	67	mg/L	*c*	7
702303765	14/07/1983	04 83 05669	Electrical Conductivity	848	us/cm	*c*	7
702303765	14/07/1983	04 83 05669	Nitrate (as N)	21.49	mg/L	*c*	7
702303765	14/07/1983	04 83 05669	Nitrate + Nitrite (as N)	21.5	mg/L	*c*	7
702303765	14/07/1983	04 83 05669	Nitrite (as N)	0.01	mg/L	*c*	7
702303765	14/07/1983	04 83 05669	pH	7.5	pH Units	*c*	7
702303765	14/07/1983	04 83 05669	Phosphorus (total as P)	14	ug/L	*c*	7
702303765	14/07/1983	04 83 05669	Potassium	1.7	mg/L	*c*	7
702303765	14/07/1983	04 83 05669	Sodium	74	mg/L	*c*	7
702303765	14/07/1983	04 83 05669	Sulphate	43	mg/L	*c*	7
702303765	14/07/1983	04 83 05669	Total Dissolved Solids (by EC)	470	mg/L	*c*	7
702303765	14/07/1983	04 83 05669	Total Kjeldahl Nitrogen (as N)	0.16	mg/L	*c*	7
702303765	14/07/1983	04 83 05670	Chloride	66	mg/L	*c*	8
702303765	14/07/1983	04 83 05670	Electrical Conductivity	883	us/cm	*c*	8
702303765	14/07/1983	04 83 05670	Nitrate (as N)	22.79	mg/L	*c*	8
702303765	14/07/1983	04 83 05670	Nitrate + Nitrite (as N)	22.8	mg/L	*c*	8
702303765	14/07/1983	04 83 05670	Nitrite (as N)	0.01	mg/L	*c*	8
702303765	14/07/1983	04 83 05670	pH	7.5	pH Units	*c*	8
702303765	14/07/1983	04 83 05670	Phosphorus (total as P)	12	ug/L	*c*	8

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
702303765	14/07/1983	04 83 05670	Potassium	1.9	mg/L	*c*	8
702303765	14/07/1983	04 83 05670	Sodium	81	mg/L	*c*	8
702303765	14/07/1983	04 83 05670	Sulphate	42	mg/L	*c*	8
702303765	14/07/1983	04 83 05670	Total Dissolved Solids (by EC)	490	mg/L	*c*	8
702303765	14/07/1983	04 83 05670	Total Kjeldahl Nitrogen (as N)	0.05	mg/L	*c*	8
702303765	14/07/1983	04 83 05671	Chloride	71	mg/L	*c*	9
702303765	14/07/1983	04 83 05671	Electrical Conductivity	893	us/cm	*c*	9
702303765	14/07/1983	04 83 05671	Nitrate (as N)	22.99	mg/L	*c*	9
702303765	14/07/1983	04 83 05671	Nitrate + Nitrite (as N)	23	mg/L	*c*	9
702303765	14/07/1983	04 83 05671	Nitrite (as N)	0.01	mg/L	*c*	9
702303765	14/07/1983	04 83 05671	pH	7.6	pH Units	*c*	9
702303765	14/07/1983	04 83 05671	Phosphorus (total as P)	17	ug/L	*c*	9
702303765	14/07/1983	04 83 05671	Potassium	2	mg/L	*c*	9
702303765	14/07/1983	04 83 05671	Sodium	83	mg/L	*c*	9
702303765	14/07/1983	04 83 05671	Sulphate	43	mg/L	*c*	9
702303765	14/07/1983	04 83 05671	Total Dissolved Solids (by EC)	490	mg/L	*c*	9
702303765	14/07/1983	04 83 05671	Total Kjeldahl Nitrogen (as N)	0.12	mg/L	*c*	9
702303765	14/07/1983	04 83 05672	Chloride	69	mg/L	*c*	10
702303765	14/07/1983	04 83 05672	Electrical Conductivity	864	us/cm	*c*	10
702303765	14/07/1983	04 83 05672	Nitrate (as N)	21.49	mg/L	*c*	10
702303765	14/07/1983	04 83 05672	Nitrate + Nitrite (as N)	21.5	mg/L	*c*	10
702303765	14/07/1983	04 83 05672	Nitrite (as N)	0.01	mg/L	*c*	10
702303765	14/07/1983	04 83 05672	pH	7.6	pH Units	*c*	10
702303765	14/07/1983	04 83 05672	Phosphorus (total as P)	25	ug/L	*c*	10
702303765	14/07/1983	04 83 05672	Potassium	2.3	mg/L	*c*	10
702303765	14/07/1983	04 83 05672	Sodium	84	mg/L	*c*	10
702303765	14/07/1983	04 83 05672	Sulphate	44	mg/L	*c*	10
702303765	14/07/1983	04 83 05672	Total Dissolved Solids (by EC)	480	mg/L	*c*	10
702303765	14/07/1983	04 83 05672	Total Kjeldahl Nitrogen (as N)	0.39	mg/L	*c*	10
702303765	14/07/1983	04 83 05673	Chloride	75	mg/L	*c*	11
702303765	14/07/1983	04 83 05673	Electrical Conductivity	908	us/cm	*c*	11
702303765	14/07/1983	04 83 05673	Nitrate (as N)	22.29	mg/L	*c*	11
702303765	14/07/1983	04 83 05673	Nitrate + Nitrite (as N)	22.3	mg/L	*c*	11
702303765	14/07/1983	04 83 05673	Nitrite (as N)	0.01	mg/L	*c*	11
702303765	14/07/1983	04 83 05673	pH	7.6	pH Units	*c*	11
702303765	14/07/1983	04 83 05673	Phosphorus (total as P)	17	ug/L	*c*	11
702303765	14/07/1983	04 83 05673	Potassium	2.3	mg/L	*c*	11
702303765	14/07/1983	04 83 05673	Sodium	85	mg/L	*c*	11
702303765	14/07/1983	04 83 05673	Sulphate	44	mg/L	*c*	11
702303765	14/07/1983	04 83 05673	Total Dissolved Solids (by EC)	500	mg/L	*c*	11
702303765	14/07/1983	04 83 05673	Total Kjeldahl Nitrogen (as N)	0.05	mg/L	*c*	11
702303765	15/07/1983	04 83 05751	Chloride	92	mg/L	*c*	12
702303765	15/07/1983	04 83 05751	Electrical Conductivity	1000	us/cm	*c*	12
702303765	15/07/1983	04 83 05751	Nitrate (as N)	23.39	mg/L	*c*	12
702303765	15/07/1983	04 83 05751	Nitrate + Nitrite (as N)	23.4	mg/L	*c*	12
702303765	15/07/1983	04 83 05751	Nitrite (as N)	0.01	mg/L	*c*	12
702303765	15/07/1983	04 83 05751	pH	7.3	pH Units	*c*	12
702303765	15/07/1983	04 83 05751	Phosphorus (total as P)	13	ug/L	*c*	12
702303765	15/07/1983	04 83 05751	Potassium	2.2	mg/L	*c*	12
702303765	15/07/1983	04 83 05751	Sodium	101	mg/L	*c*	12
702303765	15/07/1983	04 83 05751	Sulphate	40	mg/L	*c*	12
702303765	15/07/1983	04 83 05751	Total Dissolved Solids (by EC)	550	mg/L	*c*	12
702303765	15/07/1983	04 83 05751	Total Kjeldahl	0.58	mg/L	*c*	12

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
			Nitrogen (as N)				
702303765	15/07/1983	04 83 05752	Chloride	140	mg/L	*c*	13
702303765	15/07/1983	04 83 05752	Electrical Conductivity	1120	us/cm	*c*	13
702303765	15/07/1983	04 83 05752	Nitrate (as N)	21.39	mg/L	*c*	13
702303765	15/07/1983	04 83 05752	Nitrate + Nitrite (as N)	21.4	mg/L	*c*	13
702303765	15/07/1983	04 83 05752	Nitrite (as N)	0.01	mg/L	*c*	13
702303765	15/07/1983	04 83 05752	pH	7.4	pH Units	*c*	13
702303765	15/07/1983	04 83 05752	Phosphorus (total as P)	1	ug/L	*c*	13
702303765	15/07/1983	04 83 05752	Potassium	3	mg/L	*c*	13
702303765	15/07/1983	04 83 05752	Sodium	105	mg/L	*c*	13
702303765	15/07/1983	04 83 05752	Sulphate	31	mg/L	*c*	13
702303765	15/07/1983	04 83 05752	Total Dissolved Solids (by EC)	620	mg/L	*c*	13
702303765	15/07/1983	04 83 05752	Total Kjeldahl Nitrogen (as N)	0.58	mg/L	*c*	13
702303765	15/07/1983	04 83 05753	Chloride	157	mg/L	*c*	14
702303765	15/07/1983	04 83 05753	Electrical Conductivity	1150	us/cm	*c*	14
702303765	15/07/1983	04 83 05753	Nitrate (as N)	20.69	mg/L	*c*	14
702303765	15/07/1983	04 83 05753	Nitrate + Nitrite (as N)	20.7	mg/L	*c*	14
702303765	15/07/1983	04 83 05753	Nitrite (as N)	0.01	mg/L	*c*	14
702303765	15/07/1983	04 83 05753	pH	7.4	pH Units	*c*	14
702303765	15/07/1983	04 83 05753	Phosphorus (total as P)	13	ug/L	*c*	14
702303765	15/07/1983	04 83 05753	Potassium	2.8	mg/L	*c*	14
702303765	15/07/1983	04 83 05753	Sodium	104	mg/L	*c*	14
702303765	15/07/1983	04 83 05753	Sulphate	39	mg/L	*c*	14
702303765	15/07/1983	04 83 05753	Total Dissolved Solids (by EC)	630	mg/L	*c*	14
702303765	15/07/1983	04 83 05753	Total Kjeldahl Nitrogen (as N)	0.58	mg/L	*c*	14
702303765	15/07/1983	04 83 05754	Chloride	157	mg/L	*c*	15
702303765	15/07/1983	04 83 05754	Electrical Conductivity	1120	us/cm	*c*	15
702303765	15/07/1983	04 83 05754	Nitrate (as N)	20.69	mg/L	*c*	15
702303765	15/07/1983	04 83 05754	Nitrate + Nitrite (as N)	20.7	mg/L	*c*	15
702303765	15/07/1983	04 83 05754	Nitrite (as N)	0.01	mg/L	*c*	15
702303765	15/07/1983	04 83 05754	pH	7.4	pH Units	*c*	15
702303765	15/07/1983	04 83 05754	Phosphorus (total as P)	13	ug/L	*c*	15
702303765	15/07/1983	04 83 05754	Potassium	2.7	mg/L	*c*	15
702303765	15/07/1983	04 83 05754	Sodium	105	mg/L	*c*	15
702303765	15/07/1983	04 83 05754	Sulphate	27	mg/L	*c*	15
702303765	15/07/1983	04 83 05754	Total Dissolved Solids (by EC)	620	mg/L	*c*	15
702303765	15/07/1983	04 83 05754	Total Kjeldahl Nitrogen (as N)	0.37	mg/L	*c*	15
702303765	19/07/1983	04 83 05777	Ammonia (as N)	0.09	mg/L	*c*	16
702303765	19/07/1983	04 83 05777	Chloride	168	mg/L	*c*	16
702303765	19/07/1983	04 83 05777	Electrical Conductivity	1150	us/cm	*c*	16
702303765	19/07/1983	04 83 05777	Nitrate (as N)	19.79	mg/L	*c*	16
702303765	19/07/1983	04 83 05777	Nitrate + Nitrite (as N)	19.8	mg/L	*c*	16
702303765	19/07/1983	04 83 05777	Nitrite (as N)	0.01	mg/L	*c*	16
702303765	19/07/1983	04 83 05777	pH	7.4	pH Units	*c*	16
702303765	19/07/1983	04 83 05777	Phosphorus (total as P)	13	ug/L	*c*	16
702303765	19/07/1983	04 83 05777	Potassium	3.3	mg/L	*c*	16
702303765	19/07/1983	04 83 05777	Sodium	105	mg/L	*c*	16
702303765	19/07/1983	04 83 05777	Sulphate	24	mg/L	*c*	16
702303765	19/07/1983	04 83 05777	Total Dissolved Solids (by EC)	630	mg/L	*c*	16
702303765	19/07/1983	04 83 05777	Total Kjeldahl Nitrogen (as N)	0.75	mg/L	*c*	16
702303765	19/07/1983	04 83 05778	Ammonia (as N)	0.081	mg/L	*c*	17
702303765	19/07/1983	04 83 05778	Chloride	237	mg/L	*c*	17
702303765	19/07/1983	04 83 05778	Electrical Conductivity	1300	us/cm	*c*	17

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
702303765	19/07/1983	04 83 05778	Nitrate (as N)	2	mg/L	*c*	17
702303765	19/07/1983	04 83 05778	Nitrate + Nitrite (as N)	2	mg/L	*c*	17
702303765	19/07/1983	04 83 05778	Nitrite (as N)	0.01	mg/L	*c*	17
702303765	19/07/1983	04 83 05778	pH	7.3	pH Units	*c*	17
702303765	19/07/1983	04 83 05778	Phosphorus (total as P)	13	ug/L	*c*	17
702303765	19/07/1983	04 83 05778	Potassium	3.9	mg/L	*c*	17
702303765	19/07/1983	04 83 05778	Sodium	136	mg/L	*c*	17
702303765	19/07/1983	04 83 05778	Sulphate	24	mg/L	*c*	17
702303765	19/07/1983	04 83 05778	Total Dissolved Solids (by EC)	720	mg/L	*c*	17
702303765	19/07/1983	04 83 05778	Total Kjeldahl Nitrogen (as N)	0.81	mg/L	*c*	17
702303765	19/07/1983	04 83 05779	Ammonia (as N)	0.09	mg/L	*c*	18
702303765	19/07/1983	04 83 05779	Chloride	255	mg/L	*c*	18
702303765	19/07/1983	04 83 05779	Electrical Conductivity	1370	us/cm	*c*	18
702303765	19/07/1983	04 83 05779	Nitrate (as N)	0.07	mg/L	*c*	18
702303765	19/07/1983	04 83 05779	Nitrate + Nitrite (as N)	0.08	mg/L	*c*	18
702303765	19/07/1983	04 83 05779	Nitrite (as N)	0.01	mg/L	*c*	18
702303765	19/07/1983	04 83 05779	pH	7.3	pH Units	*c*	18
702303765	19/07/1983	04 83 05779	Phosphorus (total as P)	8	ug/L	*c*	18
702303765	19/07/1983	04 83 05779	Potassium	4.5	mg/L	*c*	18
702303765	19/07/1983	04 83 05779	Sodium	138	mg/L	*c*	18
702303765	19/07/1983	04 83 05779	Sulphate	23	mg/L	*c*	18
702303765	19/07/1983	04 83 05779	Total Dissolved Solids (by EC)	750	mg/L	*c*	18
702303765	19/07/1983	04 83 05779	Total Kjeldahl Nitrogen (as N)	0.9	mg/L	*c*	18
702303765	19/07/1983	04 83 05780	Ammonia (as N)	0.095	mg/L	*c*	19
702303765	19/07/1983	04 83 05780	Chloride	254	mg/L	*c*	19
702303765	19/07/1983	04 83 05780	Electrical Conductivity	1370	us/cm	*c*	19
702303765	19/07/1983	04 83 05780	Nitrate (as N)	0.07	mg/L	*c*	19
702303765	19/07/1983	04 83 05780	Nitrate + Nitrite (as N)	0.08	mg/L	*c*	19
702303765	19/07/1983	04 83 05780	Nitrite (as N)	0.01	mg/L	*c*	19
702303765	19/07/1983	04 83 05780	pH	7.4	pH Units	*c*	19
702303765	19/07/1983	04 83 05780	Phosphorus (total as P)	8	ug/L	*c*	19
702303765	19/07/1983	04 83 05780	Potassium	4.5	mg/L	*c*	19
702303765	19/07/1983	04 83 05780	Sodium	140	mg/L	*c*	19
702303765	19/07/1983	04 83 05780	Sulphate	24	mg/L	*c*	19
702303765	19/07/1983	04 83 05780	Total Dissolved Solids (by EC)	750	mg/L	*c*	19
702303765	19/07/1983	04 83 05780	Total Kjeldahl Nitrogen (as N)	0.99	mg/L	*c*	19
702303765	19/07/1983	04 83 05781	Ammonia (as N)	0.005	mg/L	*c*	20
702303765	19/07/1983	04 83 05781	Chloride	108	mg/L	*c*	20
702303765	19/07/1983	04 83 05781	Electrical Conductivity	1000	us/cm	*c*	20
702303765	19/07/1983	04 83 05781	Nitrate (as N)	18.25	mg/L	*c*	20
702303765	19/07/1983	04 83 05781	Nitrate + Nitrite (as N)	18.3	mg/L	*c*	20
702303765	19/07/1983	04 83 05781	Nitrite (as N)	0.05	mg/L	*c*	20
702303765	19/07/1983	04 83 05781	pH	7.4	pH Units	*c*	20
702303765	19/07/1983	04 83 05781	Phosphorus (total as P)	19	ug/L	*c*	20
702303765	19/07/1983	04 83 05781	Potassium	2.3	mg/L	*c*	20
702303765	19/07/1983	04 83 05781	Sodium	95	mg/L	*c*	20
702303765	19/07/1983	04 83 05781	Sulphate	38	mg/L	*c*	20
702303765	19/07/1983	04 83 05781	Total Dissolved Solids (by EC)	550	mg/L	*c*	20
702303765	19/07/1983	04 83 05781	Total Kjeldahl Nitrogen (as N)	0.33	mg/L	*c*	20
702303765	19/07/1983	04 83 05782	Ammonia (as N)	0.038	mg/L	*c*	21
702303765	19/07/1983	04 83 05782	Chloride	185	mg/L	*c*	21
702303765	19/07/1983	04 83 05782	Electrical Conductivity	1200	us/cm	*c*	21
702303765	19/07/1983	04 83 05782	Nitrate (as N)	11.74	mg/L	*c*	21
702303765	19/07/1983	04 83 05782	Nitrate + Nitrite (as	11.8	mg/L	*c*	21

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
			N)				
702303765	19/07/1983	04 83 05782	Nitrite (as N)	0.06	mg/L	*c*	21
702303765	19/07/1983	04 83 05782	pH	7.3	pH Units	*c*	21
702303765	19/07/1983	04 83 05782	Phosphorus (total as P)	14	ug/L	*c*	21
702303765	19/07/1983	04 83 05782	Potassium	3.3	mg/L	*c*	21
702303765	19/07/1983	04 83 05782	Sodium	115	mg/L	*c*	21
702303765	19/07/1983	04 83 05782	Sulphate	28	mg/L	*c*	21
702303765	19/07/1983	04 83 05782	Total Dissolved Solids (by EC)	660	mg/L	*c*	21
702303765	19/07/1983	04 83 05782	Total Kjeldahl Nitrogen (as N)	0.61	mg/L	*c*	21
702303765	20/07/1983	04 83 05956	Ammonia (as N)	0.166	mg/L	*c*	23
702303765	20/07/1983	04 83 05956	Chloride	159	mg/L	*c*	23
702303765	20/07/1983	04 83 05956	Electrical Conductivity	1110	us/cm	*c*	23
702303765	20/07/1983	04 83 05956	Nitrate (as N)	11.84	mg/L	*c*	23
702303765	20/07/1983	04 83 05956	Nitrate + Nitrite (as N)	12.5	mg/L	*c*	23
702303765	20/07/1983	04 83 05956	Nitrite (as N)	0.66	mg/L	*c*	23
702303765	20/07/1983	04 83 05956	pH	7.5	pH Units	*c*	23
702303765	20/07/1983	04 83 05956	Phosphorus (total as P)	27	ug/L	*c*	23
702303765	20/07/1983	04 83 05956	Potassium	3.7	mg/L	*c*	23
702303765	20/07/1983	04 83 05956	Sodium	111	mg/L	*c*	23
702303765	20/07/1983	04 83 05956	Sulphate	39	mg/L	*c*	23
702303765	20/07/1983	04 83 05956	Total Dissolved Solids (by EC)	610	mg/L	*c*	23
702303765	20/07/1983	04 83 05956	Total Kjeldahl Nitrogen (as N)	2.1	mg/L	*c*	23
702303765	20/07/1983	04 83 05957	Ammonia (as N)	0.141	mg/L	*c*	25
702303765	20/07/1983	04 83 05957	Chloride	241	mg/L	*c*	25
702303765	20/07/1983	04 83 05957	Electrical Conductivity	1310	us/cm	*c*	25
702303765	20/07/1983	04 83 05957	Nitrate (as N)	2.97	mg/L	*c*	25
702303765	20/07/1983	04 83 05957	Nitrate + Nitrite (as N)	3	mg/L	*c*	25
702303765	20/07/1983	04 83 05957	Nitrite (as N)	0.03	mg/L	*c*	25
702303765	20/07/1983	04 83 05957	pH	7.5	pH Units	*c*	25
702303765	20/07/1983	04 83 05957	Phosphorus (total as P)	19	ug/L	*c*	25
702303765	20/07/1983	04 83 05957	Potassium	4.4	mg/L	*c*	25
702303765	20/07/1983	04 83 05957	Sodium	132	mg/L	*c*	25
702303765	20/07/1983	04 83 05957	Sulphate	27	mg/L	*c*	25
702303765	20/07/1983	04 83 05957	Total Dissolved Solids (by EC)	720	mg/L	*c*	25
702303765	20/07/1983	04 83 05957	Total Kjeldahl Nitrogen (as N)	0.71	mg/L	*c*	25
702303765	20/07/1983	04 83 05958	Ammonia (as N)	0.033	mg/L	*c*	27
702303765	20/07/1983	04 83 05958	Chloride	215	mg/L	*c*	27
702303765	20/07/1983	04 83 05958	Electrical Conductivity	1250	us/cm	*c*	27
702303765	20/07/1983	04 83 05958	Nitrate (as N)	5.69	mg/L	*c*	27
702303765	20/07/1983	04 83 05958	Nitrate + Nitrite (as N)	5.9	mg/L	*c*	27
702303765	20/07/1983	04 83 05958	Nitrite (as N)	0.21	mg/L	*c*	27
702303765	20/07/1983	04 83 05958	pH	7.4	pH Units	*c*	27
702303765	20/07/1983	04 83 05958	Phosphorus (total as P)	16	ug/L	*c*	27
702303765	20/07/1983	04 83 05958	Potassium	4.1	mg/L	*c*	27
702303765	20/07/1983	04 83 05958	Sodium	120	mg/L	*c*	27
702303765	20/07/1983	04 83 05958	Sulphate	30	mg/L	*c*	27
702303765	20/07/1983	04 83 05958	Total Dissolved Solids (by EC)	690	mg/L	*c*	27
702303765	20/07/1983	04 83 05958	Total Kjeldahl Nitrogen (as N)	1.08	mg/L	*c*	27
702303765	20/07/1983	04 83 05959	Ammonia (as N)	0.0106	mg/L	*c*	29
702303765	20/07/1983	04 83 05959	Chloride	227	mg/L	*c*	29
702303765	20/07/1983	04 83 05959	Electrical Conductivity	1280	us/cm	*c*	29
702303765	20/07/1983	04 83 05959	Nitrate (as N)	4.85	mg/L	*c*	29
702303765	20/07/1983	04 83 05959	Nitrate + Nitrite (as N)	4.9	mg/L	*c*	29
702303765	20/07/1983	04 83 05959	Nitrite (as N)	0.05	mg/L	*c*	29

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
702303765	20/07/1983	04 83 05959	pH	7.4	pH Units	*c*	29
702303765	20/07/1983	04 83 05959	Phosphorus (total as P)	16	ug/L	*c*	29
702303765	20/07/1983	04 83 05959	Potassium	3.6	mg/L	*c*	29
702303765	20/07/1983	04 83 05959	Sodium	126	mg/L	*c*	29
702303765	20/07/1983	04 83 05959	Sulphate	24	mg/L	*c*	29
702303765	20/07/1983	04 83 05959	Total Dissolved Solids (by EC)	710	mg/L	*c*	29
702303765	20/07/1983	04 83 05959	Total Kjeldahl Nitrogen (as N)	0.58	mg/L	*c*	29
702303765	21/07/1983	04 83 06028	Chloride	241	mg/L	*c*	31
702303765	21/07/1983	04 83 06028	Electrical Conductivity	1330	us/cm	*c*	31
702303765	21/07/1983	04 83 06028	Nitrate (as N)	0.91	mg/L	*c*	31
702303765	21/07/1983	04 83 06028	Nitrate + Nitrite (as N)	1.46	mg/L	*c*	31
702303765	21/07/1983	04 83 06028	Nitrite (as N)	0.55	mg/L	*c*	31
702303765	21/07/1983	04 83 06028	pH	7.4	pH Units	*c*	31
702303765	21/07/1983	04 83 06028	Phosphorus (total as P)	5	ug/L	*c*	31
702303765	21/07/1983	04 83 06028	Potassium	4.4	mg/L	*c*	31
702303765	21/07/1983	04 83 06028	Sodium	126	mg/L	*c*	31
702303765	21/07/1983	04 83 06028	Sulphate	23	mg/L	*c*	31
702303765	21/07/1983	04 83 06028	Total Dissolved Solids (by EC)	730	mg/L	*c*	31
702303765	21/07/1983	04 83 06028	Total Kjeldahl Nitrogen (as N)	0.95	mg/L	*c*	31
702303765	21/07/1983	04 83 06026	Chloride	240	mg/L	*c*	33
702303765	21/07/1983	04 83 06026	Electrical Conductivity	1310	us/cm	*c*	33
702303765	21/07/1983	04 83 06026	Nitrate (as N)	2.63	mg/L	*c*	33
702303765	21/07/1983	04 83 06026	Nitrate + Nitrite (as N)	2.69	mg/L	*c*	33
702303765	21/07/1983	04 83 06026	Nitrite (as N)	0.06	mg/L	*c*	33
702303765	21/07/1983	04 83 06026	pH	7.5	pH Units	*c*	33
702303765	21/07/1983	04 83 06026	Phosphorus (total as P)	5	ug/L	*c*	33
702303765	21/07/1983	04 83 06026	Potassium	4.1	mg/L	*c*	33
702303765	21/07/1983	04 83 06026	Sodium	126	mg/L	*c*	33
702303765	21/07/1983	04 83 06026	Sulphate	24	mg/L	*c*	33
702303765	21/07/1983	04 83 06026	Total Dissolved Solids (by EC)	720	mg/L	*c*	33
702303765	21/07/1983	04 83 06026	Total Kjeldahl Nitrogen (as N)	0.33	mg/L	*c*	33
702303765	21/07/1983	04 83 06027	Chloride	148	mg/L	*c*	35
702303765	21/07/1983	04 83 06027	Electrical Conductivity	1110	us/cm	*c*	35
702303765	21/07/1983	04 83 06027	Nitrate (as N)	16.44	mg/L	*c*	35
702303765	21/07/1983	04 83 06027	Nitrate + Nitrite (as N)	16.7	mg/L	*c*	35
702303765	21/07/1983	04 83 06027	Nitrite (as N)	0.26	mg/L	*c*	35
702303765	21/07/1983	04 83 06027	pH	7.4	pH Units	*c*	35
702303765	21/07/1983	04 83 06027	Phosphorus (total as P)	28	ug/L	*c*	35
702303765	21/07/1983	04 83 06027	Potassium	2.9	mg/L	*c*	35
702303765	21/07/1983	04 83 06027	Sodium	104	mg/L	*c*	35
702303765	21/07/1983	04 83 06027	Sulphate	33	mg/L	*c*	35
702303765	21/07/1983	04 83 06027	Total Dissolved Solids (by EC)	610	mg/L	*c*	35
702303765	21/07/1983	04 83 06027	Total Kjeldahl Nitrogen (as N)	0.36	mg/L	*c*	35
702303765	26/07/1983	05 83 02247	Total Organic Carbon	2	mg/L	*c*	36
702303765	26/07/1983	05 83 02248	Total Organic Carbon	2	mg/L	*c*	37
702303765	27/07/1983	04 83 06189	Chloride	247	mg/L	*c*	36
702303765	27/07/1983	04 83 06189	Electrical Conductivity	1290	us/cm	*c*	36
702303765	27/07/1983	04 83 06189	Nitrate (as N)	0.34	mg/L	*c*	36
702303765	27/07/1983	04 83 06189	Nitrate + Nitrite (as N)	0.38	mg/L	*c*	36
702303765	27/07/1983	04 83 06189	Nitrite (as N)	0.04	mg/L	*c*	36
702303765	27/07/1983	04 83 06189	pH	7.3	pH Units	*c*	36
702303765	27/07/1983	04 83 06189	Phosphorus (total as	6	ug/L	*c*	36

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			P)				
702303765	27/07/1983	04 83 06189	Potassium	4.2	mg/L	*c*	36
702303765	27/07/1983	04 83 06189	Sodium	125	mg/L	*c*	36
702303765	27/07/1983	04 83 06189	Sulphate	21	mg/L	*c*	36
702303765	27/07/1983	04 83 06189	Total Dissolved Solids (by EC)	710	mg/L	*c*	36
702303765	27/07/1983	04 83 06189	Total Kjeldahl Nitrogen (as N)	0.86	mg/L	*c*	36
702303765	27/07/1983	04 83 06190	Chloride	245	mg/L	*c*	37
702303765	27/07/1983	04 83 06190	Electrical Conductivity	1300	us/cm	*c*	37
702303765	27/07/1983	04 83 06190	Nitrate (as N)	0.65	mg/L	*c*	37
702303765	27/07/1983	04 83 06190	Nitrate + Nitrite (as N)	0.69	mg/L	*c*	37
702303765	27/07/1983	04 83 06190	Nitrite (as N)	0.04	mg/L	*c*	37
702303765	27/07/1983	04 83 06190	pH	7.4	pH Units	*c*	37
702303765	27/07/1983	04 83 06190	Phosphorus (total as P)	5	ug/L	*c*	37
702303765	27/07/1983	04 83 06190	Potassium	4	mg/L	*c*	37
702303765	27/07/1983	04 83 06190	Sodium	126	mg/L	*c*	37
702303765	27/07/1983	04 83 06190	Sulphate	20	mg/L	*c*	37
702303765	27/07/1983	04 83 06190	Total Dissolved Solids (by EC)	720	mg/L	*c*	37
702303765	27/07/1983	04 83 06190	Total Kjeldahl Nitrogen (as N)	0.57	mg/L	*c*	37
702303765	27/07/1983	04 83 06145	Ammonia (as N)	0.235	mg/L	*c*	38
702303765	27/07/1983	04 83 06145	Chloride	246	mg/L	*c*	38
702303765	27/07/1983	04 83 06145	Electrical Conductivity	1330	us/cm	*c*	38
702303765	27/07/1983	04 83 06145	Nitrate (as N)	0.28	mg/L	*c*	38
702303765	27/07/1983	04 83 06145	Nitrate + Nitrite (as N)	0.34	mg/L	*c*	38
702303765	27/07/1983	04 83 06145	Nitrite (as N)	0.06	mg/L	*c*	38
702303765	27/07/1983	04 83 06145	pH	7.3	pH Units	*c*	38
702303765	27/07/1983	04 83 06145	Phosphorus (total as P)	6	ug/L	*c*	38
702303765	27/07/1983	04 83 06145	Potassium	4.3	mg/L	*c*	38
702303765	27/07/1983	04 83 06145	Sodium	131	mg/L	*c*	38
702303765	27/07/1983	04 83 06145	Sulphate	21	mg/L	*c*	38
702303765	27/07/1983	04 83 06145	Total Dissolved Solids (by EC)	730	mg/L	*c*	38
702303765	27/07/1983	04 83 06145	Total Kjeldahl Nitrogen (as N)	0.73	mg/L	*c*	38
702303765	27/07/1983	05 83 02249	Total Organic Carbon	2	mg/L	*c*	38
702303765	27/07/1983	04 83 06146	Ammonia (as N)	0.214	mg/L	*c*	39
702303765	27/07/1983	04 83 06146	Chloride	246	mg/L	*c*	39
702303765	27/07/1983	04 83 06146	Electrical Conductivity	1330	us/cm	*c*	39
702303765	27/07/1983	04 83 06146	Nitrate (as N)	0.5	mg/L	*c*	39
702303765	27/07/1983	04 83 06146	Nitrate + Nitrite (as N)	0.55	mg/L	*c*	39
702303765	27/07/1983	04 83 06146	Nitrite (as N)	0.05	mg/L	*c*	39
702303765	27/07/1983	04 83 06146	pH	7.4	pH Units	*c*	39
702303765	27/07/1983	04 83 06146	Phosphorus (total as P)	6	ug/L	*c*	39
702303765	27/07/1983	04 83 06146	Potassium	4.2	mg/L	*c*	39
702303765	27/07/1983	04 83 06146	Sodium	129	mg/L	*c*	39
702303765	27/07/1983	04 83 06146	Sulphate	21	mg/L	*c*	39
702303765	27/07/1983	04 83 06146	Total Dissolved Solids (by EC)	730	mg/L	*c*	39
702303765	27/07/1983	04 83 06146	Total Kjeldahl Nitrogen (as N)	0.64	mg/L	*c*	39
702303765	27/07/1983	05 83 02250	Total Organic Carbon	3	mg/L	*c*	39
702303765	27/07/1983	04 83 06147	Ammonia (as N)	0.257	mg/L	*c*	40
702303765	27/07/1983	04 83 06147	Chloride	214	mg/L	*c*	40
702303765	27/07/1983	04 83 06147	Electrical Conductivity	1280	us/cm	*c*	40
702303765	27/07/1983	04 83 06147	Nitrate (as N)	5.22	mg/L	*c*	40
702303765	27/07/1983	04 83 06147	Nitrate + Nitrite (as N)	5.4	mg/L	*c*	40
702303765	27/07/1983	04 83 06147	Nitrite (as N)	0.18	mg/L	*c*	40
702303765	27/07/1983	04 83 06147	pH	7.4	pH Units	*c*	40

Bore Number	Sampling Date	Laboratory Report	Chemical Test	Value	Units of Measure	Data Source	Depth of Sample (m)
702303765	27/07/1983	04 83 06147	Phosphorus (total as P)	6	ug/L	*c*	40
702303765	27/07/1983	04 83 06147	Potassium	3.4	mg/L	*c*	40
702303765	27/07/1983	04 83 06147	Sodium	127	mg/L	*c*	40
702303765	27/07/1983	04 83 06147	Sulphate	24	mg/L	*c*	40
702303765	27/07/1983	04 83 06147	Total Dissolved Solids (by EC)	710	mg/L	*c*	40
702303765	27/07/1983	04 83 06147	Total Kjeldahl Nitrogen (as N)	0.93	mg/L	*c*	40
702303765	27/07/1983	05 83 02251	Total Organic Carbon	4	mg/L	*c*	40

APPENDIX 7 – NITRATE ISOTOPE CHARACTERISTICS FROM LITERATURE

This appendix lists the results of other studies to determine the nitrogen and oxygen isotopic ratios for nitrate that were used to generate Figures 6.2 and 6.3 in Chapter 6.

Detail	Study Area	$\delta^{15}N$ (NO_3^-) AIR	$\delta^{18}O$ (NO_3^-) VSMOW	Reference
Atmospheric				
Reference rainfall		~0‰		(Böhlke et al. 1997)
Precipitation#	Neversink River (USA)	-3‰ to +4‰	+35‰ to +70‰	(Burns and Kendall 2002)
Precipitation#	Colorado (USA)	-4‰ to +4‰	+40‰ to +70‰	(Campbell et al. 2002)
All atmospheric deposition#	Mecklenburg-Vorpommern (Germany)	+0.4‰ to +3.7‰	+38.0‰ to 60.7‰	(Deutsch et al. 2006)
Precipitation#	Bavaria (Germany)	+2.6‰ to +6.3‰	+60.3 to +73.4‰	(Durka et al. 1994)
Precipitation#	Norfolk (UK)	+0.3‰		(Feast et al. 1998)
Precipitation#	Vermont (USA)	-4.5‰ to +2.0‰	+25.7‰ to +57.3‰	(Hales et al. 2007)
Rainfall#	Quebec (Canada)	~+0.5‰		(Kellman and Hillaire-Marcel 1998)
Precipitation#	East-central (Canada)		~+28‰ to ~+51‰	(Kendall 1998)
Precipitation#	Kiryu (Japan)	-2.5‰ to +5.6‰		(Koba, et al. 1997)
Deciduous and coniferous forest stands#	North-Rhine Westphalia (Germany)	+2.6‰ to +5.6‰	+36.5‰ to +39.5‰	(Mayer et al. 2001)
Precipitation#	New Hampshire (USA)	-5‰ to +2‰	+46‰ to +75‰	(Pardo et al. 2004)
Precipitation#	Ontario (Canada)	-4‰ to +0.8‰	+35‰ to +59‰	(Spoelstra et al. 2001)
Precipitation and fall through (forest)#	Pennsylvania and West Virginia (USA)		+17‰ to +76‰	(Williard et al. 2001)
Fertilisers^				
Ammonium sulphate saltpeter# $(NH_4)_2SO_4 \bullet 2\ NH_4NO_3$	Augsburg (Germany)		+22.7‰	(Amberger and Schmidt 1987)
Lime-ammonium saltpeter# (NH_4NO_3 + $CaCO_3$)	Augsburg (Germany)		+20.5‰	(Amberger and Schmidt 1987)

Detail	Study Area	$\delta^{15}N$ (NO_3^-) AIR	$\delta^{18}O$ (NO_3^-) VSMOW	Reference
Lime saltpeter# $Ca(NO_3)_2$	Augsburg (Germany)		+17.4‰	(Amberger and Schmidt 1987)
Potassium Nitrate#	Augsburg (Germany)		+18.7‰	(Amberger and Schmidt 1987)
Chile saltpetre (guano source)# $NaNO_3$	Augsburg (Germany)		+46.3‰	(Amberger and Schmidt 1987)
Reference commercial fertilisers	Ontario (Canada)	-2‰ to +4‰		(Aravena et al. 1993)
Ammonium sulphate#	Queensland (Australia)	-4.1‰		(Black and Waring 1977)
Ammonium nitrate#	Queensland (Australia)	-1.1‰ to +1.9‰		(Black and Waring 1977)
Urea#	Queensland (Australia)	-2.1‰		(Black and Waring 1977)
Artificial fertiliser*	Maryland (USA)	2‰ to 5‰		(Böhlke and Denver 1995)
Inorganic fertilisers*	Karany, (Czech Republic)	~0‰		(Buzek et al. 2006)
Artificial fertiliser*	Victoria (Australia)	-2.4‰ to 4.3‰		(Changkakoti and Lawrence 1999)
Synthetic ammonium sulphate and urea#	Kyonggi province (Korea)	-3.9‰ to -2.7‰		(Choi et al. 2007)
Compound fertiliser (NPK mixed)	Kyonggi province (Korea)	-2.2‰ to +0.5‰		(Choi, et al. 2007)
Ammonium sulphate#	Seoul (Korea)	-2.3‰		(Choi et al. 2003)
Inorganic fertiliser#	Norfolk (UK)	+0.7‰		(Feast, et al. 1998)
Artificial fertiliser*	California (USA)	~-2‰ to ~4‰		(Fogg et al. 1998)
Urea#	Niamey (Niger)	+0.5‰		(Girard and Hillaire-Marcel 1997)
NPK (15-15-15)#	Niamey (Niger)	+3.6‰		(Girard and Hillaire-Marcel 1997)
Reference artificial fertiliser#	South Africa	-4‰ to +4‰		(Heaton 1986)
Reference artificial fertiliser		-3‰ to +2‰		(Iqbal et al. 1997)
Synthetic ammonia and nitrate fertilisers#	Israel	-2.3‰ to +2.3‰		(Kaplan and Magaritz 1986)
Chemical fertilisers#	Quebec (Canada)	~+1.5‰		(Kellman and Hillaire-Marcel 1998)
Reference artificial fertiliser#		-4‰ to +4‰		(Kendall 1998)
Ammonium phosphate sulfate, ammonium phosphate alexander#	Texas (USA)	+1.1‰ to +1.2‰		(Kreitler 1979)
Gaseous ammonia#	Texas (USA)	-38.0‰ to -23.0‰		(Kreitler 1979)
Anhydrous ammonia#	Texas (USA)	-7.4‰		(Kreitler 1979)
Diammonium phosphate	Texas (USA)	-0.35‰ to -0.1‰		(Kreitler 1979)

Detail	Study Area	$\delta^{15}N$ (NO_3^-) AIR	$\delta^{18}O$ (NO_3^-) VSMOW	Reference
Urea (liquid)#	Texas (USA)	-0.6‰ to +1.1‰		(Kreitler 1979)
Ammonium (liquid)#	Texas (USA)	-1.9‰ to +0.6‰		(Kreitler 1979)
Nitrate (liquid)#	Texas (USA)	+0.1‰ to +1.9‰		(Kreitler 1979)
NH_4NO_3 (1991-2002)#	Gårdsjön (Sweden)	-2.9‰, 2‰		(Kjønaas and Wright 2007)
Reference urea		-3‰		(Lindau and Spalding 1984)
Reference nitrogen fertiliser	Rouen (France)	0‰ to +3‰		(Mariotti, et al. 1988)
Ammonium nitrate#	Zurich (Switzerland)	+1.2‰	+18.6‰	(Mengis et al. 2001)
Calcium nitrate#	Zurich (Switzerland)	+0.2‰	+18.4‰	(Mengis, et al. 2001)
Reference nitrogen fertiliser		-2‰ to +4‰		(Moore et al. 2006)
Potassium nitrate#	Central Valley (Costa Rica)	+4.3‰	+18.9‰	(Reynolds-Vargas et al. 2006)
Nitrogen fertiliser source*	Nottingham (England)	<5‰		(Rivers et al. 1996)
Reference commercial fertilisers	Texas/Washington (USA)	~0‰	+18‰ to +26‰	(Silva et al. 2002)
Reference commercial N fertilisers	Washington (USA)	-7.4‰ to +6.8‰		(Spalding et al. 1982)
Anhydrous ammonia and aqueous ammonia#	Washington (USA)	~-1.0‰		(Spalding, et al. 1982)
Reference synthetic nitrate fertiliser		~ -1‰ to 2‰		(Wassenaar 1995)
Synthetic urea#	(Canada / USA)	-0.8 to -0.4‰		(Wassenaar 1995)
$(NH_4)_3PO_4$, $(NH_4)_2SO_4$#	(Canada / USA)	-1.5‰ to -0.7‰		(Wassenaar 1995)
Mineral fertilisers#	Brittany (France)	-1.6‰		(Widory et al. 2004)
Nitrate-based fertilisers*	East Midlands (England)	-1.3‰ to 4.5‰		(Wilson, et al. 1994)
Ammonia-based fertilisers*	East Midlands (England)	-15.7‰ to -5.8‰		(Wilson, et al. 1994)
Animal waste				
Reference domestic (sewers) or agricultural organic pollution (manure)	Ontario (Canada)	+10‰ to +20‰		(Aravena, et al. 1993)
Organically sourced nitrate*	Karany, (Czech Republic)	+12‰ to +17‰		(Buzek, et al. 2006)
Dairy wastewater*	Victoria (Australia)	+10‰ to 20.1‰		(Changkakoti and Lawrence 1999)
Pig manure slurry#	Kyonggi province (Korea)	+9.2‰		(Choi, et al. 2007)

Detail	Study Area	$\delta^{15}N$ (NO_3^-) AIR	$\delta^{18}O$ (NO_3^-) VSMOW	Reference
Dairy cattle manure slurry#	Kyonggi province (Korea)	+6.8‰		(Choi, et al. 2007)
Pig and sawdust compost#		+13.9		(Choi, et al. 2003)
Dairy feedlot and horse corral*	California (USA)	~+8‰ to ~+20‰		(Fogg, et al. 1998)
Sheep and cattle manure#	Niamey (Niger)	+7.2‰ to 10.5‰		(Girard and Hillaire-Marcel 1997)
Reference animal or sewage waste#		>+10‰		(Heaton 1986)
Reference animal or sewage waste#		+10‰ to +20‰		(Iqbal, et al. 1997)
Dairy wastewater#	North Carolina (USA)	+10‰ to +31‰		(Karr et al. 2003)
Pig manure#	Quebec (Canada)	~+12.5‰		(Kellman and Hillaire-Marcel 1998)
Pig manure#	Illionois (USA)	+9.4‰ to +12.2‰		(Krapac et al. 2002)
Decomposition of animal waste*	Texas (USA)	+10‰ to +22‰		(Kreitler and Jones 1975)
Dairy manure#	Nova Scotia (Canada)	+7.0‰		(Lynch et al. 2006)
Composted dairy manure#	Nova Scotia (Canada)	+11.5‰		(Lynch, et al. 2006)
Composted corn silage#	Nova Scotia (Canada)	+8.6‰		(Lynch, et al. 2006)
Reference domestic (sewers) or agricultural organic pollution (manure)	Rouen (France)	+10‰ to +20‰		(Mariotti, et al. 1988)
Artificial fertiliser#	Arava Valley (Israel)	+0.9‰ to +2.7‰		(Oren, et al. 2004)
Dairy feedlot and horse corral*	California (USA)	~+8‰ to ~+20‰		(Rolston et al. 1994)
Reference animal waste#		~+8‰ to +16‰		(Wassenaar 1995)
Poultry manure#	(Canada / USA)	+7.9‰ to +8.6‰		(Wassenaar 1995)
Nitrification of NH_4^+ (poultry manure)*	(Canada / USA)		+2‰ to +5‰	(Wassenaar 1995)
Poultry manure#	Brittany (France)	+10.9‰ to +13.8‰		(Widory, et al. 2004)
Cattle manure#	Brittany (France)	+4.3‰ to +14.0‰		(Widory, et al. 2004)
Pig manure#	Brittany (France)	+14.1‰ to +33.2‰		(Widory, et al. 2004)
Farmyard slurry*	East Midlands (England)	+22.7‰ to +31.1‰		(Wilson, et al. 1994)

Soil N

Detail	Study Area	$\delta^{15}N$ (NO_3^-) AIR	$\delta^{18}O$ (NO_3^-) VSMOW	Reference
Aerobic soil without fertilisation[#]	Augsburg (Germany)	+3‰ ± 0.3‰	+1.4‰ ± 0.5‰	(Amberger and Schmidt 1987)
Total soil nitrogen[#]	Queensland (Australia)	+2.9‰ to 6.7‰		(Black and Waring 1977)
Reference N from legume fixation		~0‰		(Böhlke 2002)
Nitrification in incubated soil samples	New York (USA)	+1.5‰ to +16.1‰	+13.2‰ to +16.0‰	(Burns and Kendall 2002)
From oxidised organic ammonium	Karany, (Czech Republic)	-12‰ to -5‰		(Buzek, et al. 2006)
Reference microbial nitrification			0‰ to +15‰	(Campbell, et al. 2002)
Natural soil[#]	Kyonggi province (Korea)	+1.4‰ to +4.5‰		(Choi, et al. 2007)
Undisturbed soil[#]	Seoul (Korea)	+8.8‰		(Choi, et al. 2003)
Various soils[#]	California (USA)	+2‰ to +4‰		(Delwiche and Steyn 1970)
Reference microbial nitrification			+0.8‰ to +5.8‰	(Durka, et al. 1994)
Soil (0-10cm) from range to semi-arid grasslands[#]	Arizona (USA)	+4.3‰ to +7.76‰		(Dijkstra et al. 2006)
Mineral soil (0-30cm) in various woodlands	(Canada / USA)	-12.0 to -4.4‰		(Emmett et al. 1998)
Soil microbial origin[#]	California (USA)	~0‰ to ~+4‰		(Fogg, et al. 1998)
Dry and humid soils[#]	Niamey (Niger)	+4.0‰ to +12.4‰		(Girard and Hillaire-Marcel 1997)
Reference undisturbed, non-forested soils		+4‰ to +9‰		(Heaton 1986)
Reference microbial nitrification[#]		+2‰ to +8‰		(Iqbal, et al. 1997)
Reference nitrification of ammonia (soil water $\delta^{18}O$ is -25‰ to +4‰)			-10‰ to +10‰	(Kendall 1998)
Unfertilised cultivated soil*	Texas (USA)	+2‰ to +8‰		(Kreitler and Jones 1975)
Humus layer[#]	France Alps (France)	-4.0‰ to +1.4‰		(Mariotti et al. 1980)
Uncultivated soils[#]	France Alps (France)	+0.3‰ to +5.9‰		(Mariotti, et al. 1980)
Cultivated soils[#]	France Alps (France)	+7.2‰ to +7.4‰		(Mariotti, et al. 1980)
Uncultivated soils[#]	Iowa (USA) (mean)	+6.8 ± 6.4‰		(Hübner 1986)
Cultivated soils[#]	Iowa (USA) (mean)	+5.0 ± 3.5‰		(Hübner 1986)

Detail	Study Area	$\delta^{15}N$ (NO_3^-) AIR	$\delta^{18}O$ (NO_3^-) VSMOW	Reference
Nitrification in acidic forest soils (assuming soil water $\delta^{18}O$ values vary between -15‰ and -5‰)#	North-Rhine Westphalia (Germany)		+2 to +14‰	(Mayer, et al. 2001)
Nitrification in forest soils*	Mid-Atlantic and New England states (USA)	+3.5‰ to +5‰	+12‰ to +19‰	(Mayer et al. 2002)
Nitrification of fertilisers or soil organic N (soil water $\delta^{18}O$ is -10‰)*	Ontario (Canada)	+4‰	+1‰	(Mengis, et al. 1999)
Uncontaminated soil*	California (USA)	+6.3‰ to +7.6‰		(Moore, et al. 2006)
Forest floor 0-10cm#	Maine (USA)	+7‰		(Nadelhoffer et al. 1999)
Undisturbed non-agricultural soil N#	Arava Valley (Israel)	6.7‰ to 12.0‰		(Oren, et al. 2004)
Unfertilised agricultural soil#	Michigan (USA)	-3.9‰ to +9.6‰		(Ostrom et al. 1998)
Soil organic N source*	Nottingham (England)	+4‰ to +8‰		(Rivers, et al. 1996)
Soil microbial origin#	California (USA)	~0‰ to ~+4‰		(Rolston, et al. 1994)
Review of 124 soil samples#	Various states (USA)	+2‰ to +15‰		(Shearer and Kohl 1989)
Reference organic N source from cultivated soil	Washington (USA)	~+3.6‰		(Spalding, et al. 1982)
Modelled N from nitrification	Ontario (Canada)	0‰ to +6‰	-5.7‰ to +4.6‰	(Spoelstra, et al. 2001)
Undisturbed non-agricultural soil N#	(Canada / USA)	+3.7‰ to +4.9‰		(Wassenaar 1995)
Nitrate from cultivation*	Southern Indiana (USA)	<+6‰		(Wells and Krothe 1989)
Natural soil N origin*	Brittany (France)	+6.7‰		(Widory, et al. 2004)
Microbial nitrification#	Pennsylvania and West Virginia (USA)		+0.2‰ to +13.7‰	(Williard, et al. 2001)
Nitrified soil organic N*	East Midlands (England)	+5.4‰ to +9.3‰		(Wilson, et al. 1994)
Septic/sewage				
Septic waste*	Ontario (Canada)	+8.1‰ to 13.9‰	+0.9‰ to +5.4‰	(Aravena, et al. 1993)
Septic waste*	Ontario (Canada)	+6‰ to +58.3‰		(Aravena and Robertson 1998)
Septic waste*	Upper Galilee (Israel)	+9‰		(Burg and Heaton 1998)
Human manure slurry#	Kyonggi province (Korea)	+7.6‰		(Choi, et al. 2007)
Composted human manure#	Kyonggi province (Korea)	+9.6‰ to +45.2‰		(Choi, et al. 2007)

Detail	Study Area	$\delta^{15}N$ (NO_3^-) AIR	$\delta^{18}O$ (NO_3^-) VSMOW	Reference
Sewage waste#	Florida (USA)	-2.1‰ to +8.5‰		(Dillon et al. 2007)
Septic seepage*	California (USA)	~+2‰ to ~+12‰		(Fogg, et al. 1998)
Nitrification of sewage*	Nottingham (UK)	+9.2‰ to +11.4‰	+8.2‰ to +10.9‰	(Fukada, et al. 2004)
Latrine waste#	Niamey (Niger)	+14.7‰ to +16.0		(Girard and Hillaire-Marcel 1997)
Reference animal or sewage waste#		+10‰ to +20‰		(Iqbal, et al. 1997)
Sewage infiltration system*	Jerusalem (Israel)	+19.2‰ to +28‰		(Kaplan and Magaritz 1986)
Composted sewage sludge#	Nova Scotia (Canada)	+9.0‰		(Lynch, et al. 2006)
Sewer and septic waste#	Rouen (France)	+10‰ to +13.5‰		(Mariotti, et al. 1988)
Sewage wastewater*	California (USA)	+13.0‰ to +29.2‰		(Moore, et al. 2006)
Raw sewage#	Nottingham (England)	+4.7‰		(Rivers, et al. 1996)
Sewage*	Nottingham (England)	+8.1‰ to +16.9‰		(Rivers, et al. 1996)
Septic waste*	California (USA)	~+2‰ to ~+12‰		(Rolston, et al. 1994)
Treated sewage#	California (USA)	+2.5‰		(Sweeney et al. 1980)
Sewage sludge#	Nebraska (USA)	+12.8‰		(Spalding et al. 1993)
Sewage sludge*	Nebraska (USA)	+9.9‰ to +15.1‰		(Spalding, et al. 1993)
Reference sewage	(Canada / USA)	~+8‰ to +16‰		(Wassenaar 1995)
Originating from septic tanks*	Southern Indiana (USA)	+6.8‰ to +17.6‰		(Wells and Krothe 1989)
Raw sewage#	Brittany (France)	+4.3‰ to +10.4‰		(Widory, et al. 2004)

- Direct sampling of source material

* - Derived from groundwater or surface water analysis

^ - See Hübner (1986) for comprehensive listing of nitrogen composition of fertilisers

APPENDIX 8 – LEACHN MODEL INPUT FILES FOR SCENARIOS

Note that meteorological data has not been included as this can be automatically generated from Bureau of Meteorology data (SILO).

LEACHN Input file for Irrigatied Vineyard Scenario

```
vini0015  < Irrigated vineyard scenario - version 15
------------------------------------------------------------------------
                LEACHN NITROGEN AND PHOSPHORUS DATA FILE.
A value must be present for each item, although it may not be used in the
simulation.  The file is read free format with blank delimiters. Preserve
division and heading records.  The number of depth segments may be changed.
************************************************************************************************************
 2      <Date format (1: month/day/year;  2: day/month/year).  Dates must be 6 digits, 2 each for day, mo, yr.
 010140 <Starting date.  No date in the input data should precede this date.
 030106 <Ending date or day number.  The starting date is day 1. (A value <010101 is treated as a day number).
 0.1    <Largest time interval within a day (0.1 day or less).
 1      <Number of repetitions of rainfall, crop and chemical application data.
 1100   <Profile depth (mm), preferably a multiple of the segment thickness.
 100    <Segment thickness (mm).  (The number of segments should be between about 8 and 30.
 2      <Lower boundary condition: 1:fixed depth water table; 2:free drainage, 3:zero flux 4:lysimeter.
 1000   <If the lower boundary is 1 or 4: initial depth to water table (mm).
------------------------------------------------------------------------
The steady-state flow option uses constant water fluxes during the application
periods specified in the rainfall data table, and a uniform water content
specified here.  Steady-state flow implies a lab column, and crop and evaporation data are ignored.
------------------------------------------------------------------------
 1     < Water flow: 1: Richards; 2: Addiscott tipping bucket; 3: steady-state (no crops assumed).
 999   < Steady-state flow water content (volume fraction); 999: saturated column.
************************************************************************************************************
************************************************************************************************************
 3     <Number of output files: 1: OUT only; 2: OUT + SUM; 3: OUT + SUM + BTC
----------------------------------------
--- For the *.OUT file :
 4      <Units for depth data: 1: mg/kg, 2: mg/m2 per segment, 3: g/m2, 4: kg/ha
 1      <Node print frequency (print data for every node (1), alternate nodes (2).
 1      <Print option: 1 or 2.  Use to specify one of the following options.
```

```
 365.25 <Option 1: Print at fixed time intervals (days between prints).
 1      <Option 2: No. of prints (the times for which are specified below)
 3      <Tables printed: 1: mass balance; 2: + depth data; 3: + crop data
 0      <Reset cumulative values in .OUT file after each print? 0: No, 1: Yes
----------------------------------------
--- For the * .SUM file :
 999    <Summary print interval (days) (for calendar months use 999)
 200    <Surface to [depth 1?] mm     ( Three depth segments for the
 400    <Depth 1 to [depth 2?] mm      summary file. Zero defaults to nodes
 800    <Depth 2 to [depth 3?] mm      closest to thirds of the profile)
 3      <4th segment: Root zone (1); profile (2); Depth 3 to lower boundary (3); Surface to shallowest of
---      lower boundary or water table (4)
--- For the *.BTC (breakthrough) file :
 1.0    <Incremental depth of drainage water per output (mm)
-------------------------------------------------------------------------------
--- List here the times at which the *.OUT file is desired for print option 2.
--- The number of records must match the 'No. of prints' under option 2 above.
---        Date or    Time of day          (At least one must be specified,
---        Day no.  (to nearest tenth)      even if print option is 1)
---        --------  ----------------
          140607         .2        (These dates can be past the last day)
*******************************************************************************
*******************************************************************************
SOIL PHYSICAL PROPERTIES  (Retention models - 0: listed Campbell parameters;
Campbell + pedotransfer functions (see Table 3.2): 1: SA Cl+Si; 2: SA Cl;
3: UK topsoils; 4: UK subsoils; 5: USA Rawls and Brakensiek;
6: listed van Genuchten parameters (use e.g RETC to estimate these).
-------------------------------------------------------------------------------
 Soil |                    |Retention|   Starting   |    Roots   | Starting
layer | Clay  Silt  Organic |  model  |theta or pot'l|  (for no   | temp (C)
 no.  |             carbon  |         |(one is used) |  growth)   | (not read in
      |  %     %     %      |         |          kPa | (relative)|  LEACHC)
 ---    ----  ----   ----      ------   -----   -----    ------     -----------
  1      20.0  5.0   2.5         6      .000   -1500.      .28          20.
  2      20.0  5.0   2.5         6      .000   -1500.      .18          20.
  3      50.0  5.0   2.5         6      .000   -1500.      .13          20.
  4      50.0  5.0   2.5         6      .000   -1500.      .10          20.
  5      60.0  0.0   1.0         6      .000   -1500.      .08          20.
  6      70.0  0.0   1.0         6      .000   -1500.      .07          20.
  7      2.0   2.0   0.0         6      .000   -1500.      .06          20.
  8      2.0   2.0   0.0         6      .000   -1500.      .04          20.
  9      2.0   2.0   0.0         6      .000   -1500.      .03          20.
 10      2.0   2.0   0.0         6      .000   -1500.      .02          20.
```

```
 1      2.0   2.0   0.0          6      .000   -1500.      .01          20.
-------------------------------------------------------------------------------
 2 < 1: Use listed water contents, 2: listed potentials, 3: equilibrium: water table (boundaries 1,4) ...
Particle density:  Clay    Silt and sand    Organic matter  (kg/dm3) (to calculate porosity)
                    2.65         2.65              1.10
*******************************************************************************
For a uniform profile: Non-zero values here will override data in the next
table of depth-specific data.
-------------------------------------------------------------------------
  0.0   0.00 :if >0, Soil bulk density and particle density (kg/dm3).
  0.0        :if <0, Campbell 'Air-entry value' (kPa), or van Genuchten alpha (kPa^-1).
  0.0        :if >0, Campbell exponent b, or van Genuchten n.
    0   -0.0 :if K>0, Conductivity (mm/day) and corresponding matric potential (kPa) ...
  0.0        :if >0, Campbell pore interaction parameter or van Genuchten residual saturation.
  000        :if >0, Dispersivity (mm).
   00        :if >0, For Addiscott flow: Matric potential (kPa) at field capacity
   00        :if >0,                   : Division between mobile and immobile water (kPa)
*************************************************************************************************************
 Soil  |Retention function |   Bulk  | K matching             | Dispersivity |  For Addiscott flow option:
 segment   parameters      | density |   factor               |              |  Field     Mobile/immobile
 no.   |CHC: AEV    BCAM   |         |       potl  CHC: P     |              | capacity      threshold
       |vG: alpha     n     |  kg/dm3 | mm/d  kPa   vG: ResSat|     mm       |   kPa            kPa
 -----    ------   -----     ------    ----  -----   -----       -----        ------         ---------
   1        0.0808  1.201      1.60       1   -20.     0.0604      100.        -5.0           -200.
   2        0.0808  1.201      1.60       1   -20.     0.0604      100.        -5.0           -200.
   3        0.1337  1.065      1.60       1   -20.     0.0000      100.        -5.0           -200.
   4        0.1337  1.065      1.60       1   -20.     0.0000      100.        -5.0           -200.
   5        0.2211  1.055      1.60       1   -20.     0.0000      100.        -5.0           -200.
   6        0.5655  1.049      1.60       1   -20.     0.0000      100.        -5.0           -200.
   7        0.0774  1.480      1.90       1   -20.     0.0271      100.        -5.0           -200.
   8        0.0774  1.480      1.90       1   -20.     0.0271      100.        -5.0           -200.
   9        0.0774  1.480      1.90       1   -20.     0.0271      100.        -5.0           -200.
  10        0.0774  1.480      1.90       1   -20.     0.0271      100.        -5.0           -200.
   1        0.0774  1.480      1.90       1   -20.     0.0271      100.        -5.0           -200.
*************************************************************************************************************
*************************************************************************************************************
Runoff according to the SCS curve number approach.  Curve number listed here will be
adjusted by slope. During periods of crop growth, CN2 replaced by value for crop.
(Procedure according to J.R. Williams (1991). Runoff and Water Erosion.
Chap 18, Modeling Plant and Soil Systems, Agronomy 31.)
----------------
 75    <Curve number (CN2).  In LEACHM, water content use to adjust CN2 based on top 20 cm.
  0    <Slope, %. Used to adjust CN2 according to equation of Williams (1991).
```

** (Set slope to 0 to bypass the runoff routine. Runoff owing to profile saturation will still be accumulated)
****
****

CROP DATA

Data for at least one crop must be specified, even if no crop desired.
For fallow soil, set flag below to 0, or germination past the simulation end date.

---

1 <Plants present: 1 yes, 0 no. This flag overrides all other crop data.
66 <Number of crops (>0, even if bypassed). Dates can be past last day of simulation.
-1500 <Wilting point (soil) kPa.
-3000 <Minimum root water potential(kpa).
1.1 <Maximum ratio of actual to potential transpiration (dry surface).
1.05 <Root resistance (weights water uptake by depth). (>1, No weighting: 1.0).
0 <Conversion between solute concentration and osmotic potential (kPa per conc_unit/L, applied to solute species 1 only).
3 <Relationship between soil matric and osmotic potentials and root water uptake.

Growth 1: No 2: Yes	Perennial 1: Yes 2: No	N_uptake 1:to maturity 2:to harvest	Date or day of Germ.	Emerg.	Maturity Root	Cover	root Harv. depth	Rel. cover fraction	Max crop cover at harvest	Crop effect %	Mulch scaling factor	ETp | Crop uptake N	Min N fraction P	Harvested fixed
											kg/ha			
1	1	2	010940	010940	030940	151240	010441	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010941	010941	030941	151241	010442	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010942	010942	030942	151242	010443	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010943	010943	030943	151243	010444	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010944	010944	030944	151244	010445	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010945	010945	030945	151245	010446	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010946	010946	030946	151246	010447	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010947	010947	030947	151247	010448	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010948	010948	030948	151248	010449	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010949	010949	030949	151259	010450	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010950	010950	030950	151250	010451	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010951	010951	030951	151251	010452	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010952	010952	030952	151252	010453	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010953	010953	030953	151253	010454	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010954	010954	030954	151254	010455	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010955	010955	030955	151255	010456	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010956	010956	030956	151256	010457	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010957	010957	030957	151257	010458	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010958	010958	030958	151258	010459	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010959	010959	030959	151269	010460	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010960	010960	030960	151260	010461	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8
1	1	2	010961	010961	030961	151261	010462	1.0	.6	0.1	0	0.70 21.2	3.0 0.	0.8

1	1	2	010962	010962	030962	151262	010463	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010963	010963	030963	151263	010464	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010964	010964	030964	151264	010465	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010965	010965	030965	151265	010466	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010966	010966	030966	151266	010467	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010967	010967	030967	151267	010468	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010968	010968	030968	151268	010469	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010969	010969	030969	151279	010470	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010970	010970	030970	151270	010471	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010971	010971	030971	151271	010472	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010972	010972	030972	151272	010473	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010973	010973	030973	151273	010474	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010974	010974	030974	151274	010475	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010975	010975	030975	151275	010476	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010976	010976	030976	151276	010477	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010977	010977	030977	151277	010478	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010978	010978	030978	151278	010479	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010979	010979	030979	151289	010480	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010980	010980	030980	151280	010481	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010981	010981	030981	151281	010482	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010982	010982	030982	151282	010483	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010983	010983	030983	151283	010484	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010984	010984	030984	151284	010485	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010985	010985	030985	151285	010486	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010986	010986	030986	151286	010487	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010987	010987	030987	151287	010488	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010988	010988	030988	151288	010489	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010989	010989	030989	151299	010490	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010990	010990	030990	151290	010491	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010991	010991	030991	151291	010492	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010992	010992	030992	151292	010493	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010993	010993	030993	151293	010494	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010994	010994	030994	151294	010495	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010995	010995	030995	151295	010496	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010996	010996	030996	151296	010497	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010997	010997	030997	151297	010498	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010998	010998	030998	151298	010499	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010999	010999	030999	151209	010400	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010900	010900	030900	151200	010401	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010901	010901	030901	151201	010402	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010902	010902	030902	151202	010403	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010903	010903	030903	151203	010404	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010904	010904	030904	151204	010405	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8

```
  1      1       2        010905 010905  030905 151205 010406  1.0     .6       0.1      0       0.70   21.2 3.0  0.     0.8
*****************************************************************************************************************************************
*****************************************************************************************************************************************
   INITIAL NITROGEN, PHOSPHORUS AND CARBON POOLS (excluding soil humus)       | (Humus C, N, & P calculated from org.C)
-------------------------------------------------------------------------------| (Fertilizer P absent at start)
     |          NITROGEN POOLS       | CARBON POOLS   |   PHOSPHORUS POOLS    | (Bound P pool in equilibrium with labile P.
 SOIL |UREA  NH4    NO3 Residue Manure| Residue Manure | Labile Residue Manure |-------------------------------
LAYER |   ----mg N/kg dry soil----    | -- mg C/kg --  |   mg P/kg dry soil    |   Tracer (non-interacting)
-----------------------------------------------------------------------------------------------------------------
  1   000.    0.    0.0      0.   0.    0.     0.       000.    0.     00.             100
  2   000.    0.    0.0      0.   0.    0.     0.       000.    0.     00.             100
  3   000.    0.    0.0      0.   0.    0.     0.       000.    0.     00.             100
  4   000.    0.    0.0      0.   0.    0.     0.       000.    0.     00.             100
  5   000.    0.    0.0      0.   0.    0.     0.       000.    0.     00.             100
  6   000.    0.    0.0      0.   0.    0.     0.       000.    0.     00.             100
  7   000.    0.    0.0      0.   0.    0.     0.       000.    0.     00.             100
  8   000.    0.    0.0      0.   0.    0.     0.       000.    0.     00.             100
  9   000.    0.    0.0      0.   0.    0.     0.       000.    0.     00.             100
 10    000.    0.    0.0      0.   0.    0.     0.       000.    0.     00.             100
  1   000.    0.    0.0      0.   0.    0.     0.       000.    0.     00.             100
-----------------------------------------------------------------------------------------------------------------
  Concentration (mg/l) below profile, used with lower boundary 1.
           0         0         0         0    (NH4, NO3, P and tracer)
  0    < Depth (mm) of water in mixing cell.  Enter 0 for no mixing cell.
**************************************************
**************************************************
    CHEMICAL PROPERTIES
    -------------------
                 Kd
        Name     L/kg
     ---------- --------
     '   Urea-N'    0   (If urea hydroloysis rate is zero, then 'urea'
     '    NH4-N'    3     can be used as a tracer)
     '    NO3-N'    0   (NO3-N can sorb, eg. in andosols)
     'Residue-N'        (Plant 'residues' and 'manure' pools representing
     '  Humus-N'          added organic sources of N, P and C.  They
     ' Manure-N'          differ in that the plant residue pool is supplied
     'Residue-C'          by the non-harvested portion of annual crops,
     '  Humus-C'          and the non-harvested, non-perennial portion of
     ' Manure-C'          perennial crops)
     '    CO2-C'
     '   Fert-P' 10000  .693         <Solubility; Dissolution rate (d**-1)
     ' Labile-P'     1   100  .6     <1: Freundlich or 2: Langmuir; [Freundlich Kd; Exponent  OR  Langmuir Qm; k]
```

```
      'Residue-P'
      '  Humus-P'
      ' Manure-P'
      '  Bound-P' 300  0.4  .05  .50  <Freundlich sorption: Kd; Exponent; Phase transfer: Dissolution rate, precipitation rate, (days^-1)
*******************************************************
 Diffusion
-------------------------------------------------------
  120    <Molecular diffusion coefficient (mm2/day)
*******************************************************
        NITROGEN TRANSFORMATIONS
-------------------------------------------------------
   .5    <Synthesis efficiency factor.
   .2    <Humification fraction.
 10.0    <C/N ratio:biomass and humus.
 50.0    <C/P ratio:biomass and humus.
------Temperature and water content adjustments------
     1   <Temperature subroutine? yes(1), no(0). If no, base temperature used.
    20   <Base temperature, degrees C
     2   <Q10: rate constant adjustment factor per 10C temperature change.
   .08   <High end of optimum water content range, air-filled porosity.
  -300   <Lower end of optimum water content, kPa
 -1500   <Minimum matric potential for transformation, kPa
   0.6   <Relative transformation rate at saturation (except denitrification), days^(-1)
*******************************************************
       RATE CONSTANTS  [days^(-1)]
-------------------------------------------------------
            Urea  NH4->NO3 NO3->N              Mineralization
  Layer  hydrolysis                      Residue    Manure    Humus
--------    -----   ------   -----          -----     -----     -----
     1    .0000e-0 .200E-0  .10e-00        .010e-0   .020e-0   .100e-4
     2    .0000e-0 .200E-0  .10e-00        .010e-0   .020e-0   .100e-4
     3    .0000e-0 .200E-0  .10e-00        .010e-0   .020e-0   .100e-4
     4    .0000e-0 .200E-0  .10e-00        .010e-0   .020e-0   .100e-4
     5    .0000e-0 .200E-0  .10e-00        .010e-0   .020e-0   .100e-4
     6    .0000e-0 .200E-0  .10e-00        .010e-0   .020e-0   .100e-4
     7    .0000e-0 .200E-0  .10e-00        .010e-0   .020e-0   .100e-4
     8    .0000e-0 .200E-0  .10e-00        .010e-0   .020e-0   .100e-4
     9    .0000e-0 .200E-0  .10e-00        .010e-0   .020e-0   .100e-4
    10    .0000e-0 .200E-0  .10e-00        .010e-0   .020e-0   .100e-4
     1    .0000e-0 .200E-0  .10e-00        .010e-0   .020e-0   .100e-4
-------------------------------------------------------
 Additional rates and constants used for calculating N transformations:
0.20 <Ammonia volatilization from the surface, days^(-1)
```

```
  10 <Denitrification half-saturation constant (mg/l).
   8 <Limiting NO3/NH4 ratio in solution for nitrification
*****************************************************************************
*****************************************************************************
              NITROGEN, PHOSPHORUS AND CARBON APPLICATIONS (kg/ha)
                   ------------------------
 1  < No. of nutrient applications
-------------------------------------------------------------------------------------------------------------
Date or   Incorp n                NITROGEN                CARBON              PHOSPHORUS
day no.   segments     Urea   NH4    NO3 Residue Manure  Residue Manure  Fertilizer Residue  Manure   Tracer
-------   ---------   -----   ---    --- ------ ------  ------- ------      ------  ------  ------   ------
280107       1           0     0      0   3.333      0    333.3      0         0   0.1667      0        0
*************************************************************************************************************
*************************************************************************************************************
                 CULTIVATIONS
                  ------------
 1   < Number of cultivations.  At least one must be specified.  Can be past last day.
-----------------------------------------------------
 Date or   Depth of cultivation
 day no.        mm
 -------      -----
  140607        50
*********************************************************************************
*********************************************************************************
     RAIN AND RAIN WATER COMPOSITION  (Include irrigation here, or specify
     --------------------------------    in a separate file.)
  12355 < Number of water applications.  Some or all can be past last day. (See manual on setting automated irrigation thresholds)
  1     < For a separate irrigation file, set to 1 and edit and rename NITRTEST.SCH.
-------------------------------------------------------------------------
     Start      Amount  Surface flux      Dissolved in water (can be 0)
Date/day  Time             density          Urea-N  NH4-N  NO3-N    P  Tracer
-------  --day-  --mm--  ---mm/d----     ----------  mg/l  --------- -- ------
     040140   0.3      0.1       0.5     0      0      0.5     0    0
Note remaining daily records excluded because of excessive length
*****************************************************************************
*****************************************************************************
  REFERENCE ET (WEEKLY TOTALS, mm), (Note: Water table column read, but not used)
  MEAN WEEKLY TEMPERATURES AND MEAN WEEKLY AMPLITUDE (degrees C)
-------------------------------------------------------------------------
     Week     Ref.ET   Water table  Mean temp  Amplitude
-- or day -  ------   -(not used)- ---------  ---------
    070140      36.6       0.         20.0        8.6
Note remaining weekly records excluded because of excessive length
```

LEACHN Input file for Non-Irrigated Vineyard Scenario

```
vinn0007  < Non-Irrigated vineyard scenario - version 7
-------------------------------------------------------------------------------
                LEACHN NITROGEN AND PHOSPHORUS DATA FILE.
A value must be present for each item, although it may not be used in the
simulation.  The file is read free format with blank delimiters. Preserve
division and heading records.  The number of depth segments may be changed.
*******************************************************************************************************
 2      <Date format (1: month/day/year;  2: day/month/year).  Dates must be 6 digits, 2 each for day, mo, yr.
 010140 <Starting date.  No date in the input data should precede this date.
 030106 <Ending date or day number.  The starting date is day 1. (A value <010101 is treated as a day number).
 0.1    <Largest time interval within a day (0.1 day or less).
 1      <Number of repetitions of rainfall, crop and chemical application data.
 1100   <Profile depth (mm), preferably a multiple of the segment thickness.
 100    <Segment thickness (mm).  (The number of segments should be between about 8 and 30.
 2      <Lower boundary condition: 1:fixed depth water table; 2:free drainage, 3:zero flux 4:lysimeter.
 1000   <If the lower boundary is 1 or 4: initial depth to water table (mm).
-------------------------------------------------------------------------------
The steady-state flow option uses constant water fluxes during the application
periods specified in the rainfall data table, and a uniform water content
specified here.  Steady-state flow implies a lab column, and crop and evaporation data are ignored.
-------------------------------------------------------------------------------
 1     < Water flow: 1: Richards; 2: Addiscott tipping bucket; 3: steady-state (no crops assumed).
 999   < Steady-state flow water content (volume fraction); 999: saturated column.
*******************************************************************************************************
*******************************************************************************************************
 3     <Number of output files: 1: OUT only; 2: OUT + SUM; 3: OUT + SUM + BTC
---------------------------------------
--- For the *.OUT file :
 4      <Units for depth data: 1: mg/kg, 2: mg/m2 per segment, 3: g/m2, 4: kg/ha
 1      <Node print frequency (print data for every node (1), alternate nodes (2).
 1      <Print option: 1 or 2.  Use to specify one of the following options.
 365.25 <Option 1: Print at fixed time intervals (days between prints).
 1      <Option 2: No. of prints (the times for which are specified below)
 3      <Tables printed: 1: mass balance; 2: + depth data; 3: + crop data
 0      <Reset cumulative values in .OUT file after each print? 0: No, 1: Yes
---------------------------------------
--- For the * .SUM file :
 999    <Summary print interval (days) (for calendar months use 999)
 200    <Surface to [depth 1?] mm      ( Three depth segments for the
```

```
 400    <Depth 1 to [depth 2?] mm      summary file. Zero defaults to nodes
 800    <Depth 2 to [depth 3?] mm      closest to thirds of the profile)
 3      <4th segment: Root zone (1); profile (2); Depth 3 to lower boundary (3); Surface to shallowest of
---      lower boundary or water table (4)
--- For the *.BTC (breakthrough) file :
 1.0    <Incremental depth of drainage water per output (mm)
------------------------------------------------------------------------------
--- List here the times at which the *.OUT file is desired for print option 2.
--- The number of records must match the 'No. of prints' under option 2 above.
---        Date or    Time of day          (At least one must be specified,
---        Day no.  (to nearest tenth)      even if print option is 1)
---        --------  ----------------
          140607         .2       (These dates can be past the last day)
******************************************************************************
******************************************************************************
SOIL PHYSICAL PROPERTIES  (Retention models - 0: listed Campbell parameters;
Campbell + pedotransfer functions (see Table 3.2): 1: SA Cl+Si; 2: SA Cl;
3: UK topsoils; 4: UK subsoils; 5: USA Rawls and Brakensiek;
6: listed van Genuchten parameters (use e.g RETC to estimate these).
------------------------------------------------------------------------------
 Soil |                   |Retention|   Starting   |    Roots   | Starting
layer | Clay  Silt  Organic |  model  |theta or pot'l|  (for no  | temp (C)
 no.  |            carbon  |         |(one is used) |  growth)  | (not read in
      |  %     %     %     |         |          kPa | (relative)|  LEACHC)
 ---    ----  ----   ----     ------   -----   -----    ------     -----------
  1      20.0  5.0   2.5         6      .000   -1500.      .28         20.
  2      20.0  5.0   2.5         6      .000   -1500.      .18         20.
  3      50.0  5.0   2.5         6      .000   -1500.      .13         20.
  4      50.0  5.0   2.5         6      .000   -1500.      .10         20.
  5      60.0  0.0   1.0         6      .000   -1500.      .08         20.
  6      70.0  0.0   1.0         6      .000   -1500.      .07         20.
  7      2.0   2.0   0.0         6      .000   -1500.      .06         20.
  8      2.0   2.0   0.0         6      .000   -1500.      .04         20.
  9      2.0   2.0   0.0         6      .000   -1500.      .03         20.
 10       2.0   2.0   0.0         6      .000   -1500.      .02         20.
  1      2.0   2.0   0.0         6      .000   -1500.      .01         20.
------------------------------------------------------------------------------
 2 < 1: Use listed water contents, 2: listed potentials, 3: equilibrium: water table (boundaries 1,4) ...
Particle density:  Clay    Silt and sand    Organic matter  (kg/dm3) (to calculate porosity)
                  2.65         2.65              1.10
******************************************************************************
For a uniform profile: Non-zero values here will override data in the next
table of depth-specific data.
```

```
---------------------------------------------------------------------------
  0.0   0.00 :if >0, Soil bulk density and particle density (kg/dm3).
  0.0        :if <0, Campbell 'Air-entry value' (kPa), or van Genuchten alpha (kPa^-1).
  0.0        :if >0, Campbell exponent b, or van Genuchten n.
    0   -0.0 :if K>0, Conductivity (mm/day) and corresponding matric potential (kPa) ...
  0.0        :if >0, Campbell pore interaction parameter or van Genuchten residual saturation.
  000        :if >0, Dispersivity (mm).
   00        :if >0, For Addiscott flow: Matric potential (kPa) at field capacity
   00        :if >0,                   : Division between mobile and immobile water (kPa)
*************************************************************************************************************
 Soil  |Retention function |   Bulk  | K matching             | Dispersivity |  For Addiscott flow option:
 segment   parameters      | density |   factor               |              |  Field     Mobile/immobile
 no.   |CHC: AEV    BCAM   |         |       potl  CHC: P     |              | capacity      threshold
       |vG: alpha     n     |  kg/dm3 | mm/d  kPa   vG: ResSat|     mm       |   kPa           kPa
 -----    ------   -----     ------    ----  -----   -----       -----        ------         ---------
   1        0.0808  1.201      1.60       1   -20.     0.0604      100.        -5.0          -200.
   2        0.0808  1.201      1.60       1   -20.     0.0604      100.        -5.0          -200.
   3        0.1337  1.065      1.60       1   -20.     0.0000      100.        -5.0          -200.
   4        0.1337  1.065      1.60       1   -20.     0.0000      100.        -5.0          -200.
   5        0.2211  1.055      1.60       1   -20.     0.0000      100.        -5.0          -200.
   6        0.5655  1.049      1.60       1   -20.     0.0000      100.        -5.0          -200.
   7        0.0774  1.480      1.90       1   -20.     0.0271      100.        -5.0          -200.
   8        0.0774  1.480      1.90       1   -20.     0.0271      100.        -5.0          -200.
   9        0.0774  1.480      1.90       1   -20.     0.0271      100.        -5.0          -200.
  10        0.0774  1.480      1.90       1   -20.     0.0271      100.        -5.0          -200.
   1        0.0774  1.480      1.90       1   -20.     0.0271      100.        -5.0          -200.
*************************************************************************************************************
*************************************************************************************************************
Runoff according to the SCS curve number approach.  Curve number listed here will be
adjusted by slope. During periods of crop growth, CN2 replaced by value for crop.
(Procedure according to J.R. Williams (1991). Runoff and Water Erosion.
Chap 18, Modeling Plant and Soil Systems, Agronomy 31.)
----------------
 75    <Curve number (CN2).  In LEACHM, water content use to adjust CN2 based on top 20 cm.
  0    <Slope, %. Used to adjust CN2 according to equation of Williams (1991).
** (Set slope to 0 to bypass the runoff routine.  Runoff owing to profile saturation will still be accumulated)
*************************************************************************
*************************************************************************
                        CROP DATA
---------------------------------------------------------------------------
  Data for at least one crop must be specified, even if no crop desired.
  For fallow soil, set flag below to 0, or germination past the simulation end date.
---------------------------------------------------------------------------
```

1 <Plants present: 1 yes, 0 no. This flag overrides all other crop data.
66 <Number of crops (>0, even if bypassed). Dates can be past last day of simulation.
-1500 <Wilting point (soil) kPa.
-3000 <Minimum root water potential(kpa).
1.1 <Maximum ratio of actual to potential transpiration (dry surface).
1.05 <Root resistance (weights water uptake by depth). (>1, No weighting: 1.0).
0 <Conversion between solute concentration and osmotic potential (kPa per conc_unit/L, applied to solute species 1 only).
3 <Relationship between soil matric and osmotic potentials and root water uptake.

Growth 1: No 2: Yes	Perennial 1: Yes 2: No	N_uptake 1:to maturity 2:to harvest	Date or day of Germ.	Emerg.	Maturity Root	Cover	Rel. root Harv. depth	Max crop cover fraction	Crop cover at harvest	Mulch effect	ETp scaling	Crop uptake %	N factor	N	P	Min fraction fixed
												kg/ha				
1	1	2	010940	010940	030940	151240	010441	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010941	010941	030941	151241	010442	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010942	010942	030942	151242	010443	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010943	010943	030943	151243	010444	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010944	010944	030944	151244	010445	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010945	010945	030945	151245	010446	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010946	010946	030946	151246	010447	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010947	010947	030947	151247	010448	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010948	010948	030948	151248	010449	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010949	010949	030949	151259	010450	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010950	010950	030950	151250	010451	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010951	010951	030951	151251	010452	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010952	010952	030952	151252	010453	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010953	010953	030953	151253	010454	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010954	010954	030954	151254	010455	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010955	010955	030955	151255	010456	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010956	010956	030956	151256	010457	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010957	010957	030957	151257	010458	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010958	010958	030958	151258	010459	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010959	010959	030959	151269	010460	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010960	010960	030960	151260	010461	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010961	010961	030961	151261	010462	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010962	010962	030962	151262	010463	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010963	010963	030963	151263	010464	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010964	010964	030964	151264	010465	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010965	010965	030965	151265	010466	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010966	010966	030966	151266	010467	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010967	010967	030967	151267	010468	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010968	010968	030968	151268	010469	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8
1	1	2	010969	010969	030969	151279	010470	1.0	.6	0.1	0	0.70	21.2	3.0	0.	0.8

```
  1     1     2       010970 010970  030970 151270 010471  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010971 010971  030971 151271 010472  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010972 010972  030972 151272 010473  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010973 010973  030973 151273 010474  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010974 010974  030974 151274 010475  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010975 010975  030975 151275 010476  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010976 010976  030976 151276 010477  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010977 010977  030977 151277 010478  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010978 010978  030978 151278 010479  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010979 010979  030979 151289 010480  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010980 010980  030980 151280 010481  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010981 010981  030981 151281 010482  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010982 010982  030982 151282 010483  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010983 010983  030983 151283 010484  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010984 010984  030984 151284 010485  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010985 010985  030985 151285 010486  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010986 010986  030986 151286 010487  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010987 010987  030987 151287 010488  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010988 010988  030988 151288 010489  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010989 010989  030989 151299 010490  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010990 010990  030990 151290 010491  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010991 010991  030991 151291 010492  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010992 010992  030992 151292 010493  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010993 010993  030993 151293 010494  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010994 010994  030994 151294 010495  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010995 010995  030995 151295 010496  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010996 010996  030996 151296 010497  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010997 010997  030997 151297 010498  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010998 010998  030998 151298 010499  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010999 010999  030999 151209 010400  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010900 010900  030900 151200 010401  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010901 010901  030901 151201 010402  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010902 010902  030902 151202 010403  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010903 010903  030903 151203 010404  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010904 010904  030904 151204 010405  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
  1     1     2       010905 010905  030905 151205 010406  1.0    .6     0.1     0      0.70   21.2 3.0  0.    0.8
*************************************************************************************************************************************************
*************************************************************************************************************************************************
   INITIAL NITROGEN, PHOSPHORUS AND CARBON POOLS (excluding soil humus)       | (Humus C, N, & P calculated from org.C)
-------------------------------------------------------------------------------| (Fertilizer P absent at start)
     |          NITROGEN POOLS       | CARBON POOLS   |   PHOSPHORUS POOLS    | (Bound P pool in equilibrium with labile P.
 SOIL |UREA  NH4    NO3 Residue Manure| Residue Manure | Labile Residue Manure |-------------------------------
LAYER |   ----mg N/kg dry soil----    | -- mg C/kg --  |   mg P/kg dry soil    |   Tracer (non-interacting)
```

```
---------------------------------------------------------------------------------------------------------------------
  1  000.   0.   0.0     0.  0.   0.     0.      000.   0.    00.          100
  2  000.   0.   0.0     0.  0.   0.     0.      000.   0.    00.          100
  3  000.   0.   0.0     0.  0.   0.     0.      000.   0.    00.          100
  4  000.   0.   0.0     0.  0.   0.     0.      000.   0.    00.          100
  5  000.   0.   0.0     0.  0.   0.     0.      000.   0.    00.          100
  6  000.   0.   0.0     0.  0.   0.     0.      000.   0.    00.          100
  7  000.   0.   0.0     0.  0.   0.     0.      000.   0.    00.          100
  8  000.   0.   0.0     0.  0.   0.     0.      000.   0.    00.          100
  9  000.   0.   0.0     0.  0.   0.     0.      000.   0.    00.          100
 10   000.   0.   0.0     0.  0.   0.     0.      000.   0.    00.          100
  1  000.   0.   0.0     0.  0.   0.     0.      000.   0.    00.          100
---------------------------------------------------------------------------------------------------------------------
 Concentration (mg/l) below profile, used with lower boundary 1.
          0        0        0        0    (NH4, NO3, P and tracer)
  0    < Depth (mm) of water in mixing cell.  Enter 0 for no mixing cell.
*****************************************************
*****************************************************
    CHEMICAL PROPERTIES
    -------------------
                 Kd
        Name     L/kg
      ---------- --------
     '   Urea-N'    0   (If urea hydroloysis rate is zero, then 'urea'
     '    NH4-N'    3     can be used as a tracer)
     '    NO3-N'    0   (NO3-N can sorb, eg. in andosols)
     'Residue-N'        (Plant 'residues' and 'manure' pools representing
     '  Humus-N'          added organic sources of N, P and C.  They
     ' Manure-N'          differ in that the plant residue pool is supplied
     'Residue-C'          by the non-harvested portion of annual crops,
     '  Humus-C'          and the non-harvested, non-perennial portion of
     ' Manure-C'          perennial crops)
     '    CO2-C'
     '   Fert-P' 10000  .693         <Solubility; Dissolution rate (d**-1)
     ' Labile-P'     1   100  .6     <1: Freundlich or 2: Langmuir; [Freundlich Kd; Exponent  OR  Langmuir Qm; k]
     'Residue-P'
     '  Humus-P'
     ' Manure-P'
     '  Bound-P' 300  0.4  .05  .50  <Freundlich sorption: Kd; Exponent; Phase transfer: Dissolution rate, precipitation rate, (days^-1)
*****************************************************
 Diffusion
-----------------------------------------------------------
  120    <Molecular diffusion coefficient (mm2/day)
```

****
NITROGEN TRANSFORMATIONS

.5 <Synthesis efficiency factor.
.2 <Humification fraction.
10.0 <C/N ratio:biomass and humus.
50.0 <C/P ratio:biomass and humus.
------Temperature and water content adjustments------
1 <Temperature subroutine? yes(1), no(0). If no, base temperature used.
20 <Base temperature, degrees C
2 <Q10: rate constant adjustment factor per 10C temperature change.
.08 <High end of optimum water content range, air-filled porosity.
-300 <Lower end of optimum water content, kPa
-1500 <Minimum matric potential for transformation, kPa
0.6 <Relative transformation rate at saturation (except denitrification), days^(-1)
****
RATE CONSTANTS [days^(-1)]

Layer	Urea hydrolysis	NH4->NO3	NO3->N	Residue	Mineralization Manure	Humus
1	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
2	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
3	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
4	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
5	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
6	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
7	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
8	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
9	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
10	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
1	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4

Additional rates and constants used for calculating N transformations:
0.20 <Ammonia volatilization from the surface, days^(-1)
10 <Denitrification half-saturation constant (mg/l).
8 <Limiting NO3/NH4 ratio in solution for nitrification
****
****
NITROGEN, PHOSPHORUS AND CARBON APPLICATIONS (kg/ha)
---
1 < No. of nutrient applications

```
Date or   Incorp n                NITROGEN                CARBON              PHOSPHORUS
day no.   segments     Urea   NH4    NO3 Residue Manure  Residue Manure  Fertilizer Residue  Manure   Tracer
-------  ---------   ------  ---   ---  ------ ------  ------- ------      ------  ------  ------   ------
280107       1           0    0     0   3.333      0    333.3      0         0   0.1667       0        0
**********************************************************************************************************************
**********************************************************************************************************************
                CULTIVATIONS
                 ------------
 1   < Number of cultivations.  At least one must be specified.  Can be past last day.
-----------------------------------------------------
 Date or   Depth of cultivation
 day no.       mm
 -------      -----
  140607        50
**********************************************************************************
**********************************************************************************
     RAIN AND RAIN WATER COMPOSITION  (Include irrigation here, or specify
     --------------------------------    in a separate file.)
  12355 < Number of water applications.  Some or all can be past last day. (See manual on setting automated irrigation thresholds)
  0     < For a separate irrigation file, set to 1 and edit and rename NITRTEST.SCH.
-------------------------------------------------------------------------------
     Start      Amount  Surface flux      Dissolved in water (can be 0)
Date/day  Time             density          Urea-N  NH4-N  NO3-N    P  Tracer
-------  --day-  --mm--  ---mm/d----     ----------  mg/l  --------- -- ------
     040140   0.3      0.1       0.5     0      0      0.5     0    0
Note remaining daily records excluded because of excessive length
**************************************************************************
**************************************************************************
  REFERENCE ET (WEEKLY TOTALS, mm), (Note: Water table column read, but not used)
  MEAN WEEKLY TEMPERATURES AND MEAN WEEKLY AMPLITUDE (degrees C)
-----------------------------------------------------------------------
     Week     Ref.ET   Water table  Mean temp  Amplitude
-- or day -  ------   -(not used)- ---------  ---------
    070140      36.6       0.         20.0        8.6
Note remaining weekly records excluded because of excessive length
```

LEACHN Input file for Native Vegetation Scenario

```
nveg0043  < Established native vegetation/pine plantation scenario - version 43
-------------------------------------------------------------------------------
                LEACHN NITROGEN AND PHOSPHORUS DATA FILE.
A value must be present for each item, although it may not be used in the
simulation.  The file is read free format with blank delimiters. Preserve
division and heading records.  The number of depth segments may be changed.
*******************************************************************************************************
 2      <Date format (1: month/day/year;  2: day/month/year).  Dates must be 6 digits, 2 each for day, mo, yr.
 010140 <Starting date.  No date in the input data should precede this date.
 030106 <Ending date or day number.  The starting date is day 1. (A value <010101 is treated as a day number).
 0.1    <Largest time interval within a day (0.1 day or less).
 5      <Number of repetitions of rainfall, crop and chemical application data.
 2000   <Profile depth (mm), preferably a multiple of the segment thickness.
 100    <Segment thickness (mm).  (The number of segments should be between about 8 and 30.
 2      <Lower boundary condition: 1:fixed depth water table; 2:free drainage, 3:zero flux 4:lysimeter.
 1000   <If the lower boundary is 1 or 4: initial depth to water table (mm).
-------------------------------------------------------------------------------
The steady-state flow option uses constant water fluxes during the application
periods specified in the rainfall data table, and a uniform water content
specified here.  Steady-state flow implies a lab column, and crop and evaporation data are ignored.
-------------------------------------------------------------------------------
 1     < Water flow: 1: Richards; 2: Addiscott tipping bucket; 3: steady-state (no crops assumed).
 999   < Steady-state flow water content (volume fraction); 999: saturated column.
*******************************************************************************************************
*******************************************************************************************************
 3     <Number of output files: 1: OUT only; 2: OUT + SUM; 3: OUT + SUM + BTC
---------------------------------------
--- For the *.OUT file :
 4      <Units for depth data: 1: mg/kg, 2: mg/m2 per segment, 3: g/m2, 4: kg/ha
 1      <Node print frequency (print data for every node (1), alternate nodes (2).
 1      <Print option: 1 or 2.  Use to specify one of the following options.
 365.25 <Option 1: Print at fixed time intervals (days between prints).
 1      <Option 2: No. of prints (the times for which are specified below)
 3      <Tables printed: 1: mass balance; 2: + depth data; 3: + crop data
 0      <Reset cumulative values in .OUT file after each print? 0: No, 1: Yes
---------------------------------------
--- For the * .SUM file :
 999    <Summary print interval (days) (for calendar months use 999)
 200    <Surface to [depth 1?] mm      ( Three depth segments for the
```

```
 500    <Depth 1 to [depth 2?] mm      summary file. Zero defaults to nodes
 1000    <Depth 2 to [depth 3?] mm      closest to thirds of the profile)
 3      <4th segment: Root zone (1); profile (2); Depth 3 to lower boundary (3); Surface to shallowest of
---      lower boundary or water table (4)
--- For the *.BTC (breakthrough) file :
 1.0    <Incremental depth of drainage water per output (mm)
------------------------------------------------------------------------------
--- List here the times at which the *.OUT file is desired for print option 2.
--- The number of records must match the 'No. of prints' under option 2 above.
---        Date or    Time of day          (At least one must be specified,
---        Day no.  (to nearest tenth)      even if print option is 1)
---        --------  ----------------
          140607         .2        (These dates can be past the last day)
******************************************************************************
******************************************************************************
SOIL PHYSICAL PROPERTIES  (Retention models - 0: listed Campbell parameters;
Campbell + pedotransfer functions (see Table 3.2): 1: SA Cl+Si; 2: SA Cl;
3: UK topsoils; 4: UK subsoils; 5: USA Rawls and Brakensiek;
6: listed van Genuchten parameters (use e.g RETC to estimate these).
------------------------------------------------------------------------------
 Soil |                  |Retention|   Starting   |    Roots   | Starting
layer | Clay  Silt  Organic |  model  |theta or pot'l|  (for no  | temp (C)
 no.  |            carbon  |         |(one is used) |  growth)  | (not read in
      |  %     %     %     |         |          kPa | (relative)|  LEACHC)
 ---    ----  ----   ----      ------   -----   -----     ------     -----------
  1      1.    1.    0.1         6      .000   -1500.      .20          20.
  2      1.    1.    0.1         6      .000   -1500.      .20          20.
  3      1.    1.    0.1         6      .000   -1500.      .10          20.
  4      1.    1.    0.1         6      .000   -1500.      .10          20.
  5      1.    1.    0.1         6      .000   -1500.      .10          20.
  6      1.    1.    0.1         6      .000   -1500.      .05          20.
  7      1.    1.    0.1         6      .000   -1500.      .05          20.
  8      1.    1.    0.1         6      .000   -1500.      .05          20.
  9      1.    1.    0.1         6      .000   -1500.      .05          20.
 10       1.    1.    0.1         6      .000   -1500.      .05          20.
  1      1.    1.    0.1         6      .000   -1500.      .005         20.
  2      1.    1.    2.0         6      .000   -1500.      .005         20.
  3      1.    1.    2.0         6      .000   -1500.      .005         20.
  4      1.    1.    0.1         6      .000   -1500.      .005         20.
  5      1.    1.    0.1         6      .000   -1500.      .005         20.
  6      1.    1.    0.1         6      .000   -1500.      .005         20.
  7      1.    1.    0.1         6      .000   -1500.      .005         20.
  8      1.    1.    0.1         6      .000   -1500.      .005         20.
```

```
 9      1.    1.    0.1         6      .000   -1500.      .005          20.
20      1.    1.    0.1         6      .000   -1500.      .005          20.
-------------------------------------------------------------------------------
 2 < 1: Use listed water contents, 2: listed potentials, 3: equilibrium: water table (boundaries 1,4) ...
Particle density:  Clay    Silt and sand    Organic matter  (kg/dm3) (to calculate porosity)
                   2.65         2.65              1.10
*******************************************************************************
For a uniform profile: Non-zero values here will override data in the next
table of depth-specific data.
-------------------------------------------------------------------------------
  0.0   0.00 :if >0, Soil bulk density and particle density (kg/dm3).
  0.0        :if <0, Campbell 'Air-entry value' (kPa), or van Genuchten alpha (kPa^-1).
  0.0        :if >0, Campbell exponent b, or van Genuchten n.
    0   -0.0 :if K>0, Conductivity (mm/day) and corresponding matric potential (kPa) ...
  0.0        :if >0, Campbell pore interaction parameter or van Genuchten residual saturation.
  000        :if >0, Dispersivity (mm).
   00        :if >0, For Addiscott flow: Matric potential (kPa) at field capacity
   00        :if >0,                  : Division between mobile and immobile water (kPa)
*************************************************************************************************************
 Soil  |Retention function |   Bulk  | K matching              | Dispersivity |  For Addiscott flow option:
 segment   parameters      | density |   factor                |              |  Field     Mobile/immobile
 no.   |CHC: AEV    BCAM   |         |       potl  CHC: P      |              | capacity      threshold
       |vG: alpha    n     |  kg/dm3 | mm/d  kPa   vG: ResSat|     mm       |   kPa            kPa
------  ------   -----     ------    ----  -----   -----       -----        ------         ---------
  1        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  2        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  3        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  4        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  5        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  6        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  7        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  8        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  9        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
 10         0.0806  1.510       1.60       1   -20.     0.0276      100.        -5.0           -200.
  1        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  2        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  3        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  4        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  5        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  6        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  7        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  8        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
  9        0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0           -200.
```

```
  20       0.0806  1.510      1.60       1   -20.     0.0276      100.        -5.0          -200.
*****************************************************************************************************
*****************************************************************************************************
Runoff according to the SCS curve number approach.  Curve number listed here will be
adjusted by slope. During periods of crop growth, CN2 replaced by value for crop.
(Procedure according to J.R. Williams (1991). Runoff and Water Erosion.
Chap 18, Modeling Plant and Soil Systems, Agronomy 31.)
----------
 75    <Curve number (CN2).  In LEACHM, water content use to adjust CN2 based on top 20 cm.
  0    <Slope, %. Used to adjust CN2 according to equation of Williams (1991).
** (Set slope to 0 to bypass the runoff routine.  Runoff owing to profile saturation will still be accumulated)
*************************************************************************
*************************************************************************
                      CROP DATA
-------------------------------------------------------------------------
  Data for at least one crop must be specified, even if no crop desired.
  For fallow soil, set flag below to 0, or germination past the simulation end date.
-------------------------------------------------------------------------
     1     <Plants present: 1 yes, 0 no.  This flag overrides all other crop data.
    66     <Number of crops (>0, even if bypassed).  Dates can be past last day of simulation.
 -1500     <Wilting point (soil) kPa.
 -3000     <Minimum root water potential(kpa).
   1.1     <Maximum ratio of actual to potential transpiration (dry surface).
  1.05     <Root resistance (weights water uptake by depth). (>1, No weighting: 1.0).
     0     <Conversion between solute concentration and osmotic potential (kPa per conc_unit/L, applied to solute species 1 only).
     3     <Relationship between soil matric and osmotic potentials and root water uptake.
-------------------------------------------------------------------------------------------------------------------------------------------------
Growth  Perennial  N_uptake            Date or day of          Rel.  Max crop  Crop   Mulch    ETp  |  Crop    Min   Harvested
1: No   1: Yes    1:to maturity          Maturity        root   cover  cover at  effect  scaling| uptake    N     fraction
2: Yes  2: No     2:to harvest  Germ. Emerg.   Root  Cover  Harv. depth fraction  harvest   %      factor|  N   P   fixed
------  -------  ------------  ---------------------------------- -----  ------  --------  -----     ----    -----kg/ha---- ----------
   1       1        3        020140 030140  040140 040140 311240  1.0    1.0      1.0      0       1.0      50  0      0     0.1
   1       1        3        020141 030141  040141 040141 311241  1.0    1.0      1.0      0       1.0      50  0      0     0.1
   1       1        3        020142 030142  040142 040142 311242  1.0    1.0      1.0      0       1.0      50  0      0     0.1
   1       1        3        020143 030143  040143 040143 311243  1.0    1.0      1.0      0       1.0      50  0      0     0.1
   1       1        3        020144 030144  040144 040144 311244  1.0    1.0      1.0      0       1.0      50  0      0     0.1
   1       1        3        020145 030145  040145 040145 311245  1.0    1.0      1.0      0       1.0      50  0      0     0.1
   1       1        3        020146 030146  040146 040146 311246  1.0    1.0      1.0      0       1.0      50  0      0     0.1
   1       1        3        020147 030147  040147 040147 311247  1.0    1.0      1.0      0       1.0      50  0      0     0.1
   1       1        3        020148 030148  040148 040148 311248  1.0    1.0      1.0      0       1.0      50  0      0     0.1
   1       1        3        020149 030149  040149 040149 311249  1.0    1.0      1.0      0       1.0      50  0      0     0.1
   1       1        3        020150 030150  040150 040150 311250  1.0    1.0      1.0      0       1.0      50  0      0     0.1
   1       1        3        020151 030151  040151 040151 311251  1.0    1.0      1.0      0       1.0      50  0      0     0.1
```

1	1	3	020152	030152	040152	040152	311252	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020153	030153	040153	040153	311253	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020154	030154	040154	040154	311254	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020155	030155	040155	040155	311255	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020156	030156	040156	040156	311256	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020157	030157	040157	040157	311257	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020158	030158	040158	040148	311258	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020159	030159	040159	040159	311259	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020160	030160	040160	040160	311260	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020161	030161	040161	040161	311261	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020162	030162	040162	040162	311262	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020163	030163	040163	040163	311263	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020164	030164	040164	040164	311264	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020165	030165	040165	040165	311265	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020166	030166	040166	040166	311266	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020167	030167	040167	040167	311267	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020168	030168	040168	040168	311268	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020169	030169	040169	040169	311269	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020170	030170	040170	040170	311270	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020171	030171	040171	040171	311271	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020172	030172	040172	040172	311272	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020173	030173	040173	040173	311273	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020174	030174	040174	040174	311274	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020175	030175	040175	040175	311275	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020176	030176	040176	040176	311276	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020177	030177	040177	040177	311277	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020178	030178	040178	040178	311278	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020179	030179	040179	040179	311279	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020180	030180	040180	040180	311280	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020181	030181	040181	040181	311281	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020182	030182	040182	040182	311282	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020183	030183	040183	040183	311283	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020184	030184	040184	040184	311284	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020185	030185	040185	040185	311285	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020186	030186	040186	040186	311286	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020187	030187	040187	040187	311287	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020188	030188	040188	040188	311288	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020189	030189	040189	040189	311289	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020190	030190	040190	040190	311290	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020191	030191	040191	040191	311291	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020192	030192	040192	040192	311292	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020193	030193	040193	040193	311293	1.0	1.0	1.0	0	1.0	50	0	0	0.1
1	1	3	020194	030194	040194	040194	311294	1.0	1.0	1.0	0	1.0	50	0	0	0.1

```
  1     1     3      020195 030195  040195 040195 311295  1.0   1.0    1.0    0     1.0    50  0     0    0.1
  1     1     3      020196 030196  040196 040196 311296  1.0   1.0    1.0    0     1.0    50  0     0    0.1
  1     1     3      020197 030197  040197 040197 311297  1.0   1.0    1.0    0     1.0    50  0     0    0.1
  1     1     3      020198 030198  040198 040198 311298  1.0   1.0    1.0    0     1.0    50  0     0    0.1
  1     1     3      020199 030199  040199 040199 311299  1.0   1.0    1.0    0     1.0    50  0     0    0.1
  1     1     3      020100 030100  040100 040100 311200  1.0   1.0    1.0    0     1.0    50  0     0    0.1
  1     1     3      020101 030101  040101 040101 311201  1.0   1.0    1.0    0     1.0    50  0     0    0.1
  1     1     3      020102 030102  040102 040102 311202  1.0   1.0    1.0    0     1.0    50  0     0    0.1
  1     1     3      020103 030103  040103 040103 311203  1.0   1.0    1.0    0     1.0    50  0     0    0.1
  1     1     3      020104 030104  040104 040104 311204  1.0   1.0    1.0    0     1.0    50  0     0    0.1
  1     1     3      020105 030105  040105 040105 311205  1.0   1.0    1.0    0     1.0    50  0     0    0.1
*****************************************************************************************************************************************************
*****************************************************************************************************************************************************
   INITIAL NITROGEN, PHOSPHORUS AND CARBON POOLS (excluding soil humus)       | (Humus C, N, & P calculated from org.C)
-------------------------------------------------------------------------------| (Fertilizer P absent at start)
      |          NITROGEN POOLS       | CARBON POOLS   |   PHOSPHORUS POOLS    | (Bound P pool in equilibrium with labile P.
 SOIL |UREA  NH4    NO3 Residue Manure| Residue Manure | Labile Residue Manure |------------------------------
LAYER |   ----mg N/kg dry soil----    | -- mg C/kg --  |   mg P/kg dry soil    |   Tracer (non-interacting)
-----------------------------------------------------------------------------------------------------------
  1   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  2   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  3   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  4   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  5   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  6   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  7   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  8   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  9   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
 10   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  1   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  2   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  3   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  4   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  5   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  6   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  7   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  8   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
  9   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
 20   000.   0.   0.0      0.   0.   0.     0.      000.   0.    00.           100
-----------------------------------------------------------------------------------------------------------
  Concentration (mg/l) below profile, used with lower boundary 1.
          0        0        0        0    (NH4, NO3, P and tracer)
  0    < Depth (mm) of water in mixing cell.  Enter 0 for no mixing cell.
```

```
*******************************************************
*******************************************************
    CHEMICAL PROPERTIES
    -------------------
                  Kd
         Name     L/kg
          ---------- --------
        '   Urea-N'    0   (If urea hydroloysis rate is zero, then 'urea'
        '    NH4-N'    3    can be used as a tracer)
        '    NO3-N'    0   (NO3-N can sorb, eg. in andosols)
        'Residue-N'        (Plant 'residues' and 'manure' pools representing
        '  Humus-N'          added organic sources of N, P and C.  They
        ' Manure-N'          differ in that the plant residue pool is supplied
        'Residue-C'          by the non-harvested portion of annual crops,
        '  Humus-C'          and the non-harvested, non-perennial portion of
        ' Manure-C'          perennial crops)
        '    CO2-C'
        '   Fert-P' 10000  .693         <Solubility; Dissolution rate (d**-1)
        ' Labile-P'     1   100  .6     <1: Freundlich or 2: Langmuir; [Freundlich Kd; Exponent  OR  Langmuir Qm; k]
        'Residue-P'
        '  Humus-P'
        ' Manure-P'
        '  Bound-P' 300  0.4  .05  .50  <Freundlich sorption: Kd; Exponent; Phase transfer: Dissolution rate, precipitation rate, (days^-1)
*******************************************************
 Diffusion
-------------------------------------------------------
  120    <Molecular diffusion coefficient (mm2/day)
*******************************************************
        NITROGEN TRANSFORMATIONS
-------------------------------------------------------
   .5    <Synthesis efficiency factor.
   .2    <Humification fraction.
 10.0    <C/N ratio:biomass and humus.
 50.0    <C/P ratio:biomass and humus.
------Temperature and water content adjustments------
     1   <Temperature subroutine? yes(1), no(0). If no, base temperature used.
    20   <Base temperature, degrees C
     2   <Q10: rate constant adjustment factor per 10C temperature change.
   .08   <High end of optimum water content range, air-filled porosity.
  -300   <Lower end of optimum water content, kPa
 -1500   <Minimum matric potential for transformation, kPa
   0.6   <Relative transformation rate at saturation (except denitrification), days^(-1)
*******************************************************
```

RATE CONSTANTS [days^(-1)]

Layer	Urea hydrolysis	NH4->NO3	NO3->N	Mineralization Residue	Manure	Humus
1	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
2	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
3	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
4	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
5	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
6	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
7	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
8	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
9	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
10	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
1	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
2	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
3	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
4	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
5	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
6	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
7	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
8	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
9	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4
20	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4

Additional rates and constants used for calculating N transformations:
0.20 <Ammonia volatilization from the surface, days^(-1)
10 <Denitrification half-saturation constant (mg/l).
8 <Limiting NO3/NH4 ratio in solution for nitrification

****

****

NITROGEN, PHOSPHORUS AND CARBON APPLICATIONS (kg/ha)

1 < No. of nutrient applications

Date or day no.	Incorp n segments	NITROGEN Urea	NH4	NO3	CARBON Residue	Manure	PHOSPHORUS Residue	Manure	Fertilizer	Residue	Manure	Tracer
280107	1	0	0	0	3.333	0	333.3	0	0	0.1667	0	0

****

****

CULTIVATIONS

```
                ------------
 1   < Number of cultivations.  At least one must be specified.  Can be past last day.
-----------------------------------------------------
 Date or   Depth of cultivation
 day no.       mm
 -------     -----
  140607       50
*******************************************************************************************
*******************************************************************************************
     RAIN AND RAIN WATER COMPOSITION  (Include irrigation here, or specify
     --------------------------------    in a separate file.)
  12355 < Number of water applications.  Some or all can be past last day. (See manual on setting automated irrigation thresholds)
  0     < For a separate irrigation file, set to 1 and edit and rename NITRTEST.SCH.
-------------------------------------------------------------------------------
     Start      Amount  Surface flux      Dissolved in water (can be 0)
Date/day  Time             density          Urea-N  NH4-N  NO3-N    P  Tracer
-------  --day-  --mm--  ---mm/d----     ----------  mg/l  --------- -- ------
     040140   0.3      0.1       0.5     0      0      0.5     0    0
Note remaining daily records excluded because of excessive length
*******************************************************************************
*******************************************************************************
  REFERENCE ET (WEEKLY TOTALS, mm), (Note: Water table column read, but not used)
  MEAN WEEKLY TEMPERATURES AND MEAN WEEKLY AMPLITUDE (degrees C)
-------------------------------------------------------------------------------
     Week     Ref.ET   Water table  Mean temp  Amplitude
-- or day -  ------   -(not used)- ---------  ---------
    070140      36.6       0.         20.0        8.6
Note remaining weekly records excluded because of excessive length
```

LEACHN Input file for Grazed Pasture Scenario

```
graz0015  < Non-Irrigated grazing pastures scenario - version 15
-------------------------------------------------------------------------------
                LEACHN NITROGEN AND PHOSPHORUS DATA FILE.
A value must be present for each item, although it may not be used in the
simulation.  The file is read free format with blank delimiters. Preserve
division and heading records.  The number of depth segments may be changed.
*****************************************************************************************************
 2      <Date format (1: month/day/year;  2: day/month/year).  Dates must be 6 digits, 2 each for day, mo, yr.
 010140 <Starting date.  No date in the input data should precede this date.
 030106 <Ending date or day number.  The starting date is day 1. (A value <010101 is treated as a day number).
 0.1    <Largest time interval within a day (0.1 day or less).
 1      <Number of repetitions of rainfall, crop and chemical application data.
 900    <Profile depth (mm), preferably a multiple of the segment thickness.
 100    <Segment thickness (mm).  (The number of segments should be between about 8 and 30.
 2      <Lower boundary condition: 1:fixed depth water table; 2:free drainage, 3:zero flux 4:lysimeter.
 3000   <If the lower boundary is 1 or 4: initial depth to water table (mm).
-------------------------------------------------------------------------------
The steady-state flow option uses constant water fluxes during the application
periods specified in the rainfall data table, and a uniform water content
specified here.  Steady-state flow implies a lab column, and crop and evaporation data are ignored.
-------------------------------------------------------------------------------
 1     < Water flow: 1: Richards; 2: Addiscott tipping bucket; 3: steady-state (no crops assumed).
 999   < Steady-state flow water content (volume fraction); 999: saturated column.
*****************************************************************************************************
*****************************************************************************************************
 3     <Number of output files: 1: OUT only; 2: OUT + SUM; 3: OUT + SUM + BTC
---------------------------------------
--- For the *.OUT file :
 4      <Units for depth data: 1: mg/kg, 2: mg/m2 per segment, 3: g/m2, 4: kg/ha
 1      <Node print frequency (print data for every node (1), alternate nodes (2).
 1      <Print option: 1 or 2.  Use to specify one of the following options.
 365.25     <Option 1: Print at fixed time intervals (days between prints).
 1      <Option 2: No. of prints (the times for which are specified below)
 3      <Tables printed: 1: mass balance; 2: + depth data; 3: + crop data
 0      <Reset cumulative values in .OUT file after each print? 0: No, 1: Yes
---------------------------------------
--- For the * .SUM file :
 999    <Summary print interval (days) (for calendar months use 999)
 100    <Surface to [depth 1?] mm      ( Three depth segments for the
```

```
 400    <Depth 1 to [depth 2?] mm      summary file. Zero defaults to nodes
 600    <Depth 2 to [depth 3?] mm      closest to thirds of the profile)
 3      <4th segment: Root zone (1); profile (2); Depth 3 to lower boundary (3); Surface to shallowest of
---      lower boundary or water table (4)
--- For the *.BTC (breakthrough) file :
 1.0    <Incremental depth of drainage water per output (mm)
------------------------------------------------------------------------------
--- List here the times at which the *.OUT file is desired for print option 2.
--- The number of records must match the 'No. of prints' under option 2 above.
---        Date or    Time of day          (At least one must be specified,
---        Day no.  (to nearest tenth)      even if print option is 1)
---        --------  ----------------
          123107         .2       (These dates can be past the last day)
******************************************************************************
******************************************************************************
SOIL PHYSICAL PROPERTIES  (Retention models - 0: listed Campbell parameters;
Campbell + pedotransfer functions (see Table 3.2): 1: SA Cl+Si; 2: SA Cl;
3: UK topsoils; 4: UK subsoils; 5: USA Rawls and Brakensiek;
6: listed van Genuchten parameters (use e.g RETC to estimate these).
------------------------------------------------------------------------------
 Soil |                    |Retention|   Starting   |    Roots   | Starting
layer | Clay  Silt  Organic |  model  |theta or pot'l|  (for no   | temp (C)
 no.  |             carbon  |         |(one is used) |  growth)   | (not read in
      |  %     %     %      |         |          kPa | (relative)|  LEACHC)
 ---    ----  ----   ----      ------   -----   -----    ------     -----------
  1     5.0    5.0   0.5         6      .000   -1500.      50.          20.
  2     5.0    5.0   0.5         6      .000   -1500.      30.          20.
  3     20.    5.0   0.5         6      .000   -1500.      10.          20.
  4     30.    5.0   0.5         6      .000   -1500.      4.           20.
  5     50.    5.0   0.1         6      .000   -1500.      3.           20.
  6     50.    5.0   0.1         6      .000   -1500.      1.           20.
  7     50.    5.0   0.1         6      .000   -1500.      1.           20.
  8     50.    5.0   0.1         6      .000   -1500.      0.5          20.
  9     50.    5.0   0.1         6      .000   -1500.      0.5          20.
------------------------------------------------------------------------------
 2 < 1: Use listed water contents, 2: listed potentials, 3: equilibrium: water table (boundaries 1,4) ...
Particle density:  Clay    Silt and sand    Organic matter  (kg/dm3) (to calculate porosity)
                  2.65         2.65              1.10
******************************************************************************
For a uniform profile: Non-zero values here will override data in the next
table of depth-specific data.
------------------------------------------------------------------------------
  0.0   0.00 :if >0, Soil bulk density and particle density (kg/dm3).
```

```
 0.0        :if <0, Campbell 'Air-entry value' (kPa), or van Genuchten alpha (kPa^-1).
 0.0        :if >0, Campbell exponent b, or van Genuchten n.
 000   -0.0 :if K>0, Conductivity (mm/day) and corresponding matric potential (kPa) ...
 0           :if >0, Campbell pore interaction parameter or van Genuchten residual saturation.
 000         :if >0, Dispersivity (mm).
  00         :if >0, For Addiscott flow: Matric potential (kPa) at field capacity
 000         :if >0,                  : Division between mobile and immobile water (kPa)
*****************************************************************************************************
 Soil  |Retention function |   Bulk  | K matching            | Dispersivity |  For Addiscott flow option:
 segment   parameters      | density |   factor              |              |  Field     Mobile/immobile
 no.   |CHC: AEV    BCAM   |         |       potl  CHC: P    |              | capacity      threshold
       |vG: alpha    n     |  kg/dm3 | mm/d  kPa   vG: ResSat|     mm       |   kPa           kPa
------  ------  -----  ------   ----  -----  -----      -----       ------        ---------
   1     0.683    1.390     1.60     1    -20.    0.0604      100.        -5.0          -200.
   2     0.683    1.390     1.60     1    -20.    0.0604      100.        -5.0          -200.
   3     0.908    1.206     1.60     1    -20.    0.0625      100.        -5.0          -200.
   4     1.039    1.137     1.60     1    -20.    0.0615      100.        -5.0          -200.
   5     1.377    1.065     1.60     1    -20.    0.0000      100.        -5.0          -200.
   6     1.377    1.065     1.60     1    -20.    0.0000      100.        -5.0          -200.
   7     1.377    1.065     1.60     1    -20.    0.0000      100.        -5.0          -200.
   8     1.377    1.065     1.60     1    -20.    0.0000      100.        -5.0          -200.
   9     1.377    1.065     1.60     1    -20.    0.0000      100.        -5.0          -200.
*****************************************************************************************************
*****************************************************************************************************
Runoff according to the SCS curve number approach.  Curve number listed here will be
adjusted by slope. During periods of crop growth, CN2 replaced by value for crop.
(Procedure according to J.R. Williams (1991). Runoff and Water Erosion.
Chap 18, Modeling Plant and Soil Systems, Agronomy 31.)
----------------
 75    <Curve number (CN2).  In LEACHM, water content use to adjust CN2 based on top 20 cm.
  0    <Slope, %. Used to adjust CN2 according to equation of Williams (1991).
** (Set slope to 0 to bypass the runoff routine.  Runoff owing to profile saturation will still be accumulated)
***************************************************************************
***************************************************************************
                      CROP DATA
---------------------------------------------------------------------------
  Data for at least one crop must be specified, even if no crop desired.
  For fallow soil, set flag below to 0, or germination past the simulation end date.
---------------------------------------------------------------------------
     1     <Plants present: 1 yes, 0 no.  This flag overrides all other crop data.
    66     <Number of crops (>0, even if bypassed).  Dates can be past last day of simulation.
 -1500      <Wilting point (soil) kPa.
 -3000      <Minimum root water potential(kpa).
```

1.1 <Maximum ratio of actual to potential transpiration (dry surface).
1.05 <Root resistance (weights water uptake by depth). (>1, No weighting: 1.0).
0 <Conversion between solute concentration and osmotic potential (kPa per conc_unit/L, applied to solute species 1 only).
3 <Relationship between soil matric and osmotic potentials and root water uptake.

Growth 1: No 2: Yes	Perennial 1: Yes 2: No	N_uptake 1:to maturity 2:to harvest	Date or day of Germ.	Emerg.	Maturity Root	Cover	root Harv.	Rel. cover depth	Max crop cover at fraction	Crop effect harvest	Mulch scaling | %	ETp uptake factor |	Crop N	Min fraction P	Harvested fixed
											kg/ha				
1	2	2	010640	020640	030640	030540	300541	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010641	020641	030641	030541	300542	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010642	020642	030642	030542	300543	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010643	020643	030643	030543	300544	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010644	020644	030644	030544	300545	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010645	020645	030645	030545	300546	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010646	020646	030646	030546	300547	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010647	020647	030647	030547	300548	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010648	020648	030648	030548	300549	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010649	020649	030649	030549	300550	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010650	020650	030650	030550	300551	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010651	020651	030651	030551	300552	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010652	020652	030652	030552	300553	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010653	020653	030653	030553	300554	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010654	020654	030654	030554	300555	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010655	020655	030655	030555	300556	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010656	020656	030656	030556	300557	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010657	020657	030657	030557	300558	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010658	020658	030658	030558	300559	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010659	020659	030659	030559	300560	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010660	020660	030660	030560	300561	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010661	020661	030661	030561	300562	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010662	020662	030662	030562	300563	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010663	020663	030663	030563	300564	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010664	020664	030664	030564	300565	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010665	020665	030665	030565	300566	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010666	020666	030666	030566	300567	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010667	020667	030667	030567	300568	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010668	020668	030668	030568	300569	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010669	020669	030669	030569	300570	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010670	020670	030670	030570	300571	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010671	020671	030671	030571	300572	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010672	020672	030672	030572	300573	1	0.8	0.8	0	0.85	225 0	100	0.7
1	2	2	010673	020673	030673	030573	300574	1	0.8	0.8	0	0.85	225 0	100	0.7

1	2	2	010674	020674	030674	030574	300575	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010675	020675	030675	030575	300576	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010676	020676	030676	030576	300577	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010677	020677	030677	030577	300578	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010678	020678	030678	030578	300579	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010679	020679	030679	030579	300580	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010680	020680	030680	030580	300581	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010681	020681	030681	030581	300582	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010682	020682	030682	030582	300583	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010683	020683	030683	030583	300584	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010684	020684	030684	030584	300585	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010685	020685	030685	030585	300586	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010686	020686	030686	030586	300587	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010687	020687	030687	030587	300588	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010688	020688	030688	030588	300589	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010689	020689	030689	030589	300590	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010690	020690	030690	030590	300591	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010691	020691	030691	030591	300592	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010692	020692	030692	030592	300593	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010693	020693	030693	030593	300594	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010694	020694	030694	030594	300595	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010695	020695	030695	030595	300596	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010696	020696	030696	030596	300597	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010697	020697	030697	030597	300598	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010698	020698	030698	030598	300599	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010699	020699	030699	030599	300500	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010600	020600	030600	030500	300501	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010601	020601	030601	030501	300502	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010602	020602	030602	030502	300503	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010603	020603	030603	030503	300504	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010604	020604	030604	030504	300505	1	0.8	0.8	0	0.85	225	0	100	0.7
1	2	2	010605	020605	030605	030505	300506	1	0.8	0.8	0	0.85	225	0	100	0.7

****

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INITIAL NITROGEN, PHOSPHORUS AND CARBON POOLS (excluding soil humus) | (Humus C, N, & P calculated from org.C)

---| (Fertilizer P absent at start)

| NITROGEN POOLS | CARBON POOLS | PHOSPHORUS POOLS | (Bound P pool in equilibrium with labile P.

SOIL |UREA NH4 NO3 Residue Manure| Residue Manure | Labile Residue Manure |---

LAYER | ----mg N/kg dry soil---- | -- mg C/kg -- | mg P/kg dry soil | Tracer (non-interacting)

1	000.	0.	0.0	0.	0.	0.	0.	0.	0.	00.	100
2	000.	0.	0.0	0.	0.	0.	0.	0.	0.	00.	100
3	000.	0.	0.0	0.	0.	0.	0.	0.	0.	00.	100

```
  4   000.    0.    0.0    0.   0.       0.   0.        0.   0.    00.           100
  5   000.    0.    0.0    0.   0.       0.   0.        0.   0.    00.           100
  6   000.    0.    0.0    0.   0.       0.   0.        0.   0.    00.           100
  7   000.    0.    0.0    0.   0.       0.   0.        0.   0.    00.           100
  8   000.    0.    0.0    0.   0.       0.   0.        0.   0.    00.           100
  9   000.    0.    0.0    0.   0.       0.   0.        0.   0.    00.           100
 ---------------------------------------------------------------------------------------------------------------
  Concentration (mg/l) below profile, used with lower boundary 1.
           0         0         0         0    (NH4, NO3, P and tracer)
  0    < Depth (mm) of water in mixing cell.  Enter 0 for no mixing cell.
******************************************************
******************************************************
    CHEMICAL PROPERTIES
    -------------------
                 Kd
         Name    L/kg
      ---------- --------
     '   Urea-N'    0   (If urea hydroloysis rate is zero, then 'urea'
     '    NH4-N'    3    can be used as a tracer)
     '    NO3-N'    0   (NO3-N can sorb, eg. in andosols)
     'Residue-N'        (Plant 'residues' and 'manure' pools representing
     '  Humus-N'          added organic sources of N, P and C.  They
     ' Manure-N'          differ in that the plant residue pool is supplied
     'Residue-C'          by the non-harvested portion of annual crops,
     '  Humus-C'          and the non-harvested, non-perennial portion of
     ' Manure-C'          perennial crops)
     '    CO2-C'
     '   Fert-P' 10000  .693         <Solubility; Dissolution rate (d**-1)
     ' Labile-P'     1   100  .6     <1: Freundlich or 2: Langmuir; [Freundlich Kd; Exponent  OR  Langmuir Qm; k]
     'Residue-P'
     '  Humus-P'
     ' Manure-P'
     '  Bound-P' 300  0.4  .05  .50  <Freundlich sorption: Kd; Exponent; Phase transfer: Dissolution rate, precipitation rate, (days^-1)
******************************************************
 Diffusion
-----------------------------------------------------
  120    <Molecular diffusion coefficient (mm2/day)
******************************************************
        NITROGEN TRANSFORMATIONS
-----------------------------------------------------
   .5    <Synthesis efficiency factor.
   .2    <Humification fraction.
 10.0    <C/N ratio:biomass and humus.
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50.0 <C/P ratio:biomass and humus.
------Temperature and water content adjustments------
1 <Temperature subroutine? yes(1), no(0). If no, base temperature used.
20 <Base temperature, degrees C
2 <Q10: rate constant adjustment factor per 10C temperature change.
.08 <High end of optimum water content range, air-filled porosity.
-300 <Lower end of optimum water content, kPa
-1500 <Minimum matric potential for transformation, kPa
0.6 <Relative transformation rate at saturation (except denitrification), days^(-1)
****

RATE CONSTANTS [days^(-1)]

Layer	Urea hydrolysis	NH4->NO3	NO3->N	Mineralization Residue	Manure	Humus	*****
1	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4	
2	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4	
3	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4	
4	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4	
5	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4	
6	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4	
7	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4	
8	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4	
9	.0000e-0	.200E-0	.10e-00	.010e-0	.020e-0	.100e-4	

Additional rates and constants used for calculating N transformations:
0.20 <Ammonia volatilization from the surface, days^(-1)
10 <Denitrification half-saturation constant (mg/l).
8 <Limiting NO3/NH4 ratio in solution for nitrification
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****

NITROGEN PHOSPHORUS AND CARBON APPLICATIONS (kg/ha)

792 < No. of nutrient applications

Date or day no.	Incorp n segments	NITROGEN Urea	NH4	NO3	CARBON Residue	Manure	PHOSPHORUS Residue	Manure	Fertilizer	Residue	Manure	Tracer
280140	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280240	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280340	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280440	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280540	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280640	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280740	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280840	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280940	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281040	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281140	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281240	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280141	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280241	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280341	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280441	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280541	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280641	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280741	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280841	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280941	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281041	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281141	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281241	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280142	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280242	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280342	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280442	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280542	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280642	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280742	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280842	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280942	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281042	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281142	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281242	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280143	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280243	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280343	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280443	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280543	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280643	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280743	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280843	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280943	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281043	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281143	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281243	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280144	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280244	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280344	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280444	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280544	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280644	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280744	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280844	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280944	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281044	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281144	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281244	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280145	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280245	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280345	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280445	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280545	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280645	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280745	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280845	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280945	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281045	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281145	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281245	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280146	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280246	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280346	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280446	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280546	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280646	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280746	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280846	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280946	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281046	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281146	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281246	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280147	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280247	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280347	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280447	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280547	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280647	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280747	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280847	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280947	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281047	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281147	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281247	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280148	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280248	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280348	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280448	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280548	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280648	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280748	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280848	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280948	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281048	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281148	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281248	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280149	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280249	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280349	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280449	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280549	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280649	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280749	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280849	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280949	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281049	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281149	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281249	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280150	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280250	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280350	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280450	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280550	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280650	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280750	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280850	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280950	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281050	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281150	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281250	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280151	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280251	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280351	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280451	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280551	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280651	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280751	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280851	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280951	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281051	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281151	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281251	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280152	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280252	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280352	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280452	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280552	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280652	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280752	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280852	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280952	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281052	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281152	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281252	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280153	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280253	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280353	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280453	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280553	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280653	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280753	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280853	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280953	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281053	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281153	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281253	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280154	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280254	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280354	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280454	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280554	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280654	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280754	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280854	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280954	0	1.6	0	0	0	1.25	0	25	0	0	0	0

281054	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281154	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281254	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280155	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280255	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280355	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280455	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280555	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280655	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280755	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280855	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280955	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281055	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281155	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281255	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280156	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280256	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280356	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280456	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280556	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280656	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280756	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280856	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280956	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281056	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281156	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281256	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280157	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280257	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280357	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280457	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280557	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280657	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280757	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280857	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280957	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281057	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281157	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281257	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280158	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280258	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280358	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280458	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280558	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280658	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280758	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280858	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280958	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281058	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281158	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281258	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280159	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280259	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280359	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280459	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280559	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280659	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280759	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280859	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280959	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281059	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281159	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281259	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280160	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280260	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280360	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280460	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280560	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280660	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280760	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280860	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280960	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281060	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281160	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281260	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280161	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280261	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280361	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280461	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280561	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280661	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280761	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280861	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280961	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281061	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281161	0	1.6	0	0	0	1.25	0	25	0	0	0	0

281261	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280162	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280262	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280362	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280462	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280562	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280662	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280762	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280862	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280962	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281062	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281162	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281262	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280163	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280263	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280363	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280463	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280563	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280663	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280763	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280863	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280963	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281063	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281163	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281263	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280164	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280264	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280364	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280464	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280564	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280664	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280764	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280864	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280964	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281064	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281164	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281264	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280165	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280265	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280365	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280465	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280565	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280665	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280765	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280865	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280965	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281065	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281165	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281265	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280166	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280266	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280366	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280466	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280566	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280666	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280766	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280866	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280966	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281066	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281166	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281266	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280167	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280267	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280367	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280467	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280567	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280667	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280767	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280867	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280967	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281067	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281167	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281267	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280168	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280268	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280368	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280468	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280568	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280668	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280768	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280868	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280968	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281068	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281168	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281268	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280169	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280269	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280369	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280469	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280569	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280669	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280769	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280869	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280969	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281069	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281169	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281269	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280170	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280270	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280370	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280470	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280570	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280670	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280770	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280870	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280970	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281070	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281170	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281270	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280171	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280271	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280371	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280471	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280571	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280671	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280771	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280871	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280971	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281071	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281171	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281271	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280172	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280272	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280372	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280472	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280572	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280672	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280772	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280872	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280972	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281072	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281172	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281272	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280173	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280273	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280373	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280473	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280573	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280673	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280773	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280873	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280973	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281073	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281173	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281273	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280174	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280274	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280374	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280474	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280574	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280674	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280774	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280874	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280974	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281074	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281174	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281274	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280175	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280275	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280375	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280475	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280575	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280675	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280775	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280875	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280975	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281075	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281175	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281275	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280176	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280276	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280376	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280476	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280576	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280676	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280776	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280876	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280976	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281076	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281176	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281276	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280177	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280277	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280377	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280477	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280577	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280677	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280777	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280877	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280977	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281077	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281177	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281277	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280178	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280278	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280378	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280478	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280578	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280678	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280778	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280878	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280978	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281078	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281178	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281278	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280179	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280279	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280379	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280479	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280579	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280679	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280779	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280879	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280979	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281079	0	1.6	0	0	0	1.25	0	25	0	0	0	0

281179	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281279	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280180	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280280	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280380	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280480	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280580	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280680	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280780	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280880	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280980	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281080	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281180	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281280	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280181	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280281	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280381	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280481	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280581	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280681	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280781	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280881	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280981	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281081	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281181	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281281	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280182	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280282	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280382	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280482	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280582	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280682	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280782	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280882	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280982	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281082	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281182	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281282	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280183	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280283	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280383	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280483	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280583	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280683	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280783	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280883	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280983	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281083	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281183	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281283	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280184	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280284	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280384	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280484	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280584	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280684	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280784	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280884	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280984	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281084	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281184	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281284	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280185	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280285	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280385	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280485	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280585	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280685	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280785	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280885	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280985	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281085	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281185	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281285	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280186	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280286	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280386	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280486	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280586	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280686	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280786	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280886	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280986	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281086	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281186	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281286	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280187	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280287	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280387	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280487	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280587	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280687	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280787	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280887	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280987	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281087	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281187	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281287	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280188	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280288	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280388	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280488	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280588	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280688	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280788	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280888	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280988	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281088	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281188	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281288	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280189	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280289	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280389	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280489	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280589	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280689	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280789	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280889	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280989	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281089	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281189	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281289	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280190	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280290	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280390	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280490	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280590	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280690	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280790	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280890	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280990	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281090	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281190	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281290	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280191	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280291	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280391	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280491	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280591	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280691	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280791	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280891	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280991	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281091	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281191	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281291	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280192	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280292	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280392	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280492	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280592	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280692	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280792	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280892	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280992	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281092	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281192	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281292	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280193	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280293	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280393	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280493	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280593	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280693	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280793	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280893	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280993	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281093	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281193	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281293	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280194	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280294	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280394	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280494	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280594	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280694	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280794	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280894	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280994	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281094	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281194	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281294	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280195	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280295	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280395	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280495	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280595	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280695	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280795	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280895	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280995	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281095	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281195	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281295	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280196	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280296	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280396	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280496	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280596	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280696	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280796	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280896	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280996	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281096	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281196	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281296	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280197	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280297	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280397	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280497	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280597	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280697	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280797	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280897	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280997	0	1.6	0	0	0	1.25	0	25	0	0	0	0

281097	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281197	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281297	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280198	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280298	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280398	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280498	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280598	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280698	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280798	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280898	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280998	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281098	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281198	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281298	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280199	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280299	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280399	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280499	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280599	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280699	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280799	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280899	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280999	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281099	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281199	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281299	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280100	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280200	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280300	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280400	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280500	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280600	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280700	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280800	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280900	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281000	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281100	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281200	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280101	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280201	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280301	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280401	0	1.6	0	0	0	1.25	0	25	0	0	0	0

280501	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280601	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280701	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280801	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280901	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281001	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281101	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281201	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280102	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280202	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280302	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280402	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280502	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280602	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280702	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280802	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280902	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281002	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281102	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281202	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280103	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280203	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280303	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280403	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280503	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280603	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280703	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280803	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280903	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281003	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281103	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281203	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280104	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280204	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280304	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280404	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280504	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280604	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280704	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280804	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280904	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281004	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281104	0	1.6	0	0	0	1.25	0	25	0	0	0	0

281204	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280105	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280205	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280305	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280405	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280505	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280605	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280705	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280805	0	1.6	0	0	0	1.25	0	25	0	0	0	0
280905	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281005	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281105	0	1.6	0	0	0	1.25	0	25	0	0	0	0
281205	0	1.6	0	0	0	1.25	0	25	0	0	0	0

****

****

CULTIVATIONS

---

33 < Number of cultivations. At least one must be specified. Can be past last day.

Date or day no.	Depth of cultivation mm
010542	100
010544	100
010546	100
010548	100
010550	100
010552	100
010554	100
010556	100
010558	100
010560	100
010562	100
010564	100
010566	100
010568	100
010570	100
010572	100
010574	100
010576	100
010578	100
010580	100
010582	100

```
  010584       100
  010586       100
  010588       100
  010590       100
  010592       100
  010594       100
  010596       100
  010598       100
  010500       100
  010502       100
  010504       100
  010506       100
*******************************************************************************************
*******************************************************************************************
     RAIN AND RAIN WATER COMPOSITION  (Include irrigation here, or specify
     -------------------------------  in a separate file.)
  12355 < Number of water applications.  Some or all can be past last day. (See manual on setting automated irrigation thresholds)
  0     < For a separate irrigation file, set to 1 and edit and rename NITRTEST.SCH.
-------------------------------------------------------------------------------
     Start      Amount  Surface flux      Dissolved in water (can be 0)
Date/day  Time             density          Urea-N  NH4-N  NO3-N    P  Tracer
-------  --day-  --mm--  ---mm/d----     ----------  mg/l  --------- -- ------
     040140   0.3      0.1       0.5     0      0      0.5     0    0
Note remaining daily records excluded because of excessive length
*******************************************************************************
*******************************************************************************
  REFERENCE ET (WEEKLY TOTALS, mm), (Note: Water table column read, but not used)
  MEAN WEEKLY TEMPERATURES AND MEAN WEEKLY AMPLITUDE (degrees C)
-------------------------------------------------------------------------------
     Week     Ref.ET   Water table  Mean temp  Amplitude
-- or day -  ------   -(not used)- ---------  ---------
    070140      36.6       0.         20.0        8.6
Note remaining weekly records excluded because of excessive length
```

LEACHN Input file for Legume Cropping Scenario

```
crop0013   < Non-Irrigated faba bean cropping scenario - version 13
-------------------------------------------------------------------------------
                LEACHN NITROGEN AND PHOSPHORUS DATA FILE.
A value must be present for each item, although it may not be used in the
simulation.  The file is read free format with blank delimiters. Preserve
division and heading records.  The number of depth segments may be changed.
*****************************************************************************************************
 2      <Date format (1: month/day/year;  2: day/month/year).  Dates must be 6 digits, 2 each for day, mo, yr.
 010140 <Starting date.  No date in the input data should precede this date.
 030106 <Ending date or day number.  The starting date is day 1. (A value <010101 is treated as a day number).
 0.1    <Largest time interval within a day (0.1 day or less).
 1      <Number of repetitions of rainfall, crop and chemical application data.
 800    <Profile depth (mm), preferably a multiple of the segment thickness.
 100    <Segment thickness (mm).  (The number of segments should be between about 8 and 30.
 2      <Lower boundary condition: 1:fixed depth water table; 2:free drainage, 3:zero flux 4:lysimeter.
 3000   <If the lower boundary is 1 or 4: initial depth to water table (mm).
-------------------------------------------------------------------------------
The steady-state flow option uses constant water fluxes during the application
periods specified in the rainfall data table, and a uniform water content
specified here.  Steady-state flow implies a lab column, and crop and evaporation data are ignored.
-------------------------------------------------------------------------------
 1     < Water flow: 1: Richards; 2: Addiscott tipping bucket; 3: steady-state (no crops assumed).
 999   < Steady-state flow water content (volume fraction); 999: saturated column.
*****************************************************************************************************
*****************************************************************************************************
 3     <Number of output files: 1: OUT only; 2: OUT + SUM; 3: OUT + SUM + BTC
---------------------------------------
--- For the *.OUT file :
 4      <Units for depth data: 1: mg/kg, 2: mg/m2 per segment, 3: g/m2, 4: kg/ha
 1      <Node print frequency (print data for every node (1), alternate nodes (2).
 1      <Print option: 1 or 2.  Use to specify one of the following options.
 365.25     <Option 1: Print at fixed time intervals (days between prints).
 1      <Option 2: No. of prints (the times for which are specified below)
 3      <Tables printed: 1: mass balance; 2: + depth data; 3: + crop data
 0      <Reset cumulative values in .OUT file after each print? 0: No, 1: Yes
-----------------------------------------
--- For the * .SUM file :
 999    <Summary print interval (days) (for calendar months use 999)
 100    <Surface to [depth 1?] mm      ( Three depth segments for the
```

```
 400    <Depth 1 to [depth 2?] mm      summary file. Zero defaults to nodes
 600    <Depth 2 to [depth 3?] mm      closest to thirds of the profile)
 3      <4th segment: Root zone (1); profile (2); Depth 3 to lower boundary (3); Surface to shallowest of
---      lower boundary or water table (4)
--- For the *.BTC (breakthrough) file :
 1.0    <Incremental depth of drainage water per output (mm)
------------------------------------------------------------------------------
--- List here the times at which the *.OUT file is desired for print option 2.
--- The number of records must match the 'No. of prints' under option 2 above.
---        Date or    Time of day          (At least one must be specified,
---        Day no.  (to nearest tenth)      even if print option is 1)
---        --------  ----------------
          123107         .2       (These dates can be past the last day)
******************************************************************************
******************************************************************************
SOIL PHYSICAL PROPERTIES  (Retention models - 0: listed Campbell parameters;
Campbell + pedotransfer functions (see Table 3.2): 1: SA Cl+Si; 2: SA Cl;
3: UK topsoils; 4: UK subsoils; 5: USA Rawls and Brakensiek;
6: listed van Genuchten parameters (use e.g RETC to estimate these).
------------------------------------------------------------------------------
 Soil |                    |Retention|   Starting   |    Roots    | Starting
layer | Clay  Silt  Organic |  model  |theta or pot'l|  (for no  | temp (C)
 no.  |             carbon  |         |(one is used) |  growth)  | (not read in
      |  %     %     %      |         |          kPa | (relative)|  LEACHC)
 ---    ----  ----   ----      ------   -----   -----    ------     -----------
  1     55.    10.   1.5          6      .000   -1500.    50.           20.
  2     55.    10.   1.5          6      .000   -1500.    20.           20.
  3     55.    10.   1.5          6      .000   -1500.    12.           20.
  4     55.    10.   0.5          6      .000   -1500.     8.           20.
  5     55.    10.   0.1          6      .000   -1500.     6.           20.
  6     55.    10.   0.           6     .000   -1500.     3.           20.
  7     55.    10.   0.           6     .000   -1500.     1.           20.
  8     55.    10.   0.           6     .000   -1500.      .00         20.
------------------------------------------------------------------------------
 2 < 1: Use listed water contents, 2: listed potentials, 3: equilibrium: water table (boundaries 1,4) ...
Particle density:  Clay    Silt and sand    Organic matter  (kg/dm3) (to calculate porosity)
                  2.65         2.65              1.10
******************************************************************************
For a uniform profile: Non-zero values here will override data in the next
table of depth-specific data.
------------------------------------------------------------------------------
  0.0   0.00 :if >0, Soil bulk density and particle density (kg/dm3).
  0.0        :if <0, Campbell 'Air-entry value' (kPa), or van Genuchten alpha (kPa^-1).
```

```
 0.0        :if >0, Campbell exponent b, or van Genuchten n.
 000   -0.0 :if K>0, Conductivity (mm/day) and corresponding matric potential (kPa) ...
 0          :if >0, Campbell pore interaction parameter or van Genuchten residual saturation.
 000        :if >0, Dispersivity (mm).
  00        :if >0, For Addiscott flow: Matric potential (kPa) at field capacity
 000        :if >0,                 : Division between mobile and immobile water (kPa)
*****************************************************************************************************
 Soil  |Retention function |   Bulk  | K matching             | Dispersivity |  For Addiscott flow option:
 segment   parameters      | density |   factor               |              |  Field     Mobile/immobile
 no.   |CHC: AEV    BCAM   |         |       potl  CHC: P     |              | capacity      threshold
       |vG: alpha    n     |  kg/dm3 | mm/d  kPa   vG: ResSat|     mm       |   kPa           kPa
-----    ------   -----     ------    ----  -----   -----       -----        ------        ---------
   1       0.898   1.059     1.60      1    -20.    0.0001       100.        -5.0          -200.
   2       0.898   1.059     1.60      1    -20.    0.0001       100.        -5.0          -200.
   3       0.898   1.059     1.60      1    -20.    0.0001       100.        -5.0          -200.
   4       0.898   1.059     1.60      1    -20.    0.0001       100.        -5.0          -200.
   5       0.898   1.059     1.60      1    -20.    0.0001       100.        -5.0          -200.
   6       0.898   1.059     1.60      1    -20.    0.0001       100.        -5.0          -200.
   7       0.898   1.059     1.60      1    -20.    0.0001       100.        -5.0          -200.
   8       0.898   1.059     1.60      1    -20.    0.0001       100.        -5.0          -200.
*****************************************************************************************************
*****************************************************************************************************
Runoff according to the SCS curve number approach.  Curve number listed here will be
adjusted by slope. During periods of crop growth, CN2 replaced by value for crop.
(Procedure according to J.R. Williams (1991). Runoff and Water Erosion.
Chap 18, Modeling Plant and Soil Systems, Agronomy 31.)
----------------
 75    <Curve number (CN2).  In LEACHM, water content use to adjust CN2 based on top 20 cm.
  0    <Slope, %. Used to adjust CN2 according to equation of Williams (1991).
** (Set slope to 0 to bypass the runoff routine.  Runoff owing to profile saturation will still be accumulated)
***************************************************************************
***************************************************************************
                      CROP DATA
---------------------------------------------------------------------------
  Data for at least one crop must be specified, even if no crop desired.
  For fallow soil, set flag below to 0, or germination past the simulation end date.
---------------------------------------------------------------------------
     1     <Plants present: 1 yes, 0 no.  This flag overrides all other crop data.
    66     <Number of crops (>0, even if bypassed).  Dates can be past last day of simulation.
 -1500     <Wilting point (soil) kPa.
 -3000     <Minimum root water potential(kpa).
   1.1     <Maximum ratio of actual to potential transpiration (dry surface).
  1.05     <Root resistance (weights water uptake by depth). (>1, No weighting: 1.0).
```

0 <Conversion between solute concentration and osmotic potential (kPa per conc_unit/L, applied to solute species 1 only).
3 <Relationship between soil matric and osmotic potentials and root water uptake.

Growth 1: No 2: Yes	Perennial 1: Yes 2: No	N_uptake 1:to maturity 2:to harvest	Date or day of Germ.	Emerg.	Maturity Root	Cover	Rel. root cover Harv.	Max crop cover at depth	Crop effect fraction	Mulch scaling harvest	ETp | uptake %	Crop N factor	Min N	Min P	Harvested fraction fixed
										kg/ha					
2	2	1	010640	010640	011140	011240	310141	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010641	010641	011141	011241	310142	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010642	010642	011142	011242	310143	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010643	010643	011143	011243	310144	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010644	010644	011144	011244	310145	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010645	010645	011145	011245	310146	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010646	010646	011146	011246	310147	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010647	010647	011147	011247	310148	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010648	010648	011148	011248	310149	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010649	010649	011149	011249	310150	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010650	010650	011150	011250	310151	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010651	010651	011151	011251	310152	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010652	010652	011152	011252	310153	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010653	010653	011153	011253	310154	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010654	010654	011154	011254	310155	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010655	010655	011155	011255	310156	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010656	010656	011156	011256	310157	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010657	010657	011157	011257	310158	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010658	010658	011158	011258	310159	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010659	010659	011159	011259	310160	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010660	010660	011160	011260	310161	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010661	010661	011161	011261	310162	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010662	010662	011162	011262	310163	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010663	010663	011163	011263	310164	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010664	010664	011164	011264	310165	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010665	010665	011165	011265	310166	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010666	010666	011166	011266	310167	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010667	010667	011167	011267	310168	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010668	010668	011168	011268	310169	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010669	010669	011169	011269	310170	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010670	010670	011170	011270	310171	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010671	010671	011171	011271	310172	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010672	010672	011172	011272	310173	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010673	010673	011173	011273	310174	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010674	010674	011174	011274	310175	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010675	010675	011175	011275	310176	1.0	1.0	0.3	0	0.8	116	0	81	0.7

2	2	1	010676	010676	011176	011276	310177	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010677	010677	011177	011277	310178	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010678	010678	011178	011278	310179	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010679	010679	011179	011279	310180	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010680	010680	011180	011280	310181	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010681	010681	011181	011281	310182	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010682	010682	011182	011282	310183	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010683	010683	011183	011283	310184	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010684	010684	011184	011284	310185	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010685	010685	011185	011285	310186	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010686	010686	011186	011286	310187	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010687	010687	011187	011287	310188	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010688	010688	011188	011288	310189	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010689	010689	011189	011289	310190	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010690	010690	011190	011290	310191	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010691	010691	011191	011291	310192	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010692	010692	011192	011292	310193	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010693	010693	011193	011293	310194	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010694	010694	011194	011294	310195	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010695	010695	011195	011295	310196	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010696	010696	011196	011296	310197	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010697	010697	011197	011297	310198	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010698	010698	011198	011298	310199	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010699	010699	011199	011299	310100	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010600	010600	011100	011200	310101	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010601	010601	011101	011201	310102	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010602	010602	011102	011202	310103	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010603	010603	011103	011203	310104	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010604	010604	011104	011204	310105	1.0	1.0	0.3	0	0.8	116	0	81	0.7
2	2	1	010605	010605	011105	011205	310106	1.0	1.0	0.3	0	0.8	116	0	81	0.7

****

****

INITIAL NITROGEN, PHOSPHORUS AND CARBON POOLS (excluding soil humus) | (Humus C, N, & P calculated from org.C)

----------| (Fertilizer P absent at start)

| NITROGEN POOLS | CARBON POOLS | PHOSPHORUS POOLS | (Bound P pool in equilibrium with labile P.

SOIL |UREA NH4 NO3 Residue Manure| Residue Manure | Labile Residue Manure |----------

LAYER | ----mg N/kg dry soil---- | -- mg C/kg -- | mg P/kg dry soil | Tracer (non-interacting)

1	000.	0.	0.0	0.	0.	0.	0.	0.	0.	00.	100
2	000.	0.	0.0	0.	0.	0.	0.	0.	0.	00.	100
3	000.	0.	0.0	0.	0.	0.	0.	0.	0.	00.	100
4	000.	0.	0.0	0.	0.	0.	0.	0.	0.	00.	100
5	000.	0.	0.0	0.	0.	0.	0.	0.	0.	00.	100

```
  6   000.    0.    0.0    0.   0.       0.   0.        0.    0.    00.           100
  7   000.    0.    0.0    0.   0.       0.   0.        0.    0.    00.           100
  8   000.    0.    0.0    0.   0.       0.   0.        0.    0.    00.           100
-------------------------------------------------------------------------------------------------------------
 Concentration (mg/l) below profile, used with lower boundary 1.
          0        0        0        0    (NH4, NO3, P and tracer)
  0    < Depth (mm) of water in mixing cell.  Enter 0 for no mixing cell.
******************************************************
******************************************************
    CHEMICAL PROPERTIES
    -------------------
                 Kd
        Name     L/kg
      ---------- --------
     '   Urea-N'    0   (If urea hydroloysis rate is zero, then 'urea'
     '    NH4-N'    3    can be used as a tracer)
     '    NO3-N'    0   (NO3-N can sorb, eg. in andosols)
     'Residue-N'        (Plant 'residues' and 'manure' pools representing
     '  Humus-N'          added organic sources of N, P and C.  They
     ' Manure-N'          differ in that the plant residue pool is supplied
     'Residue-C'          by the non-harvested portion of annual crops,
     '  Humus-C'          and the non-harvested, non-perennial portion of
     ' Manure-C'          perennial crops)
     '    CO2-C'
     '   Fert-P' 10000  .693         <Solubility; Dissolution rate (d**-1)
     ' Labile-P'     1   100  .6     <1: Freundlich or 2: Langmuir; [Freundlich Kd; Exponent  OR  Langmuir Qm; k]
     'Residue-P'
     '  Humus-P'
     ' Manure-P'
     '  Bound-P' 300  0.4  .05  .50  <Freundlich sorption: Kd; Exponent; Phase transfer: Dissolution rate, precipitation rate, (days^-1)
******************************************************
 Diffusion
-------------------------------------------------------
  120    <Molecular diffusion coefficient (mm2/day)
******************************************************
        NITROGEN TRANSFORMATIONS
-------------------------------------------------------
   .5    <Synthesis efficiency factor.
   .2    <Humification fraction.
  10.0    <C/N ratio:biomass and humus.
  50.0    <C/P ratio:biomass and humus.
------Temperature and water content adjustments------
     1   <Temperature subroutine? yes(1), no(0). If no, base temperature used.
```

```
   20   <Base temperature, degrees C
    2   <Q10: rate constant adjustment factor per 10C temperature change.
  .08   <High end of optimum water content range, air-filled porosity.
 -300   <Lower end of optimum water content, kPa
-1500   <Minimum matric potential for transformation, kPa
  0.6   <Relative transformation rate at saturation (except denitrification), days^(-1)
*****************************************************
      RATE CONSTANTS  [days^(-1)]
-----------------------------------------------------
          Urea  NH4->NO3 NO3->N            Mineralization                                       *****
 Layer  hydrolysis                   Residue   Manure    Humus
--------   -----  ------  -----         -----     -----     -----
    1   .0000e-0 .200E-0  .10e-00       .010e-0   .020e-0   .100e-4
    2   .0000e-0 .200E-0  .10e-00       .010e-0   .020e-0   .100e-4
    3   .0000e-0 .200E-0  .10e-00       .010e-0   .020e-0   .100e-4
    4   .0000e-0 .200E-0  .10e-00       .010e-0   .020e-0   .100e-4
    5   .0000e-0 .200E-0  .10e-00       .010e-0   .020e-0   .100e-4
    6   .0000e-0 .200E-0  .10e-00       .010e-0   .020e-0   .100e-4
    7   .0000e-0 .200E-0  .10e-00       .010e-0   .020e-0   .100e-4
    8   .0000e-0 .200E-0  .10e-00       .010e-0   .020e-0   .100e-4
-----------------------------------------------------
 Additional rates and constants used for calculating N transformations:
0.20 <Ammonia volatilization from the surface, days^(-1)
  10 <Denitrification half-saturation constant (mg/l).
   8 <Limiting NO3/NH4 ratio in solution for nitrification
***************************************************************************
***************************************************************************
              NITROGEN, PHOSPHORUS AND CARBON APPLICATIONS (kg/ha)
                   ----------------------
 1    < No. of nutrient applications
-----------------------------------------------------------------------------------------------------------
Date or   Incorp n              NITROGEN               CARBON              PHOSPHORUS
day no.   segments    Urea   NH4    NO3 Residue Manure  Residue Manure  Fertilizer Residue  Manure    Tracer
-------   ---------   -----   ---    ---  ------ ------  ------- ------     ------   ------  ------   ------
 140607      0         0     0      0    0      0        0      0         0       0        0       0
*********************************************************************************************************
*********************************************************************************************************
                CULTIVATIONS
                ------------
 33   < Number of cultivations.  At least one must be specified.  Can be past last day.
-----------------------------------------------------
 Date or   Depth of cultivation
 day no.        mm
```

```
-------      -----
  150440       200
  150442       200
  150444       200
  150446       200
  150448       200
  150450       200
  150452       200
  150454       200
  150456       200
  150458       200
  150460       200
  150462       200
  150464       200
  150466       200
  150468       200
  150470       200
  150472       200
  150474       200
  150476       200
  150478       200
  150480       200
  150482       200
  150484       200
  150486       200
  150488       200
  150490       200
  150492       200
  150494       200
  150496       200
  150498       200
  150400       200
  150402       200
  150404       200
*******************************************************************************
*******************************************************************************
     RAIN AND RAIN WATER COMPOSITION  (Include irrigation here, or specify
     ---------------------------------  in a separate file.)
  12355 < Number of water applications.  Some or all can be past last day. (See manual on setting automated irrigation thresholds)
  0     < For a separate irrigation file, set to 1 and edit and rename NITRTEST.SCH.
-------------------------------------------------------------------------------
     Start      Amount  Surface flux      Dissolved in water (can be 0)
Date/day  Time             density          Urea-N  NH4-N  NO3-N    P  Tracer
```

```
-------  --day-  --mm--  ---mm/d----     ----------  mg/l  --------- -- ------
      040140  0.3      0.1       0.5     0      0      0.5     0    0
```
Note remaining daily records excluded because of excessive length

****

****

REFERENCE ET (WEEKLY TOTALS, mm), (Note: Water table column read, but not used)
MEAN WEEKLY TEMPERATURES AND MEAN WEEKLY AMPLITUDE (degrees C)

```
-------------------------------------------------------------------------------
     Week     Ref.ET   Water table  Mean temp  Amplitude
-- or day -  ------   -(not used)- ---------  ---------
    070140      36.6       0.         20.0        8.6
```
Note remaining weekly records excluded because of excessive length

APPENDIX 9 – SOIL PROPERTIES FROM REFERENCE PROFILES

Table A9.1: Reference soil profiles for study area (see Figure A9.1 for locations)

Profile reference	Profile layer reference	Profile depth (m)	Clay %	Silt %	Fine sand %	Coarse sand %	Nitrogen %	Organic carbon %	Depth to rock	Described soil group	Data source
A304	A304_1	0.0-0.1	7	3	41	48	0.061	-	-	Red-brown earth	CSIRO[1]
	A304_2	0.28-0.38	33	1	29	33	0.066	-			
	A304_3	0.75-0.95	29	4	34	32	-	-			
A305	A305_1	0.0-0.08	6	0	24	69	0.047	-	-	Solodic soil	CSIRO[1]
	A305_2	0.3-0.38	15	6	18	57	-	-			
	A305_3	0.38-0.51	28	3	19	48	0.015	-			
	A305_4	0.58-0.68	30	4	17	39	-	-			
A306	A306_1	0.0-0.1	12	13	48	25	0.27	-	-	Rendzina	CSIRO[1]
	A306_2	0.15-0.2	32	11	35	21	0.14	-			
	A306_3	0.38-0.51	50	12	25	11	-	-			
A307	A307_1	0.0-0.08	4	4	21	71	0.043	-	-	Solodic soil	CSIRO[1]
	A307_2	0.43-0.5	32	4	20	44	0.038	-			
	A307_3	0.6-0.75	72	0	9	18	-	-			
A308	A308_1	0.0-0.1	34	11	30	22	0.32	-	-	Rendzina	CSIRO[1]
	A308_2	0.13-0.2	47	11	26	15	0.14	-			
	A308_3	0.2-0.45	51	11	21	16	-	-			
A309	A309_1	0.0-0.1	47	7	39	8	0.21	-	-	Rendzina	CSIRO[1]
	A309_2	0.28-0.33	69	3	22	3	0.12	-			
A310	A310_1	0.0-0.1	54	17	21	5	0.54	-	-	Black earth	CSIRO[1]
	A310_2	0.33-0.38	55	7	15	3	0.12				

Profile reference	Profile layer reference	Profile depth (m)	Clay %	Silt %	Fine sand %	Coarse sand %	Nitrogen %	Organic carbon %	Depth to rock	Described soil group	Data source
A311	A311_1	0.0-0.1	73	13	8	0	0.39	-	0.5	Rendzina	CSIRO[1]
	A311_2	0.3-0.35	62	2	15	2	0.16	-			
A312	A312_1	0.0-0.13	35	4	9	1	0.36	-	-	Rendzina	CSIRO[1]
	A312_2	0.15-0.3	32	4	6	1	0.23	-			
	A312_3	0.4-0.45	29	5	6	1	-	-			
A483	A483_1	0.0-0.08	51	23	18	3	0.46	-	-	Rendzina	CSIRO[1]
	A483_2	0.23-0.3	56	20	18	2	0.21	-			
A511	A511_1	0.0-0.06	4	8	30	56	0.22	-	-	Solodic soil	CSIRO[1]
	A511_2	0.06-0.18	5	7	31	53	0.054	-			
	A511_3	0.4-0.56	63	2	12	20	-	-			
	A511_4	0.71-0.96	49	0	14	31	-	-			
A512	A512_1	0.0-0.05	3	7	47	43	0.064	-	-	Solodic soil	CSIRO[1]
A581	A581_1	0.0-0.05	-	-	-	-	0.47	5.9			
	A581_2	0.15-0.2	62	17	16	1	-	-			
A582	A582_1	0.0-0.05	18	8	26	46	0.16	2.5	0.46	Terra rossa soil	CSIRO[1]
	A582_2	0.1-0.13	22	7	26	43	-	-			
	A582_3	0.13-0.28	67	1	9	20	0.13	-			
	A582_4	0.28-0.46	92	0	2	5	-	-			
A676	A676_1	0.0-0.08	32	17	42	7	0.32	3.6	-	Red-brown earth	CSIRO[1]
	A676_2	0.08-0.23	39	12	40	4	0.17	-			
	A676_3	0.23-0.38	69	4	20	2	0.15	2.5			
	A676_4	0.45-0.6	72	17	10	2	-	-			
A753	A753_1	0.0-0.05	21	20	49	8	-	-	-	Red-brown earth	CSIRO[1]
	A753_2	0.05-0.2	29	17	46	5	-	-			

Profile reference	Profile layer reference	Profile depth (m)	Clay %	Silt %	Fine sand %	Coarse sand %	Nitrogen %	Organic carbon %	Depth to rock	Described soil group	Data source
SP5	SP5_1	0.0-0.1	4	5	35	55	0.14	-	-	Solodized solonetz	CSIRO[1]
	SP5_2	0.2-0.25	21	5	32	42	0.038	-			
	SP5_3	0.8-0.9	24	4	8	14	0.008	-			
P07	P07_1	0.0-0.2	2	1	27	70	-	0.1	-	Humus podzols	(CSIRO 2006)
	P07_2	0.6-1.05	1	1	38	60	-	<0.1			
	P07_3	1.05-1.25	3	2	31	64	-	1.8			
SR17	16484	0.0-0.08	72	8	18	2	0.24	3.1	0.3	Ground water rendzina	(Stace and Rogers 1954)
	16485	0.08-0.2	78	6	14	2	0.2	2.5			
	16486	0.2-0.3	83	5	11	1	0.16	1.9			
SR18	16491	0.0-0.1	47	11	34	9	0.24	2.9	0.5	Coonawarra loam	(Stace and Rogers 1954)
	16492	0.1-0.28	49	12	30	9	0.14	1.7			
	16493	0.28-0.46	57	10	26	7	0.09	1			

[1] – Data provided from CSIRO soil description database, Canberra, by D. Jacquier (August 2007)

Table A9.2: Organic carbon percentages for reference soils within study area (see Figure A9.1 for locations)

Soil Classification	Profile reference	Profile depth	Organic Carbon %
Red loam on limestone	SE095	0.00-0.20	1.7
		0.20-0.45	1.0
		0.45-0.70	0.9
Black well-structured clay	SE008	0.00-0.15	2.3
		0.15-0.30	1.6
		0.30-0.42	0.9
		0.42-0.51	0.09
Red clay loam on calcreted calcarenite	SE009	0.00-0.12	2.1
		0.12-0.31	1.2
		0.31-0.37	2.2
		0.37-1.40	<0.1
Gradational clay loam	SE010	0.00-0.11	2.0
		0.11-0.20	1.5
		0.20-0.29	1.2
		0.29-0.73	0.73
		0.73-0.86	0.78
Gradational brown clay	SE099	0.00-0.12	2.91
		0.12-0.30	1.31
		0.30-0.50	1.05
		0.50-0.85	0.44
		0.85-1.40	0.41
Sandy loam over brown clay	SE041	0.00-0.18	1.0
		0.18-0.45	0.2
		0.45-0.55	0.1
		0.55-0.95	0.2
		0.95-1.10	0.2
		1.10-1.50	0.1
		1.50-1.70	0.2
Sand over brown clay	SE098	0.00-0.13	1.48
		0.13-0.46	0.12
		0.46-0.70	0.36
		0.70-1.05	0.14
		1.05-1.40	0.11
Dark clay loam over rubbly calcarenite	SE115A	0.00-0.18	2.3
		0.18-0.40	1.6
		0.40-0.70	0.9
		0.70-1.10	0.59
		1.10-1.60	0.23
Red clay loam over friable clay	SE115B	0.00-0.15	1.76
		0.15-0.40	1.14
		0.40-0.65	0.65
		0.65-1.05	0.6
		1.05-1.30	0.57
Sandy clay loam over heavy brown clay	SE116A	0.00-0.12	1.49
		0.12-0.22	0.32
		0.22-0.45	0.64
		0.45-0.70	0.49
		0.70-1.05	0.26
		1.05-1.45	0.14
Sandy clay loam over heavy brown clay	SE116B	0.00-0.13	1.76
		0.13-0.30	1.08
		0.30-0.60	0.76
		0.60-0.90	0.44
		0.90-1.20	0.35
		1.20-1.50	0.15
Gradational clay loam over limestone	SE117	0.00-0.12	2.25
		0.12-0.30	1.31
		0.30-0.50	0.73
		0.50-0.70	0.54
		0.85-1.10	0.14
Deep red clay	SE100	0.00-0.15	3.09
		0.15-0.45	1.65
		0.45-0.85	1.01
		0.85-1.15	0.76
		1.15-1.20	0.15

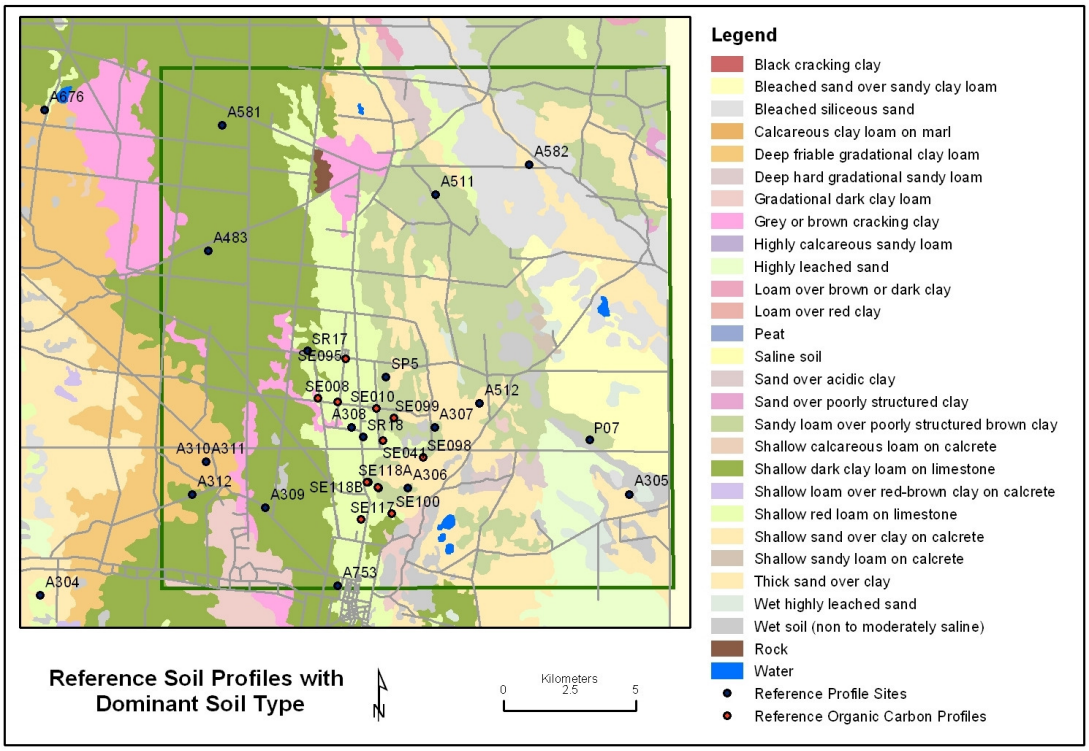

Figure A9.1: The location of reference soil profiles within study area (CSIRO 2006)(data reported in Tables A9.1 and A9.2)