

# **FOUR MILE URANIUM MINE**

**(MINERAL LEASE 6402)**

## **MINING AND REHABILITATION COMPLIANCE REPORT 2013**

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## 1 INTRODUCTION

### 1.1 Context for this report

This Mining and Rehabilitation Compliance Report (**MARCR**) satisfies the reporting requirements specified in the Four Mile Uranium Mine Program for Environment Protection and Rehabilitation (**PEPR**) and Radioactive Waste Management Plan (**RWMP**) and lease conditions for Mineral Lease (**ML**) 6402, hereafter referred to as ML 6402. The report has been prepared by Heathgate Resources Pty Ltd (service provider to Quasar Resources Pty Ltd, the manager of the Four Mile joint venture) in accordance with the “Minerals Regulatory Guidelines MG3 Guidelines for Miners: Preparation of a Mining and Rehabilitation Compliance Report (MARCR) Version 1.4 March, 2009” (PIRSA 2009). Quasar Resources Pty Ltd as the manager of the Four Mile Joint Venture accepts responsibility for this report.

### 1.2 Project Background

The lease holders of ML 6402 and their respective participating interest are Quasar (75%) and Alliance Craton Explorer Pty Ltd (25%). ML 6402 (also referred as the **Four Mile ML**) was granted on 26 April 2012 subsequent to approval of the Beverley Four Mile Project Public Environment Report (**PER**) and Mining Lease Proposal 2009 by the relevant State and Commonwealth authorities on 14 July 2009. The first mining on ML 6402 will occur at Four Mile East (**FME**) using in-situ recovery (**ISR**) under requirements of the *South Australian Radiation Protection and Control Act 1982 (RPC Act)*, the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*, and the Four Mile Uranium Mine PEPR/RWMP approved in August 2013.

This MARCR demonstrates compliance with outcomes identified in the PEPR, approved on 16 August 2013.

### 1.3 Mining Leases and Land Tenure

The natural, social and economic environment of the area are described in the PEPR and therefore a description of the surface environment to be disturbed by the mining activities is not included in this MARCR.

ML 6402 is 122 km<sup>2</sup> in area and is on the western boundary of a broad plain approximately 45 kilometres (**km**) wide, laying between the eastern margin of the northern Flinders Ranges (**Ranges**) and Lake Frome i.e. the Callabonna sub-basin (Figure 1-1). The Ranges rise abruptly on the western margin of the plain to about 600 metres (m) above sea level, falling to an elevation of between 180 m to 100 m over Four Mile (150 m to 120 m over the Four Mile East deposit where initial construction is occurring), then to the lowest elevation of +0.5 to -3.0 m above sea level at Lake Frome some 35 km to the south east.

The closest communities include the tourist resort at Arkaroola and the Adnyamathanha Aboriginal community at Nepabunna, approximately 30 km and 80 km to the south-west respectively (Figure 1-1). The Native Title Holders for the area are the Adnyamathanha people.

ML 6402 is for the most part covered by the Wooltana Pastoral Lease (Deposited Plan 42204 Allotment 34, Pastoral Lease 2293, Crown Leasehold Volume 1289 Folio 38) and a small portion near the Ranges covered by the Arkaroola Pastoral Lease (Hundred 833900 Pastoral Block 1108, Pastoral Lease 2240, Crown Leasehold Volume 1278 Folio 43). The Arkaroola Protection Area lies immediately to the west of the western boundary of ML 6402 within the Ranges (Figure 1-2)

Heathgate operates the adjacent Beverley and Beverley North Uranium Mines (Figure 1-2) which currently produce up to 1,000 tonnes (licensed for up to 1,500 tonnes) of uranium (expressed as U<sub>3</sub>O<sub>8</sub>) per annum, in the form of uranium oxide concentrate (UOC).

ML 6402 comprises ISR wellfields and wellhouses within the FME deposit, with trunklines constructed through to the Pannikan satellite plant on the Beverley North ML (Figure 1-2).

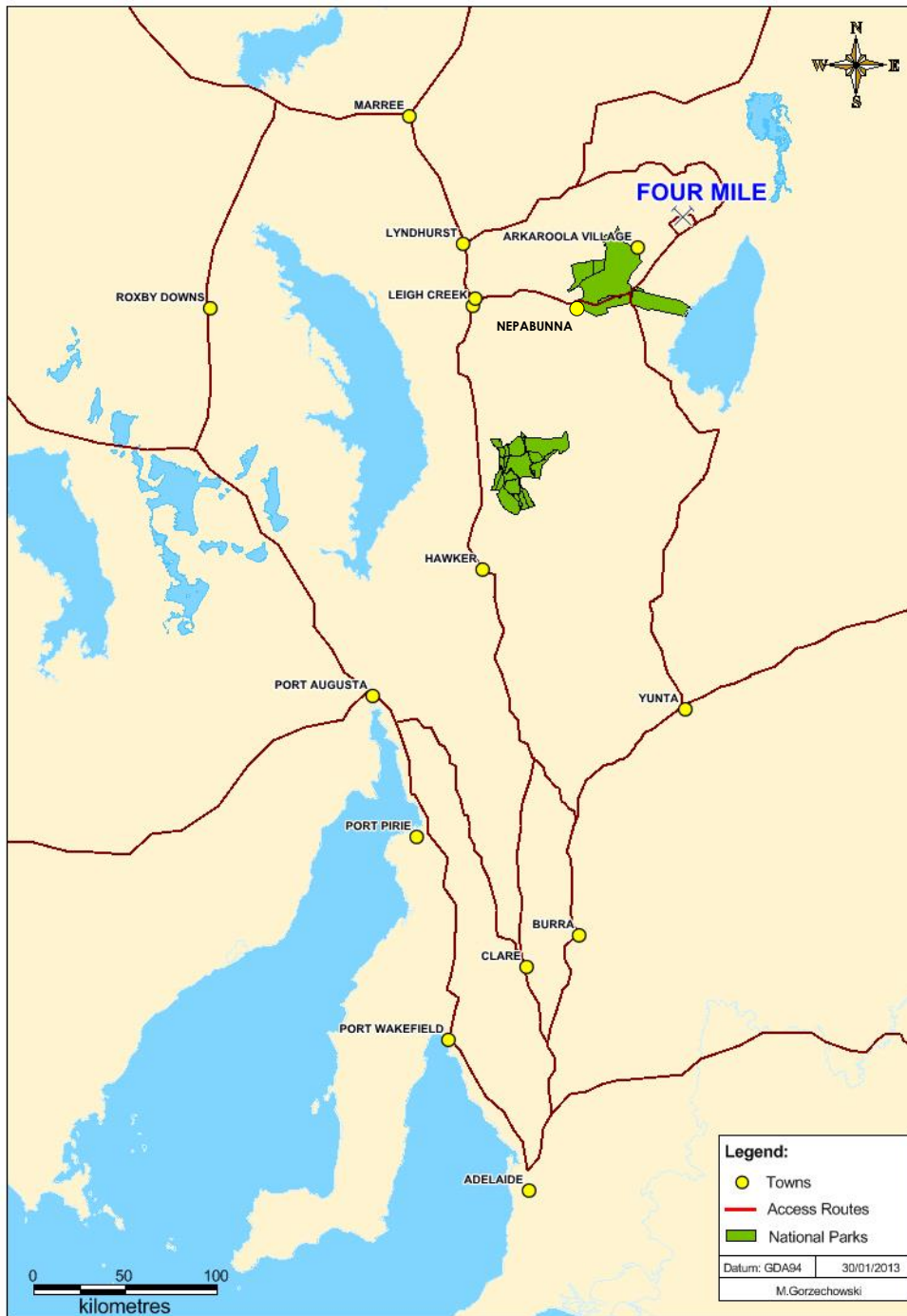


Figure 1-1: Location of the Four Mile Uranium Mine

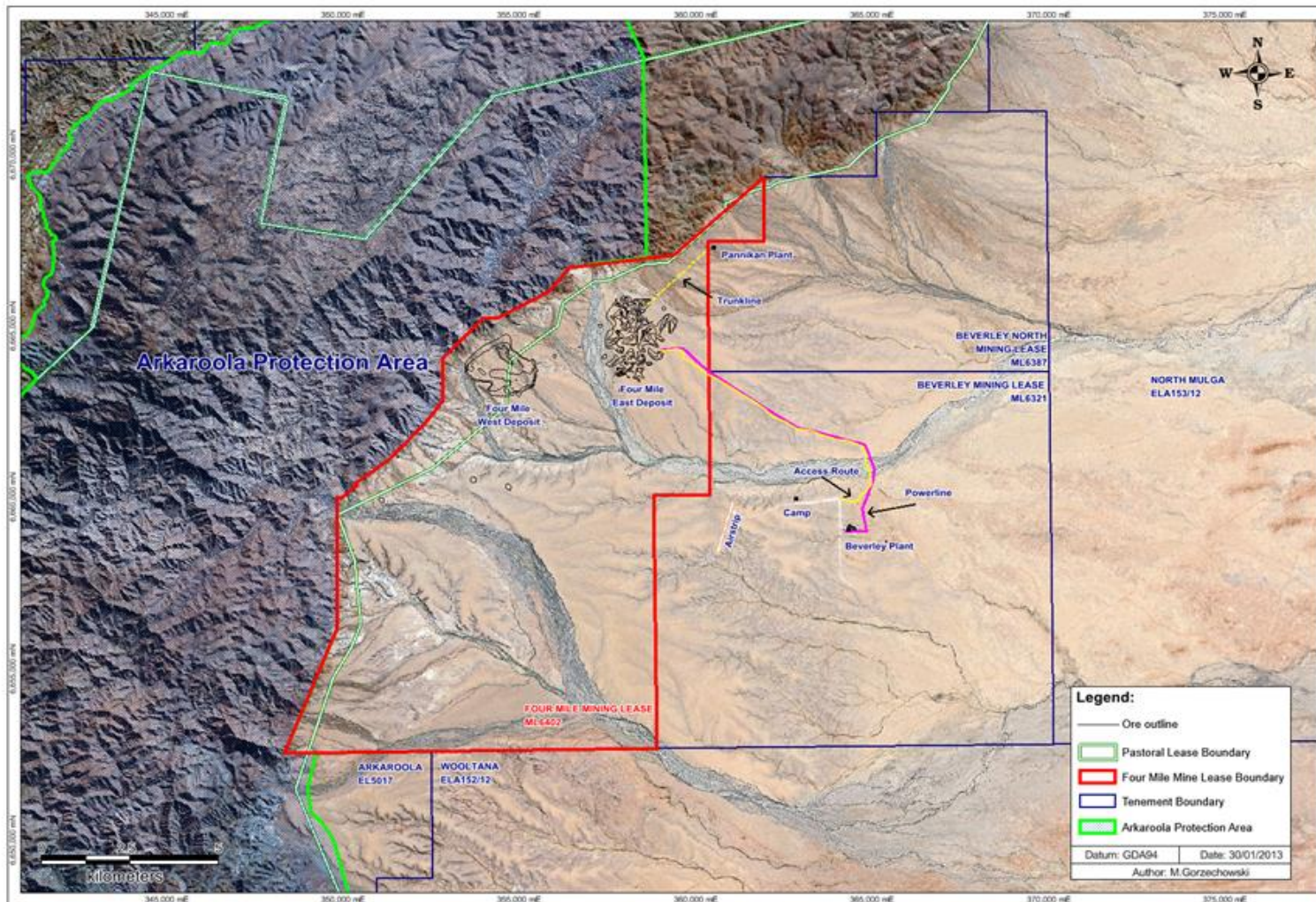


Figure 1-2: Beverley ML 6321, Beverley North ML 6387 and Four Mile ML 6402 showing Pastoral Lease Boundaries and the Arkaroola Protection Area

## 1.4 Heathgate Management Personnel

During 2013, the following Heathgate personnel were responsible for environmental management at the Four Mile site:

- President – Craig Bartels
- Operations Manager – Gary Birch
  - Health, Safety, Security & Environment Manager – Sue Carter
  - Production Managers - Chris Every and Chris Heinrich
- Geology Manager – Andrea Marsland-Smith
  - Chief Geologist – Brett Rava
  - Chief Hydrogeologist – Aaron Smith

## 1.5 Heathgate's Environment Policy

Heathgate's Environment Policy valid during the reporting period is given below Figure 1-3.

### Environment Policy

Heathgate Resources Pty Ltd (Heathgate) is committed to conducting all of its mine operation activities in an environmentally responsible and prudent manner with the objective of minimising any adverse impacts to the air, land and water resources, to the lowest reasonably achievable level. Heathgate utilises environmental objectives, targets and plans in an endeavour to continually improve its overall environmental performance.

Integral to the Environment Policy are goals focused on:

- Waste minimisation;
- Zero pollution events;
- Compliance with all applicable laws and regulations concerning the environment;
- Environmental awareness training; and
- Minimum site disturbance.

Heathgate insists that its employees, contractors and agents conduct all business activities in a manner that is protective of the environment.



**Craig Bartels**  
President  
February 2011

**Figure 1-3: Heathgate's Environment Policy**

## 2 DESCRIPTION OF ACTIVITIES

### 2.1 Drilling and Related Activities

On 15 November 2013, two drilling rigs commenced delineation drilling northeast of FME. At the end of the 2013 reporting period, a total of 45 holes for 11,586 m were drilled which identified further uranium mineralisation in the area, extending approximately 4 km in strike length from FME. Two mud pits were constructed to assist with management of water and muds related to the delineation drilling activities.

All existing production and monitor wells that are required for the operation of wellfields FME001 and FME002 were air lifted and integrity tested during 2013.

The monitor well network surrounding the FME deposit was completed, integrity tested and tested for connectivity via pump testing. Baseline groundwater chemistries were also obtained and two overlying monitor wells were rescreened due to faults identified with their screen assemblies. A second turkey's nest was constructed and commissioned to assist with water management during pump testing.

### 2.2 Construction and Mining Activities

Construction commenced in October 2013 after the approval of the Four Mile ML 6402 PEPR/RWMP in August 2013. Construction work as at 31 December 2013 included:

- Commencement of surface pipework to two wellfields at FME (ie; FME001 and FME002);
- Installation of wellhouses and associated infrastructure;
- Laying of calcrete for a laydown area for the storage of drilling equipment for the delineation drilling program, administration and amenity blocks;
- Commencement of construction of trunklines and an access road connecting the FME wellfield area to the Pannikan Satellite Plant;
- Commencement of earthworks and bund construction for the ferric storage facility and booster pumps; and
- Commencement of earthworks in preparation for the construction of an electric power line between the Beverley (ML 6321) processing plant powerhouse and the FME wellfield area.

## 3 ENVIRONMENTAL AND SOCIAL COMPLIANCE ACTIVITIES

This section presents and discusses the compliance monitoring and management activities for the eight risk areas identified in the PEPR/RWMP, namely soil, vegetation, surface water, hydrogeology, fauna, air quality, heritage and third parties. A brief discussion of the meteorological statistics for the site is also presented below.

### 3.1 Meteorological

Meteorological data is collected continuously via the Beverley site weather tower located approximately seven kilometres southeast of the FME wellfield area. An automated evaporation pan including precision water level meter and refill tank provide measurements of evaporation, and is logged every 24 hours. Rainfall data is collected using a tipping bucket, tipping at 0.2 mm increments, and recorded every 10 minutes. There were no rainfall events over the 10-year ARI threshold during 2013. Rainfall and evaporation by month for 2013 are shown in Figure 3-1 and comparative annual rainfall and evaporation statistics from 2002-2013 are shown in Figure 3-2.

Temperature, wind speed wind direction data is collected at different heights up the weather tower (i.e. 3m, 20m and 28m) and recorded every 10 minutes using a continuous data logging system. The weather station also contains a humidity sensor, with humidity logged every 10 minutes. The monthly averages for minimum and maximum temperatures and average wind speed are presented in Figures 3-3 and 3-4.

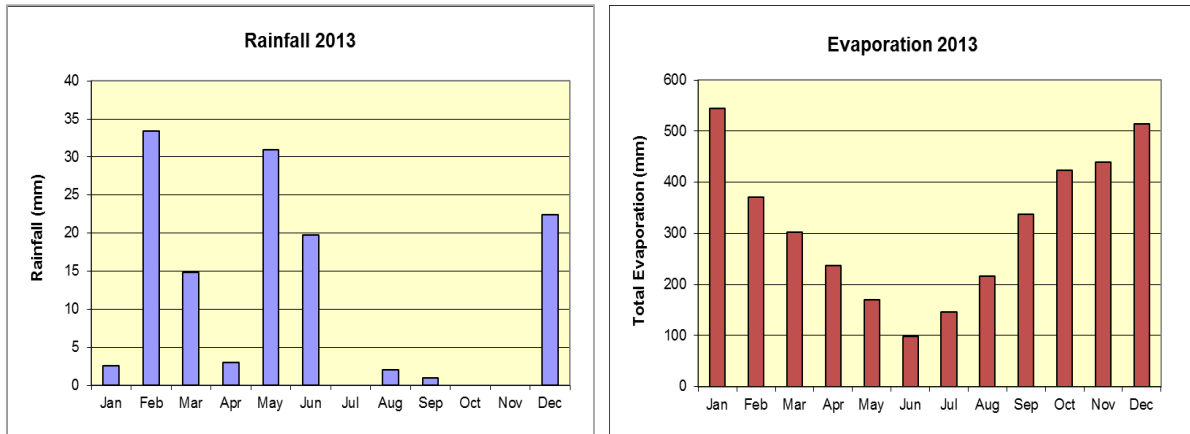


Figure 3-1: Monthly Rainfall and Evaporation

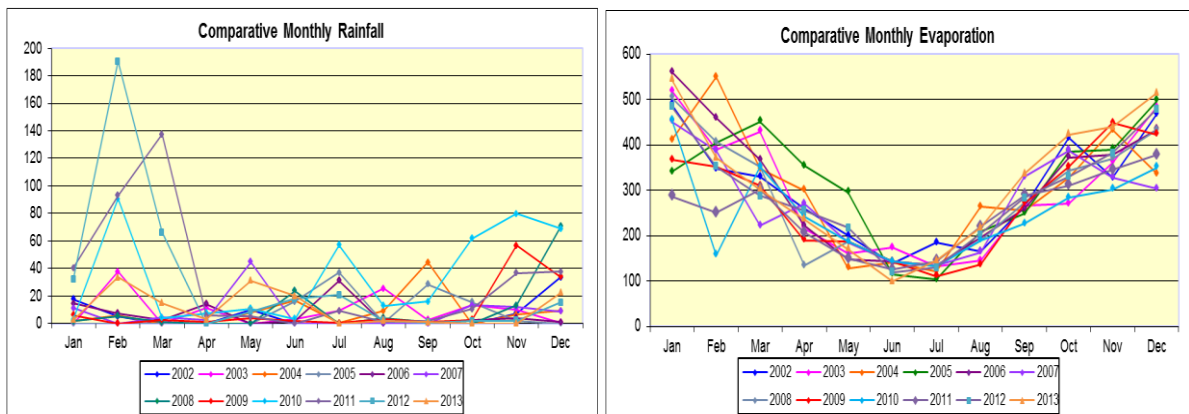


Figure 3-2: Comparative Annual Rainfall and Evaporation 2002 to 2013

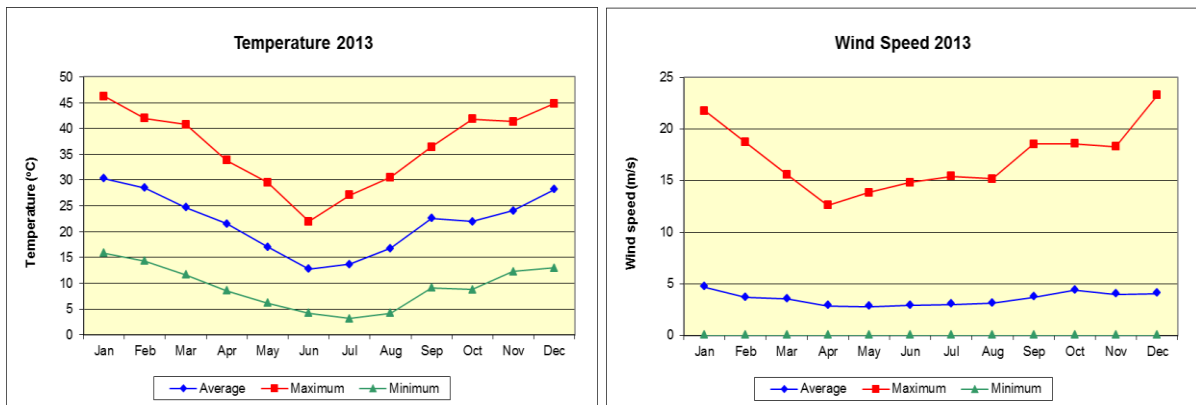


Figure 3-3: Monthly Average, Maximum and Minimum Temperature and Wind Speed

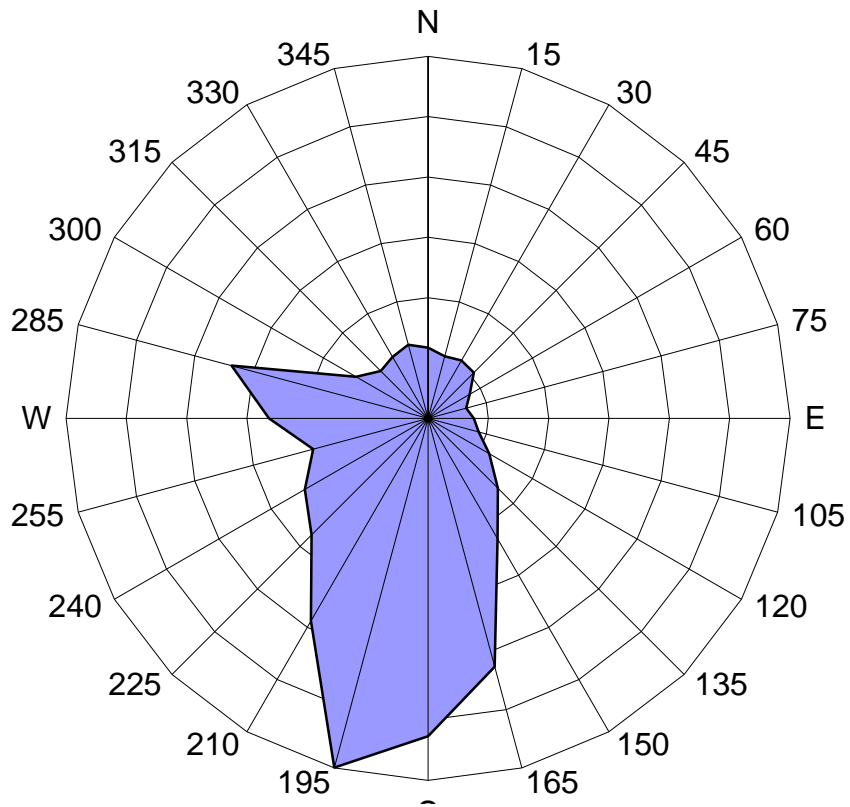


Figure 3-4: Wind Rose 2013

## 3.2 Soil

Baseline sediment concentrations obtained within ephemeral water courses both upstream and downstream of FME show consistency with baseline data. The locations of sediment monitoring sites are shown in Figure 3-5 and the levels for pH, radium, uranium and sulphate for the soil sites are shown in Figure 3-6. The table below shows the compliance status at end of 2013 against soil outcomes.

**Table 3-1: Compliance Table – Soil**

ID	Potential Impact Event	Outcome(s)	Outcome Measurement Criteria	Leading Indicator Criteria	Compliance Status
1.1	Chemical and radiological contamination of soil and watercourse sediments that would prevent its return to pre-mining use arising from the escape of mining solution due to accidental breakages	Soil affected by mining activities is suitable for return to pastoral use.	Management and clean-up of spills will be undertaken in accordance with EPA and DMITRE requirements.	Any leaks detected by automatic systems or visual observation are logged as events and rectified	Construction phase only. Mining has not commenced. Compliant.
1.2	Spillage of hazardous substances during transport, storage and handling resulting in contamination of soil that would prevent its return to pastoral use.	Soil affected by mining activities is suitable for return to pastoral use.	Spills of hazardous materials are assessed as soon as practicable <sup>1</sup> and if so determined cleaned up:  a) Diesel spills to site-specific criteria to be established using National Environmental Protection Measure (NEPM) Risk Assessment methodology as recommended by the SA EPA.  b) Acid or alkali spill sites returned to within local back-ground range of pH.  <sup>1</sup> Assessment will be risk-based and specify the timeframe for remediation (if remediation is required).	Number and nature of spills and clean-ups	Construction phase only. Mining has not commenced. Compliant.
1.3	Soil disturbance due to unauthorised off-road vehicle movement which may compromise rehabilitation for pre-mining use resulting from: <ul style="list-style-type: none"> <li>• compaction of soil</li> <li>• exacerbated erosion</li> </ul>	Soil affected by mining activities is suitable for return to pastoral use.	Off-road vehicle movements not approved via an Environmental Clearance Permit are investigated, reported and one of the following actions are taken: <ul style="list-style-type: none"> <li>• fenced off to prevent reuse and rehabilitated, or</li> <li>• converted to an authorised road subject to Significant Environmental Benefit (SEB).</li> </ul>	Number of non-compliant off-road incidents.	Construction phase only. Mining has not commenced. Compliant.

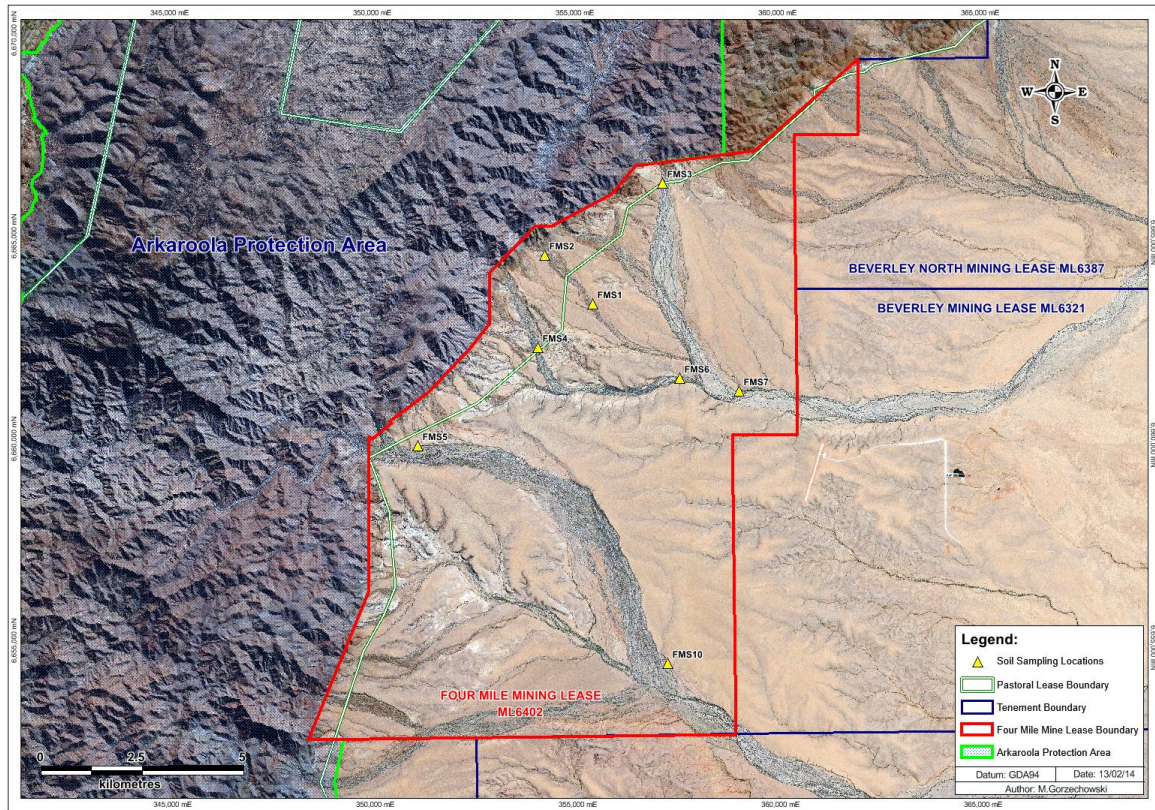


Figure 3-5: Sediment samples sites on the Four Mile ML

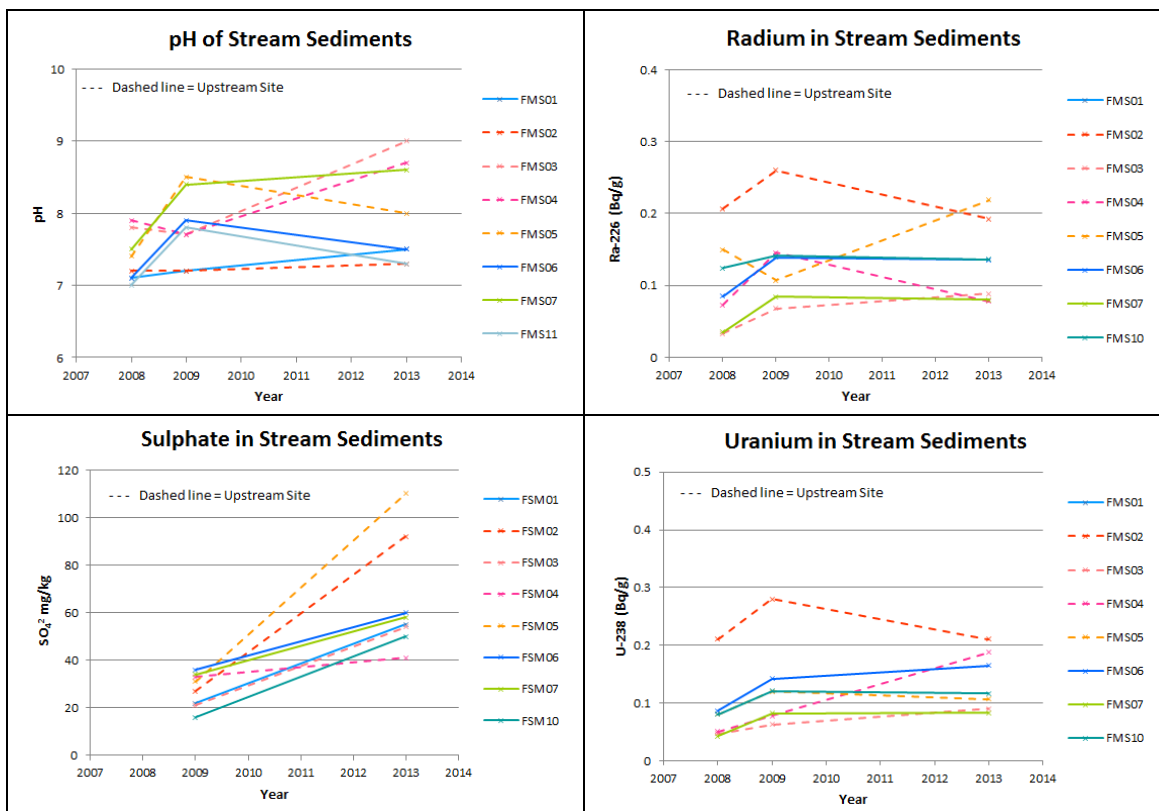


Figure 3-6: Chemical parameters for sediment samples on Four Mile ML

### 3.3 Vegetation

A baseline vegetation survey over the Four Mile ML area was undertaken in April 2007 by consultants Badman Environmental. Two annual surveys for this area were also carried out in September 2008 and 2009. An annual vegetation survey is scheduled for the latter part of 2014 following commencement of operations at FME. No threatened species listed under the *EPBC Act* are known to occur in the study area.

The location of vegetation monitoring sites is shown in Figure 3-7 below.

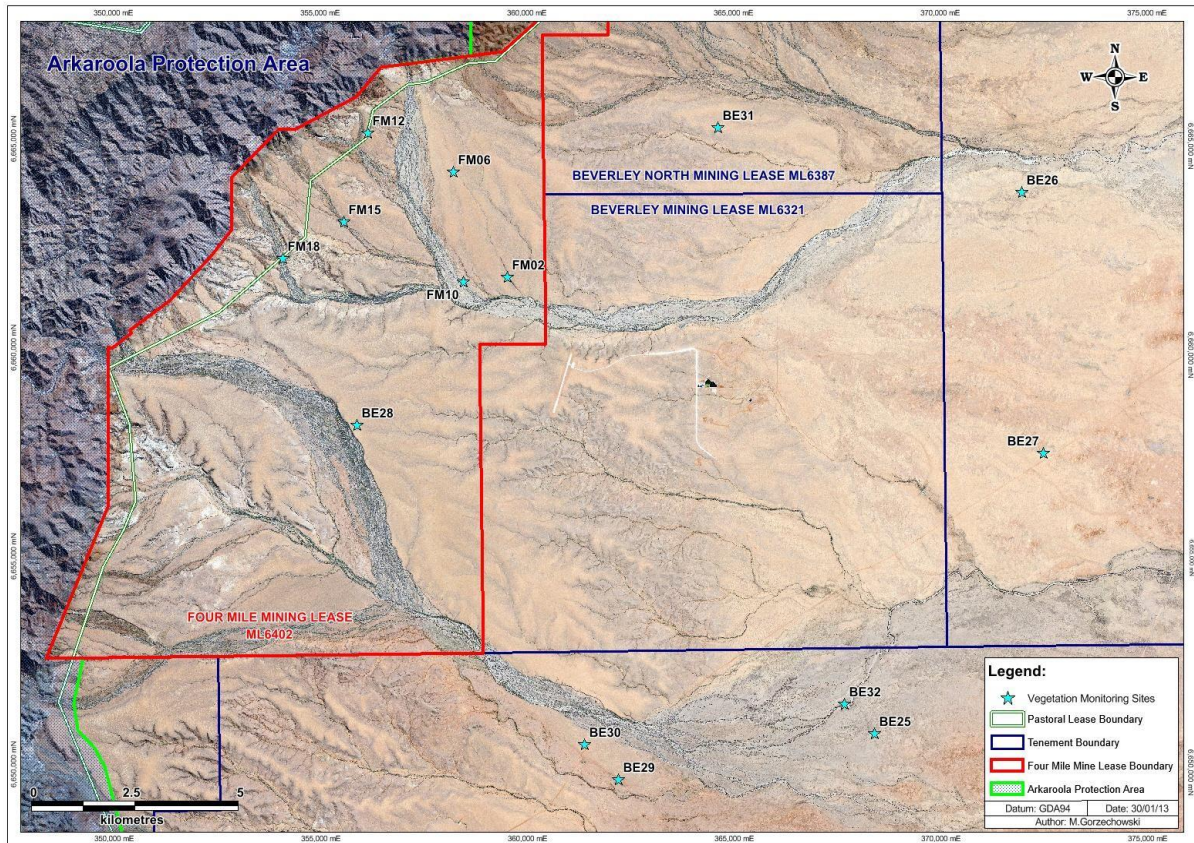


Figure 3-7: Four Mile Vegetation monitoring sites showing the 5km distant control sites (BE)

To ensure minimal disturbance to vegetation and the landscape in general, Heathgate has implemented an Environmental Clearance Permit (**ECP**) system where a permit must be obtained prior to work commencing in any undisturbed area or area under rehabilitation on the ML. This ensures access networks are planned by personnel such that sensitive habitat and soaks are protected in accordance with specific environmental and rehabilitation requirements. The ECP system also allows all new areas of disturbance to be measured by GPS which is then imported into a Geographic Information System to enable accurate calculations of the total area disturbed for each year. All rehabilitated areas are also measured in this manner and this information forms the basis for Significant Environmental Benefit (**SEB**) accounting (see Section 3.3.1).

The table below shows the compliance status at end of 2013 against vegetation outcomes.

**Table 3-2: Compliance Table – Vegetation**

ID	Potential Impact Event	Outcome(s)	Outcome Measurement Criteria	Leading Indicator Criteria	Compliance Status
2.1	Reduction in regional native vegetation species density and diversity due to mining operations.	No permanent loss of abundance or diversity to native vegetation on or off the Four Mile ML area through clearance, dust contaminant deposition, fire or other damage unless prior approval under the <i>Native Vegetation Act 1991</i> (SA) ( <b>Native Vegetation Act</b> ) is obtained.	Demonstrate that all clearing is undertaken within the maximum area approved in the Native Vegetation Management Plan.	Trends noted in vegetation surveys	Actual disturbance measured via GPS for the purpose of SEB accounting for period Jan-Dec 2013. No mining-related fires occurred. A baseline vegetation survey occurred in 2007 with additional monitoring undertaken in 2008 and 2009.
2.2	Loss of local native vegetation (habitat) due to clearance for mining operations.	No permanent loss of abundance or diversity to native vegetation on or off the Four Mile ML area through clearance, dust contaminant deposition, fire or other damage unless prior approval under the <i>Native Vegetation Act</i> is obtained.	Demonstrate that all clearing is undertaken within the maximum area approved in the Native Vegetation Management Plan.		The annual SEB reconciliation is outlined in Section 3.3.1 of this MARCR.
2.3	Loss of local native vegetation (habitat) due to mining-related fires.	No permanent loss of abundance or diversity to native vegetation on or off the Four Mile ML area through clearance, dust contaminant deposition, fire or other damage unless prior approval under the <i>Native Vegetation Act</i> is obtained.	Any fires caused by mining operations are controlled within the Four Mile ML.		Construction phase only. Mining has not commenced. Compliant.
2.4	Introduction of new or increase in abundance of existing weeds and pests (feral animals).	No introduction of new species of weeds <sup>2</sup> , plant pathogens or pests (including feral animals), nor increase in abundance of existing weed or pest species in the lease area compared to adjoining pastoral properties. <sup>2</sup> <i>Weeds are defined in this condition as any invasive plant that threatens native vegetation in the local area or any species recognised as invasive in South Australia.</i>	Flora and fauna surveys demonstrate no new weeds or feral animals (due to mining activities) nor statistically significant increase in number or abundance of existing weed or pest species in the lease area compared to adjoining pastoral areas.		

### 3.3.1 Significant Environmental Benefit

Construction and development of the proposed and cleared areas at the end of 2013 are shown in Figure 3-8, and include:

- Two wellfields with associated infrastructure including surface pipework and wellhouses
- Trunkline corridor between FME wellfields and Pannikan Satellite Plant, located on Beverley North ML 6387
- Two mud pits and a second turkey's nest for management of delineation drilling activities
- Electricity corridor from Heathgate's Beverley ML 6321 processing plant's powerhouse to the FME wellfield
- Delineation drilling laydown and office and amenities buildings
- Monitor well network surrounding ore deposits
- Tracks and roads

The calculation for SEB compensation includes a management cost of \$800 per hectare (**ha**) plus the land value amount per ha multiplied by the final ratio of 2:1. The details of the calculation are representative of the actual area of cleared land and the updated forecast land clearance as at 31 December 2013.

The land value in the PEPR was based on the 2009 value of \$672,053 for the Wootana Pastoral Lease provided by the Pastoral Land Management Group in April 2010, however the land value used for this annual reconciliation is based on the 2013 value of \$817,137. The area of the lease is 977 square miles (253,042 ha).

**Table 3-3: SEB Compensation Calculation**

Type	Clearance Area (ha)	Initial Ratio	Final Ratio*	SEB Area (ha)	Management cost (Based on Clearance Area)	2013 Land Value Cost of \$3.23/ha	Total Compensation
<b>Cleared areas</b>	36.3	4:1	2:1	72.6	\$29,040	\$234	\$29,274
<b>Proposed areas</b>	1.7	4:1	2:1	3.4	\$1,360	\$11	\$1,371
<b>TOTAL</b>	38.0			76	\$30,400	\$245	\$30,645

\* Using a 50% discount for areas that will be revegetated.

**Table 3-4: SEB Reconciliation**

	Planned Area Clearance (ha)	Management Cost (\$800/ha)	SEB Area (ha)	Land Value Cost (per ha)	Total Compensation
<b>Four Mile PEPR (approved 2 September 2013)</b>	37.4	\$29,920	74.8	(\$2.66/ha) \$241	\$30,120
<b>ML6402 (as at 31 December 2013)</b>	38.0	\$30,400	76.0	(\$3.23/ha) \$245	\$30,645
<b>Reconciliation</b>	0.6		1.2		\$525

The Four Mile joint venture made a payment to the Nature Foundation SA of \$30,120 at the time of the approved PEPR in 2013 for the forecast clearance of native vegetation associated with FME activities. A reconciliation undertaken at the end of 2013 and the actual clearance at the end of 2013 was 36.3 ha and a forecast clearance of 1.7 ha in 2014 of native vegetation (Table 3-3). An additional \$525 SEB compensation (Table 3-4) payment will be made upon acceptance of this reconciliation by DMITRE.

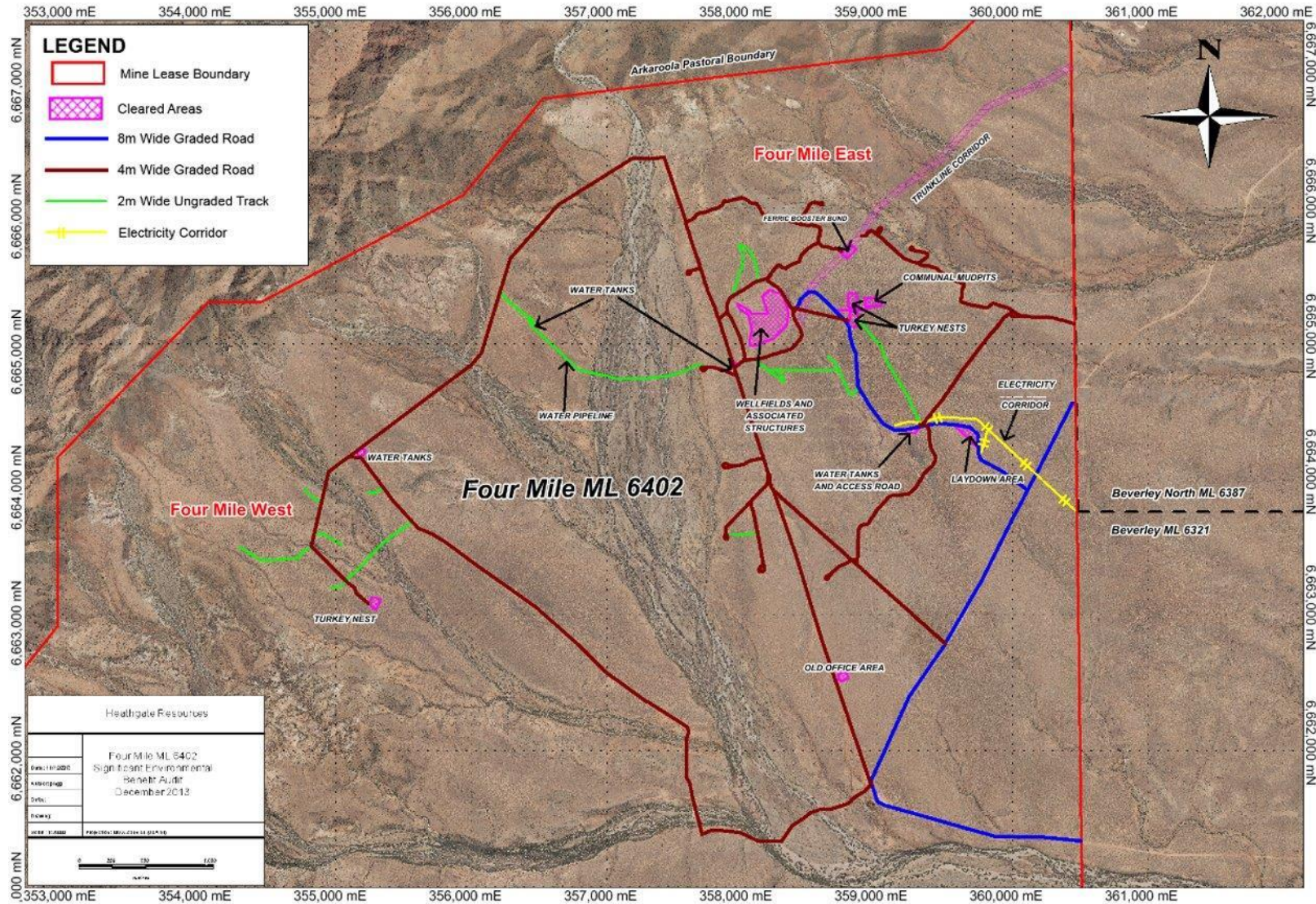


Figure 3-8: Four Mile ML SEB Reconciliation

### 3.3.2 Ecosystem Function Analysis

Supplementary Ecosystem Function Analysis (EFA) monitoring is being used as a tool to assess the progress of areas of rehabilitation. EFA monitoring assesses soil surface stability, infiltration, nutrient cycling and patch proportion and includes a vegetation component which compliments the annual compliance vegetation monitoring.

Two rehabilitation transects and one analogue transect were established (Figure 3-9) and monitoring was completed for the first time at these locations. As 2013 was the first assessment of the Four Mile East analogue, no trends in landscape function data or patch proportions can be ascertained until subsequent monitoring is conducted (Outback Ecology Services, 2014).

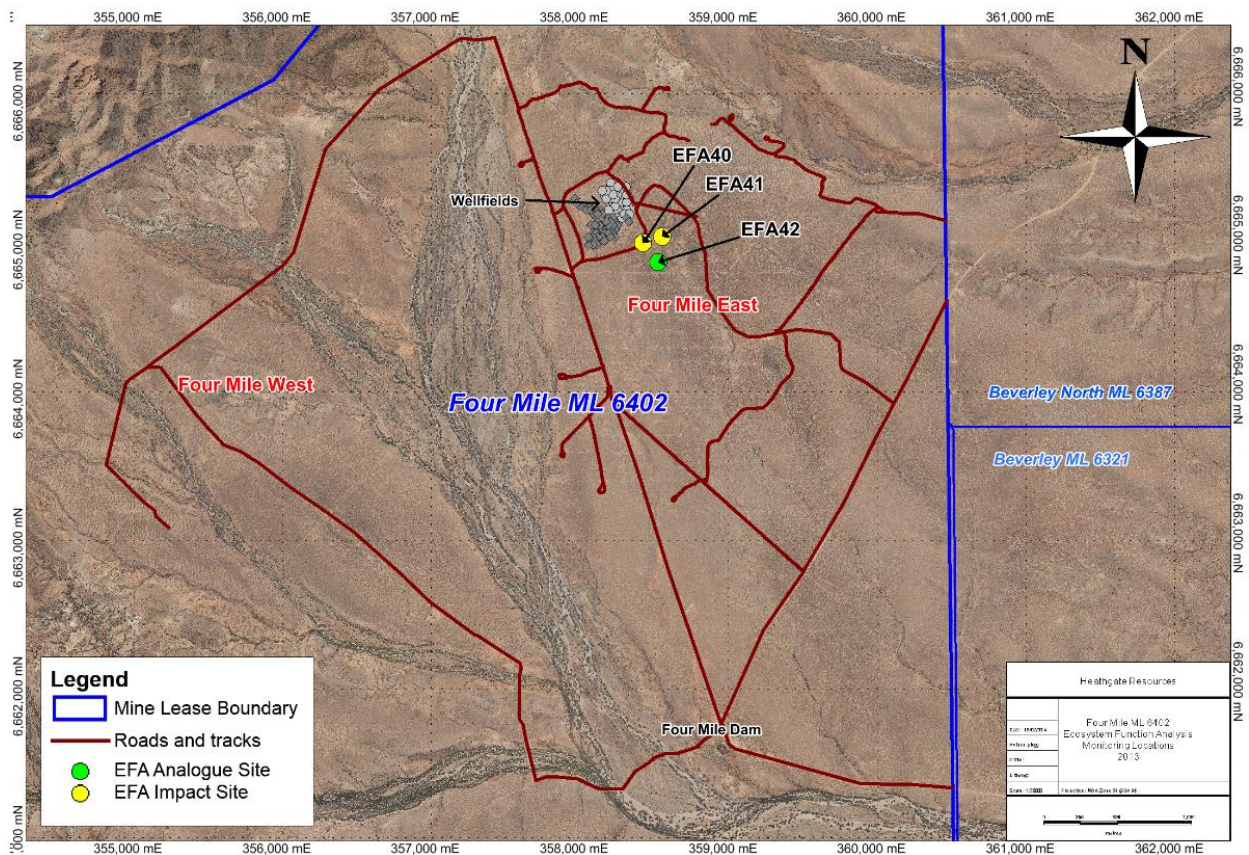


Figure 3-9: EFA transects monitored in 2013

### 3.4 Surface Water

Surface water is involved in the recharge of the Willawortina Formation which is unsaturated in the Four Mile ML. This Willawortina Formation is saturated (in part) in other parts of the Frome basin and is sometimes used for stock water. Pastoralists also use dams for intermittent water supplies for stock.

The table below shows the compliance status at end of 2013 against surface water outcomes.

**Table 3-5: Compliance Table – Surface Water**

<b>ID</b>	<b>Potential Impact Event</b>	<b>Outcome(s)</b>	<b>Outcome Measurement Criteria</b>	<b>Leading Indicator Criteria</b>	<b>Compliance Status</b>
3.1	Watercourse contamination (including radiological) arising from release of mining solution.	No compromise to pastoral use of downstream surface water bodies.	<p>Water quality in downstream water storages (within 5 km of an individual mining/spill site, or the closest accessible significant temporary creek waterhole if there is no water storage within 5 km), will be measured as soon as it is safe to do so following surface water flow, if there has been any immediately reportable<sup>10</sup> release of mining solution. This must show no compromise of pastoral use that is attributable to mine operations.</p> <p>Applicable ANZECC/ARMCANZ stock water guidelines are:</p> <ul style="list-style-type: none"> <li>• salinity (EC) – 4,000 mg/L (6,000 uS/cm)</li> <li>• sulphate (SO<sub>4</sub>)– 1,000 mg/L</li> <li>• uranium – 0.2 mg/L.</li> </ul>	No significant change in pH, EC, sulphate and uranium.	Construction phase only. Mining has not commenced. Compliant.
3.2	Spillage of hazardous substances during transport, resulting from an accident and release of materials into a creek.		<p>Water quality in downstream water storages (within 5 km of an individual mining/spill site, or the closest accessible significant temporary creek waterhole if there is no water storage within 5 km), will be measured as soon as it is safe to do so following surface water flow, if there has been any immediately reportable<sup>11</sup> release of mining solution. This must show no compromise of pastoral use that is attributable to mine operations.</p> <p>Applicable ANZECC/ARMCANZ stock water guidelines are:</p> <ul style="list-style-type: none"> <li>• salinity (EC) – 4,000 mg/L (6,000 uS/cm)</li> <li>• sulphate (SO<sub>4</sub>)– 1,000 mg/L</li> <li>• uranium – 0.2 mg/L.</li> </ul>		Construction phase only. Mining has not commenced. Compliant.

### 3.5 Hydrogeology

The hydrogeology in the vicinity of the FME wellfields consists of four main aquifers:

- Willawortina (~30-60 m below ground level (**bgl**) - not saturated in FME and hence has no monitor wells and is not reported on in this document
- Namba Formation (~60-160 m bgl)
- Eyre Formation (~160-220 m bgl)
- Mt Painter Group Fractured Rock (Crystalline Basement) (~230 m bgl)

A monitoring well network for FME has been established to monitor groundwater movement within the Eyre Formation (the mining zone), as well as the overlying Namba Formation and the underlying Mt Painter Group basement:

- Lateral Monitor Wells – these wells monitor the Eyre Formation sands laterally adjacent to the target zone
- Overlying Monitor Wells – these wells monitor the first permeable sand unit, being the Namba Formation, above the ore zone sands
- Underlying Monitor Wells – these wells monitor the underlying aquifer beneath the mining zone.

Monitor wells are sampled and water analysed in accordance to their classification as shown in Table 3-6.

**Table 3-6: Company Compliance Monitoring Plan - Groundwater**

	Method	Parameters	Criteria	Frequency
Lateral Monitor Wells	Wire-line Sonde sampling or pumped sampling and laboratory testing	pH, SO <sub>4</sub> , U, Level	ECLs	Monthly
Observation Wells	Wire-line Sonde sampling or pumped sampling and laboratory testing	pH, SO <sub>4</sub> , U, Level	ECLs	Monthly
Overlying Monitor Wells	Wire-line Sonde sampling or pumped sampling and laboratory testing	pH, SO <sub>4</sub> , U, Level	ECLs	Monthly
Underlying Monitor Wells	Wire-line Sonde sampling or pumped sampling and laboratory testing	pH, SO <sub>4</sub> , U, Level	ECLs	Monthly

The Excursion Control Parameters (**ECPs**) are pH, sulphate and uranium. Water levels are also monitored to detect changes in aquifer pressure and pressure trends. Water chemistry data obtained from baseline sampling is used to determine the Excursion Control Limits (**ECLs**). Results from Heathgate's on-site laboratory and an external National Association of Testing Authorities (**NATA**) accredited laboratory are compared for quality assurance purposes. Hydrographs for water levels and chemistry results for the 2013 calendar year are given in Appendices A to F.

Four monitor wells exhibited alkaline chemistries consistent with residual drilling muds present near the screened zones. Subsequent airlifting was successful in cleaning out the drilling mud and water chemistry in these wells has been demonstrated to be in line with the remaining baseline dataset. At the completion of baseline sampling (which continued into 2014 and is outside the reporting period), all lateral monitor wells showed consistency with baseline Eyre Formation water chemistry.

Mining had not commenced by the end of the 2013 reporting period, therefore all monitor wells are compliant with respect to the outcome of no compromise to the environmental values of the aquifer being monitored.

### 3.5.1 Eyre Formation

The mining zone at FME is within the Eyre Formation. Lateral monitor wells form a network adjacent to and surrounding the target zone. The locations of the lateral monitor wells at FME are shown in Figure 3-10. The table below shows the compliance status at end of 2013 against Eyre Formation hydrogeological outcomes.

**Table 3-7: Compliance Table – Hydrogeology – Eyre Formation**

ID	Potential Impact Event	Outcome(s)	Outcome Measurement Criteria	Leading Indicator Criteria	Compliance Status
4.1	<p>Groundwater contamination of target aquifer outside ML 6402 preventing stock watering (where water quality meets stock watering guidelines)</p> <p>Note: Due to its high fluoride content and naturally radioactive nature there are no current beneficial uses without additional water treatment other than for mining of the Eyre Formation aquifer at the Four Mile area</p>	<p>No compromise to the environmental values of the target aquifers (Eyre Formation) outside ML 6402.</p>	<p>No migration of mining solution in the Eyre Formation aquifers outside ML 6402 as demonstrated by ECP monitoring.</p> <p>Compliance will be demonstrated by either no exceedance of two ECLs at lateral monitor wells or by demonstration of compliance with the contingency measures described in Section 5.7.8.2 of Four Mile ML 6402 PEPR 2013.</p>	<ul style="list-style-type: none"> <li>• Water quality trends in the mined aquifer (Eyre formation) monitoring and observation wells (ECL parameters).</li> <li>• Hydrogeological gradient maps showing water levels (or pressure gradients) in the wellfield and surrounding monitor network. Gradients should be negative toward the wellfield/ mining area facilitating migration of fluids towards the mining zone.</li> </ul>	<p>Construction phase only. Mining has not commenced.</p> <p>Compliant.</p>

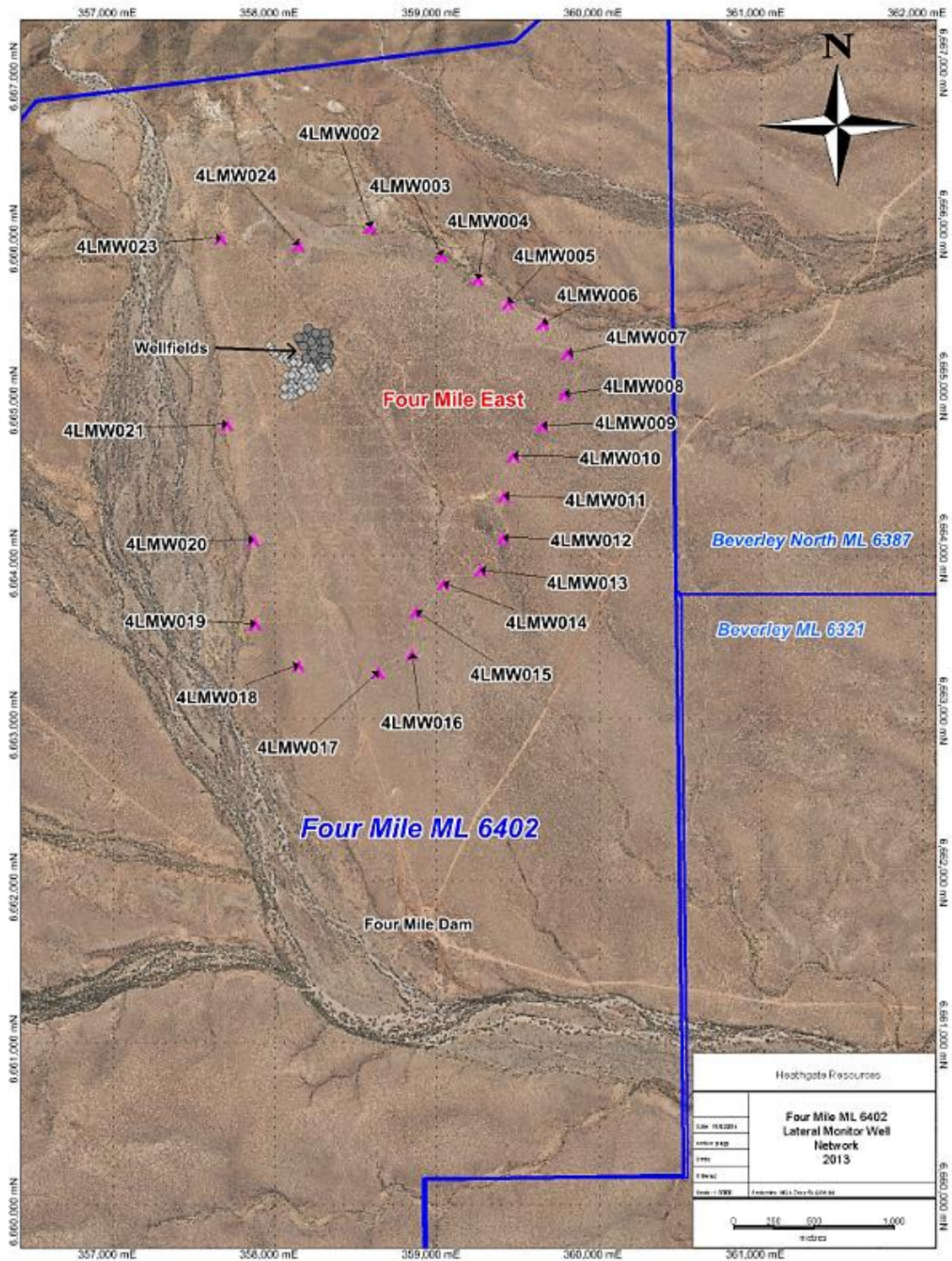


Figure 3-10: Location of the lateral monitor wells at Four Mile East

### 3.5.2 Namba Formation

The Namba Formation overlies the Eyre Formation and is separated by an impervious clay layer. The overlying monitor wells are located within the Namba Formation. Table 3-8 below shows the compliance status at end of 2013 against Namba Formation hydrogeological outcomes. The locations of the overlying monitor wells are shown in Figure 3-11.

**Table 3-8: Compliance Table – Hydrogeology – Namba Formation**

ID	Potential Impact Event	Outcome(s)	Outcome Measurement Criteria	Leading Indicator Criteria	Compliance Status
4.2	Contamination (including radiological) of non-target overlying aquifers arising from mining activities.	No compromise to the environmental values of the overlying aquifers (Willawortina, if saturated or Namba Formation).	Monitoring of ECPs demonstrates no compromise, as a result of mining operations, of the environmental values of the overlying aquifers (if saturated).	<ul style="list-style-type: none"> <li>Water levels and level trends in the Namba Formation monitoring wells</li> <li>Water quality and quality trends in the Namba Formation monitoring wells.</li> </ul>	Construction phase only. Mining has not commenced. Compliant.

### 3.5.3 Mount Painter Group Fractured Rock (Crystalline Basement)

Underlying monitor wells are located within the Mount Painter Group Fractured Rock which lies beneath the mining zone. Table 3-9 below shows the compliance status at end of 2013 against the underlying aquifer hydrogeological outcomes. The location of the underlying monitor wells are shown in Figure 3-11.

**Table 3-9: Compliance Table – Hydrogeology – Mt Painter Group Fractured Rock**

ID	Potential Impact Event	Outcome(s)	Outcome Measurement Criteria	Leading Indicator Criteria	Compliance Status
4.3	Contamination (including radiological) or reduction in pressure of underlying aquifer arising from mining activities.	<ul style="list-style-type: none"> <li>No compromise to the environmental values of the underlying aquifer (Mt Painter Group Fractured Rock Aquifer).</li> <li>No reduction in aquifer pressure of the Mt Painter Group Fractured Rock Aquifer.</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring of ECPs demonstrates no compromise of the environmental values of the underlying aquifer, as a result of mining activities.</li> <li>Monitoring of water level trends to show no unexplained reduction in aquifer pressure.</li> </ul>	<ul style="list-style-type: none"> <li>Water levels and level trends in the Mt Painter Group Fractured Rock aquifer monitoring wells</li> <li>Water quality and quality trends in the Mt Painter Group Fractured Rock aquifer monitoring wells.</li> </ul>	Construction phase only. Mining has not commenced. Compliant.

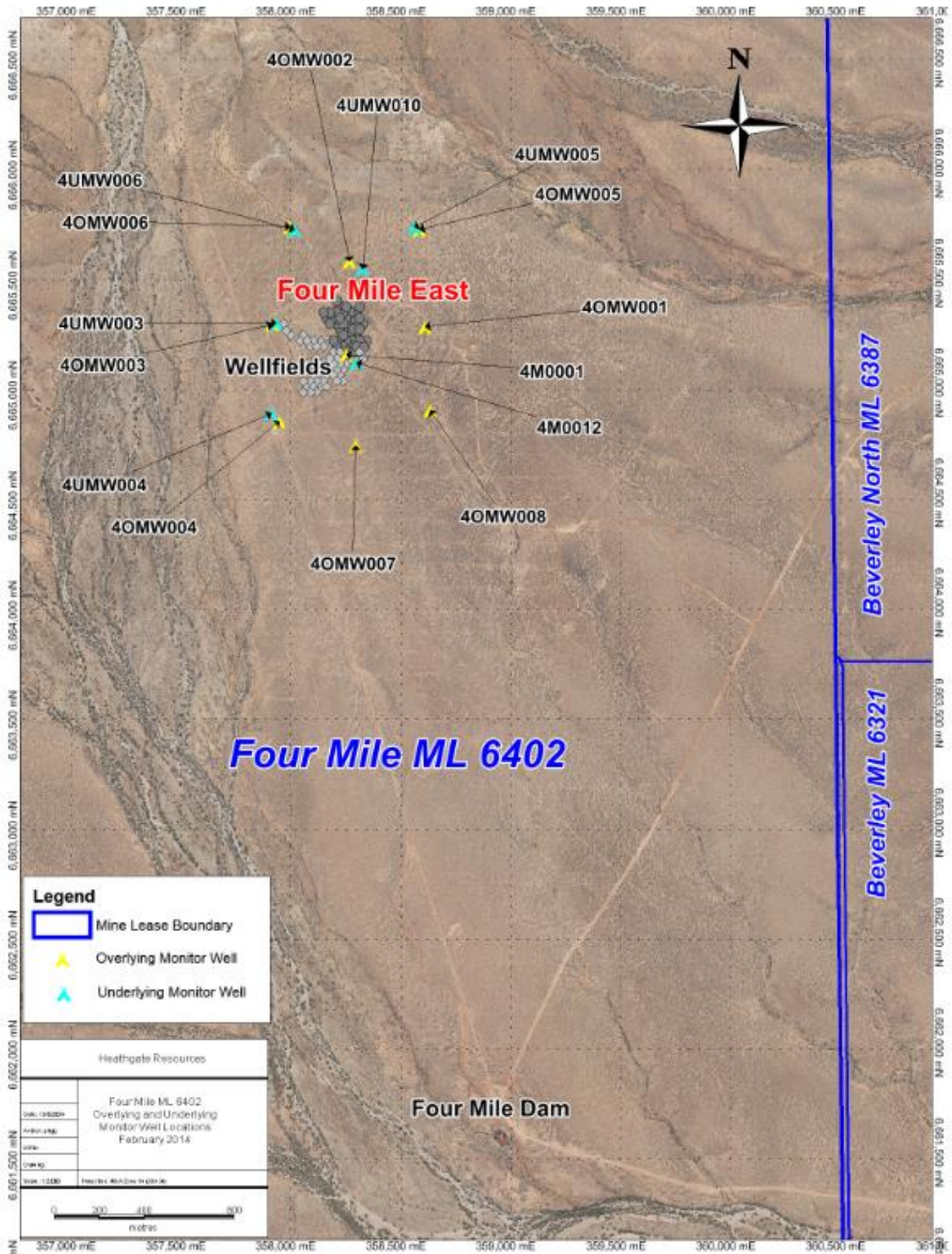


Figure 3-11: Location of the overlying and underlying monitor wells at Four Mile East

### 3.6 Fauna

The outcomes related to fauna are measured via results obtained from annual fauna surveys. Table 3-11 below shows the compliance status at end of 2013 against the fauna outcomes.

A baseline fauna survey was undertaken in October 2007 with additional surveys carried out in 2008 and 2009. No mammal, reptile or bird species of conservation significance were observed, however the Rainbow Bee-eater (*Merops ornatus*) which is an EPBC Act listed migratory species, was detected during the 2008 survey. Frequent opportunistic sightings of this species also occurred during this time. Opportunistic sightings of feral animals are reported by Heathgate staff to the onsite Health, Safety, Security and Environment (HSSE) Department for actioning.

The next fauna survey is scheduled in 2014 after FME operations commence. The locations of fauna monitoring sites are shown in Figure 3-12.

**Table 3-10: Compliance Table – Fauna**

ID	Potential Impact Event	Outcome(s)	Outcome Measurement Criteria	Leading Indicator Criteria	Compliance Status
5.1	Reduction in native vertebrate species density and diversity caused by mining related activities.	No net adverse impacts from the site operations (including fire) on native fauna abundance or diversity in the Four Mile ML area and in adjacent areas	Results of monitoring program show no reduction of native vertebrate density and diversity compared with local area background.	Trends in the monitoring program	No mining-related fires occurred. Construction phase only. Mining has not commenced. Compliant.
5.2	Reduction in native vertebrate species density and diversity resulting from an increase in feral animals caused by creation of food sources, modified habitat and waste management operations.	No net adverse impacts from the site operations (including fire) on native fauna abundance or diversity in the Four Mile ML area and in adjacent areas.  No introduction of new species of weeds <sup>3</sup> , plant pathogens or pests (including feral animals), nor increase in abundance of existing weed or pest species in the Four Mile ML area compared to adjoining pastoral properties <sup>4</sup> .  <i>3 Weeds are defined in this condition as any invasive plant that threatens native vegetation in the local area or any species recognised as invasive in South Australia.</i>  <i>4 Whilst this outcome includes vegetation it is included here as the ML 6402 condition lists feral animals with weeds.</i>	Results of monitoring program show no reduction of native vertebrate density and diversity compared with local area background.  Results of monitoring program show no increase in feral vertebrates, compared with local area background <sup>5</sup> .  <i>5 Weeds are defined in this condition as any invasive plant that threatens native vegetation in the local area or any species recognised as invasive in South Australia.</i>		
5.3	Reduction in native vertebrate species density and diversity caused by wellfield development, access road construction and operations.	No net adverse impacts from the site operations (including fire) on native fauna abundance or diversity in the Four Mile ML area and in adjacent areas.	Results of monitoring program show no reduction of native vertebrate density and diversity compared with local area background.		
5.4	Loss of local native fauna (habitat) due to mining related fires.	No net adverse impacts from the site operations (including fire) on native fauna abundance or diversity in the lease area and in adjacent areas.	Any fires caused by mining operations are controlled within the Four Mile ML area.		

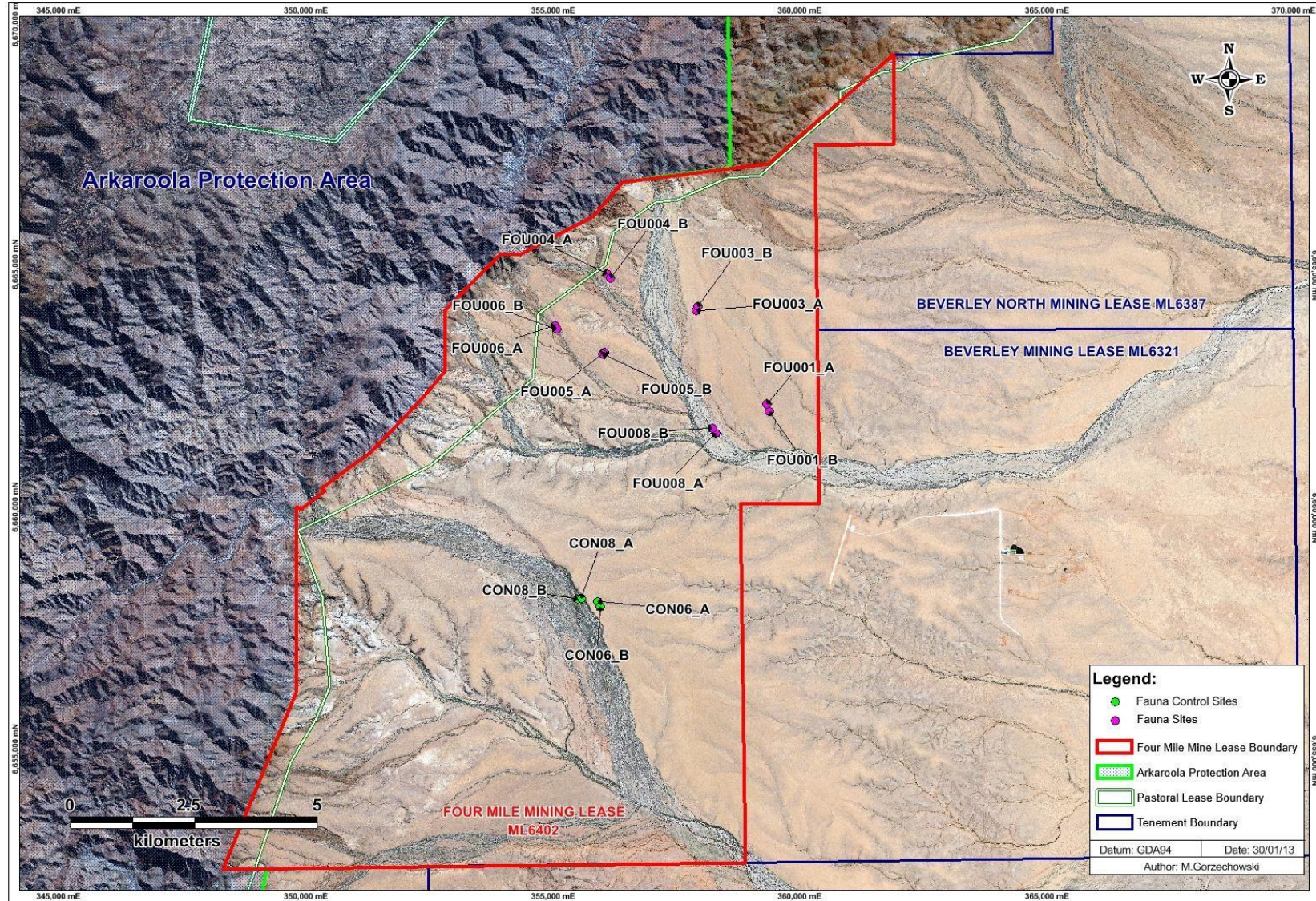


Figure 3-12: ML 6402 Fauna monitoring locations

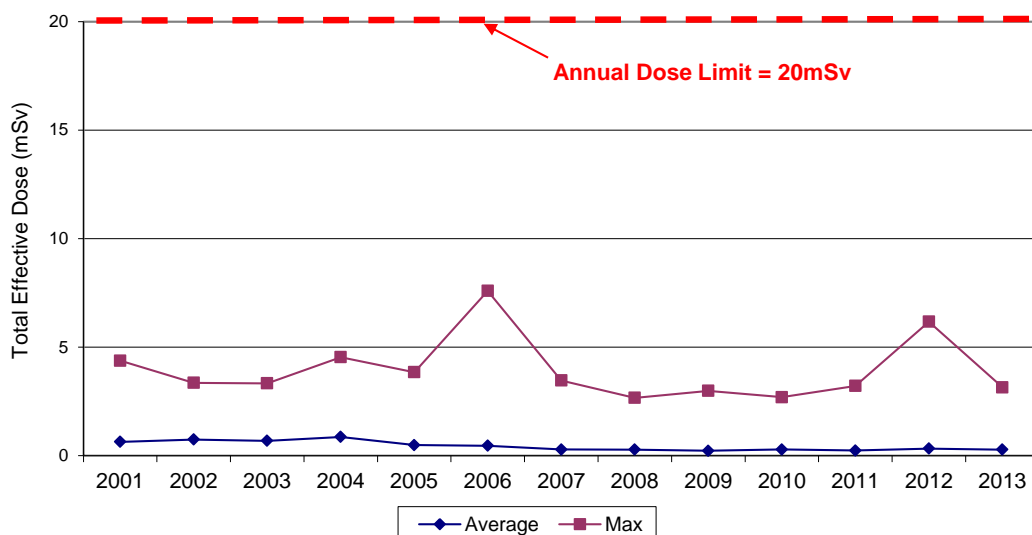
### 3.7 Air Quality

The radiation doses received by employees while working at FME are not calculated separately but included in the dose calculations compiled for operations at the Beverley uranium mine. Hence it is not feasible to provide employee doses exclusively for FME operations, and the dose information provided below includes contributions from both Beverley and FME operations.

The estimated radiation doses to employees in respect of both operations, and the public, remained low and within the applicable limits defined under the *RPC Act*. The average dose received by a Heathgate employee during 2013 was 0.27 mSv and the maximum was 3.14 mSv, well below the applicable annual dose limit of 20mSv. Employee average and maximum dose for 2001 to 2013 are shown in Figure 3-13. Table 3-11 below shows the compliance status at end of 2013 against the air quality outcomes.

**Table 3-11: Compliance Table – Air Quality**

ID	Potential Impact Event	Outcome(s)	Outcome Measurement Criteria	Leading Indicator Criteria	Compliance Status
6.1	Radon and uranium-bearing dust release increasing radiation doses to the environment.	No adverse impacts to the environment due to radon release, nor radiological aspects of seepages and spills.	Estimated radiation doses within applicable limits as defined under the <i>RPC Act</i> .	Radon decay products and radionuclide dust in the wellfields remain below the investigation levels.  Trends from monitoring of radon decay products and uranium dust in the processing plant, ponds and accommodation camp areas remain below the investigation levels	Radiation monitoring was carried out as per the approved monitoring plan. All the results remained very low.  Estimated doses to members of the public and workers remained low and well below the annual limits.  Uranium dust and radon decay products -monitored doses are calculated and are within applicable limits as defined under the <i>RPC Act</i> .



**Figure 3-13: Heathgate Employee dose from 2001 to 2013**

The public dose calculated includes contributions from Beverley and FME operations. The estimated dose to a person living at the Beverley accommodation camp is 0.021 mSv (excluding the contribution from natural background radon).

Table 3-12 below shows the separation of dust and radon dose in mSv. The nearest residence occupied by a member of public is the North Mulga Outstation, and considering the distance from the Beverley and FME areas, the annual dose received by a person living there will be less than 0.021 mSv, well below the applicable annual dose limit of 1 mSv.

**Table 3-12: Public dose details**

	Dose (mSv)
Dust dose (including natural background)	0.021
Radon dose (excluding background)	0.000
Total dose	0.021
Public Dose limit (annual)	1.00

### 3.8 Heritage

All culturally sensitive sites are recorded by way of a heritage report. Work area clearance surveys are conducted with representatives of the Native Title Holders before any ground disturbing work commences. Areas identified as culturally sensitive are mapped and fenced off, if required, by Heathgate personnel. The Native Title Holders require the locations of these sites remain out of the public domain.

Heathgate also employs Aboriginal Liaison Officers that are present at all environmental clearances (as part of the Environmental Clearance Permit system) to ensure that heritage sensitive areas are not overlooked. Table 3-14 below shows the compliance status at end of 2013 against the heritage outcomes.

No disturbance occurred in 2013.

**Table 3-13: Compliance Table – Heritage**

ID	Potential Impact Event	Outcome(s)	Outcome Measurement Criteria	Leading Indicator Criteria	Compliance Status
7.1	Impacts on Aboriginal heritage as a result of mine activity.	No disturbance to Aboriginal artefacts or sites of significance caused by mine activity unless prior approval under the relevant legislation is obtained.	<ul style="list-style-type: none"> <li>Documented Aboriginal Heritage Clearance surveys of all operational areas.</li> <li>Audits confirm flagged areas are not disturbed.</li> </ul>	Near-miss incident reports relating to potential disturbance of flagged areas.	<p>All heritage sensitive areas are clearly recorded after every work area clearance survey, and only used for internal purposes only as requested by the Native Title Holders.</p> <p>There has been no disturbance to flagged sensitive areas, which are checked periodically in the year. Compliant.</p>

### 3.9 Third Party Issues

There were no third party complaints in 2013 for ML 6402. Table 3-15 below shows the compliance status at end of 2013 against the third party (public) outcomes.

**Table 3-14: Compliance Table – Public**

ID	Potential Impact Event	Outcome(s)	Outcome Measurement Criteria	Leading Indicator Criteria	Compliance Status
8.1	Damage to adjacent public or private property and infrastructure, including that caused by fire, as a result of mine activity.	No unauthorised damage to adjacent public or private property and infrastructure, including that caused by fire, as a result of mine activity.	Any fires caused by mining operations are controlled within the Four Mile ML boundary.  Any accidental damage to infrastructure is made good as soon as practicable.	No specific criteria	Compliant. No reports of damage (including damage by fires caused by mining operations) to public or private property and infrastructure.

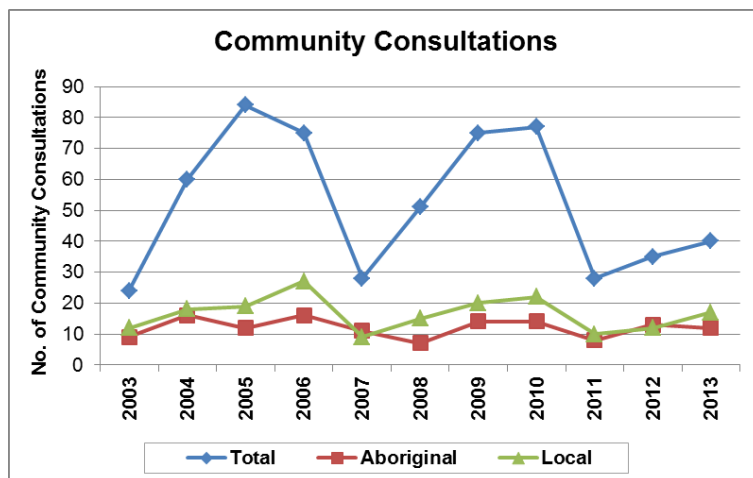
## 4 ONGOING COMMUNITY ENGAGEMENT PLAN

During 2013 forty separate community consultations have been recorded in relation to the Four Mile project. Heathgate maintains a community consultation database in order to monitor any consultation with third parties in relation to Four Mile. The figures presented below are a combination of Four Mile specific consultation and Four Mile issues as they relate to operations at Beverley.

The number of community consultations for each quarter is shown in Table 4-1 while a graph representing the comparative annual community consultations is given as Figure 4-1.

**Table 4-1: Quarterly Community Consultations for 2013**

2013	No. of Community Consultations
1st Quarter	15
2nd Quarter	13
3rd Quarter	9
4th Quarter	3



**Figure 4-1: Community Consultations 2013**

## 5 ENVIRONMENTAL RADIOLOGICAL MONITORING

Environmental radiation monitoring is undertaken at FME in order to assess the environmental radiological impact due to its operation and includes:

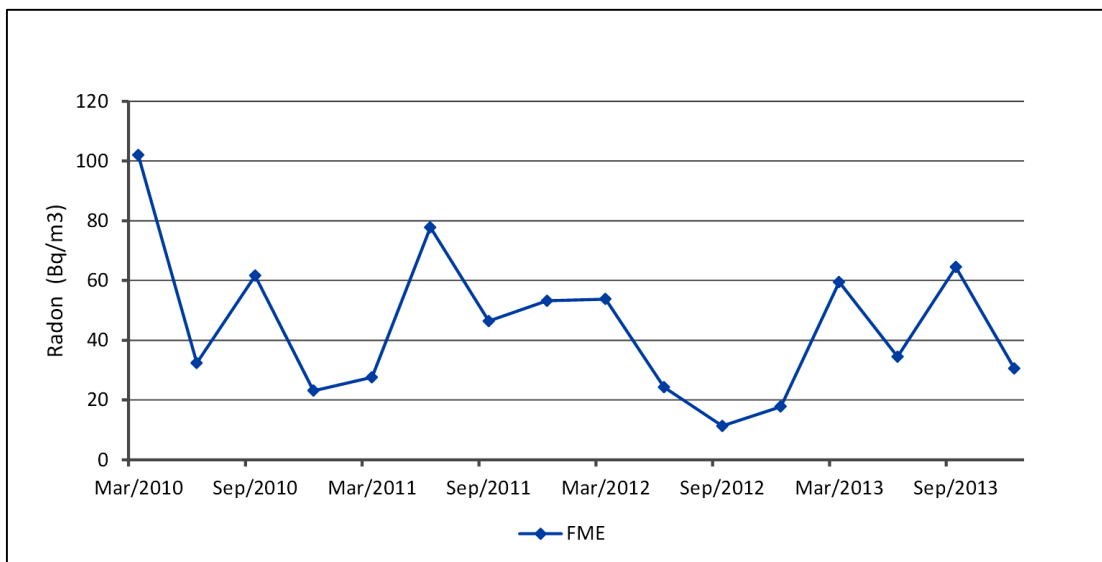
- Radon activity concentration in air;
- Potential alpha energy concentration of radon daughters in air;
- Long-lived alpha activity of airborne dust.

### 5.1 Radon Activity Concentration

The radon concentration in air is measured using a Passive Radon Monitor (**PRM**) with nuclear track detectors fixed at the FME monitoring station. The quarterly radon concentration results are given in Table 5-1 and Figure 5-1 shows a graph of monitoring trends since 2010.

**Table 5-1: Passive Radon Monitoring Four Mile East 2013**

Quarter	Radon Concentration (Bq/m <sup>3</sup> )
First	59.5
Second	34.5
Third	64.5
Fourth	30.5



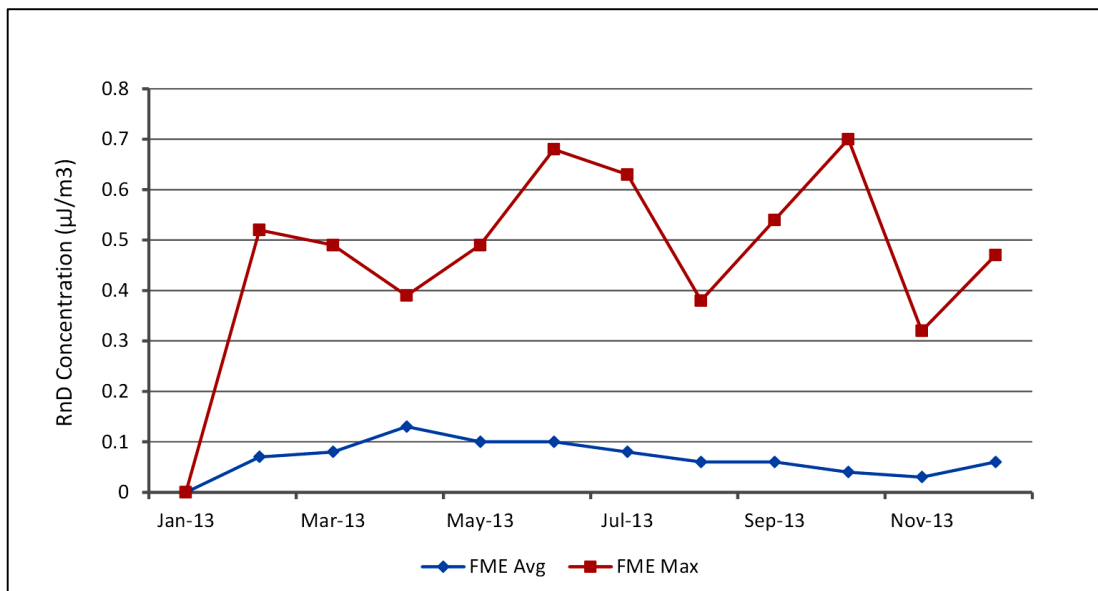
**Figure 5-1: Passive Radon Activity Concentration Monitoring Trends**

## 5.2 Radon Decay Product PAEC

The Potential Alpha Energy Concentration (**PAEC**) of radon decay products are measured continuously at the FME monitoring station using an Environmental Radon Daughter Monitor (**ERDM**) which logs every 10 minutes with data downloaded every month. Results of monitoring recorded in 2013 are presented in Table 5-2 and Figure 5-2. The average radon decay products concentrations at FME remained low during the year 2013.

**Table 5-2: Quarterly Radon Decay Products PAEC**

Month	PAEC ( $\mu\text{Jm}^{-3}$ )	
	Average	Maximum
January	--	--
February	0.07	0.52
March	0.08	0.49
April	0.13	0.39
May	0.10	0.49
June	0.10	0.68
July	0.08	0.63
August	0.06	0.38
September	0.06	0.54
October	0.04	0.70
November	0.03	0.32
December	0.06	0.47



**Figure 5-2: Four Mile Radon Decay Products PAEC Quarterly Monitoring Trends**

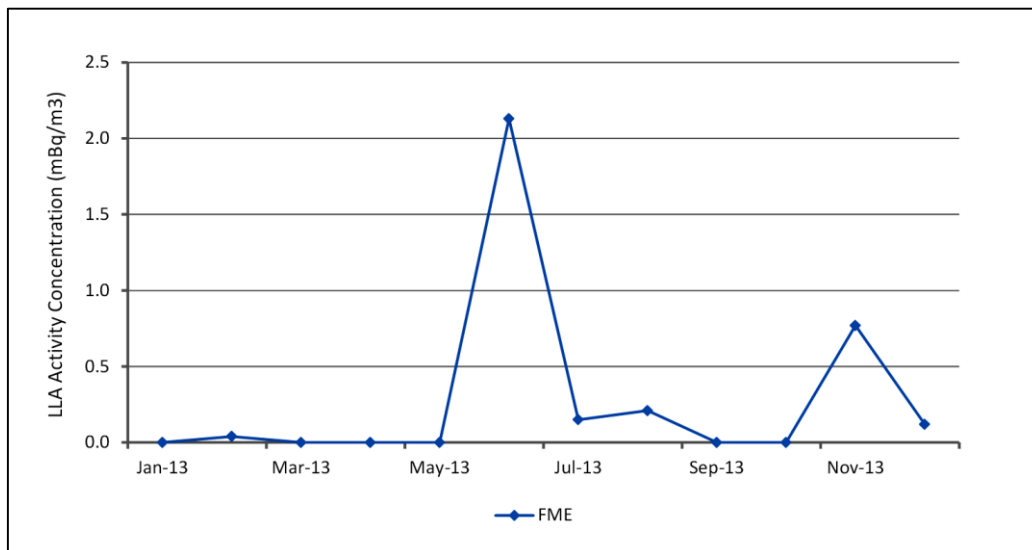
### 5.3 Long Lived Alpha Activity in Dusts

Long-lived alpha activity (LLA) in dust monitoring was conducted continually at the FME monitoring station using a MicroVol 1100 Air Sampler. The gross alpha counting results are given in Table 5-3 and Figure 5-3. LLA Dust concentrations at FME monitoring location remained low.

**Table 5-3: LLA\_Activity in Dust Monitoring Results Four Mile East 2013**

Month	Concentration (mBqm <sup>-3</sup> )
January	0.00
February	0.04
March	0.00
April*	--
May*	--
June	2.13
July	0.15
August	0.21
September	0.00
October	0.00
November	0.77
December	0.12

*Note\* – During April and May the Microvol unit was being calibrated and was not on site.*



**Figure 5-3: LLA Activity at Four Mile East**

Several risk areas involve radiological aspects and Table 5-4 below lists where these are discussed within this document.

**Table 5-4: Sections Relating to Radiological Aspects**

Risk Areas	Sections	Compliance table ID
Soil	3.2	1.1
Surface Water	3.4	3.1
Hydrogeology	3.5	4.2, 4.3
Air Quality	3.7	6.1

## 6 STATUS OF OBLIGATION OF STATE AND FEDERAL CONDITIONS

The status of obligations with State and Commonwealth approval conditions and reporting requirements including those of the *EPBC Act* for ML 6402 are outlined in Appendix G.

## 7 RECTIFICATION OF NON-COMPLIANCES

There were no non-compliances recorded on ML 6402 during 2013.

## 8 MANAGEMENT SYSTEM REVIEW

Two audits were completed in 2013 by a DMITRE approved independent auditor (GPA Engineering):

1. Design and Construction Systems Audit to AS/NZS 4581 Management System Integration: Guidance to Business, Government and Community Organisations.
  - This audit determined that Heathgate has appropriate systems that allow effective management of the Four Mile project in accordance with the PEPR/RWMP. One non-conformance was identified and this item has since been resolved by Heathgate. The audit was completed and accepted by DMITRE in October 2013.
2. Commissioning Systems Audit to AS/NZS 4581 Management System Integration: Guidance to Business, Government and Community Organisations.
  - The audit determined that Heathgate has appropriate systems that would allow effective management of the Four Mile project in accordance with the PEPR/RWMP. Although partial non-conformances and opportunities to improve systems were identified, the actions necessary to address these items are neither onerous nor expected to take a prolonged period to develop. This was completed in December 2013 and accepted by DMITRE in March 2014 (in the post-reporting period).

## **9 FITNESS FOR PURPOSE REVIEW**

Heathgate has a maintenance management system which allows the scheduling of regular servicing and maintenance of plant and equipment as well as ad-hoc repairs and maintenance. Heathgate's safety management system is utilised to ensure repairs and maintenance related to safety are captured.

The entire Four Mile project was subject to a thorough risk assessment prior to 2013. A Hazard and Operability (**HAZOP**) study was undertaken on major equipment in the facility by GPA Engineering in September 2013.

## **10 NEW ENVIRONMENTAL HAZARDS**

No new environmental hazards were identified in during the 2013 reporting period.

## **11 INCIDENTS**

### **11.1 Incidents**

There were no incidents relating to ML 6402 during the 2013 reporting period.

### **11.2 Corrective Actions**

No corrective actions were required during the 2013 reporting period.

## **12 OTHER**

### **12.1 Public Liability Insurance**

Public liability insurance for the Four Mile joint venture operations is current and a copy of the Certificate of Currency is available to be shown to DMITRE upon request.

### **12.2 PEPR Amendments**

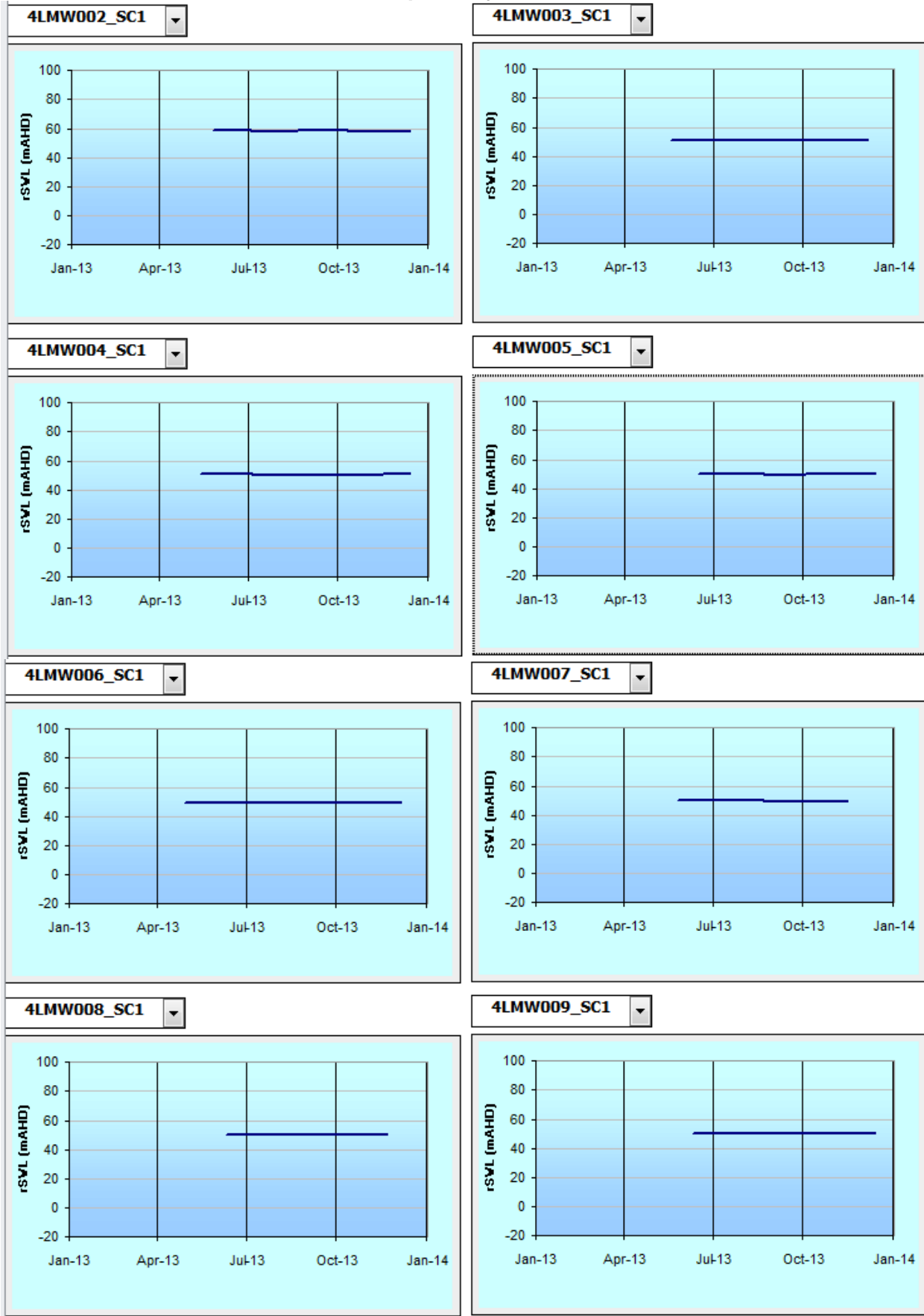
There were no PEPR amendments within the 2013 reporting period.

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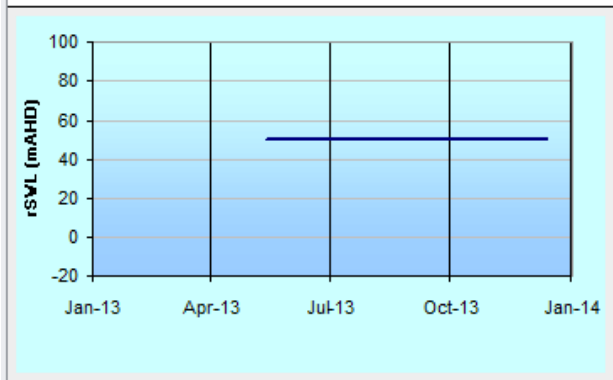
## **Appendix A: Monitor Well Level Graphs – Eyre Formation**

### Four Mile Monitor Well Water Level Graphs – Eyre

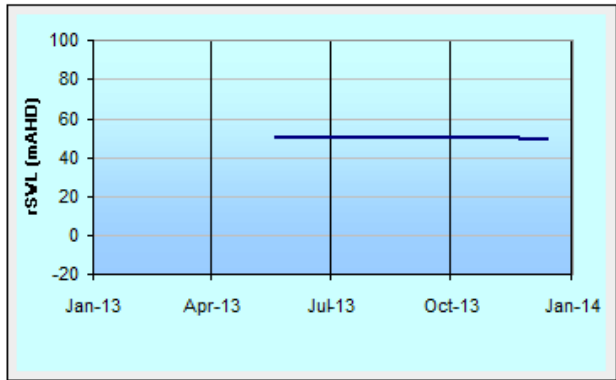


### Four Mile Monitor Well Water Level Graphs – Eyre

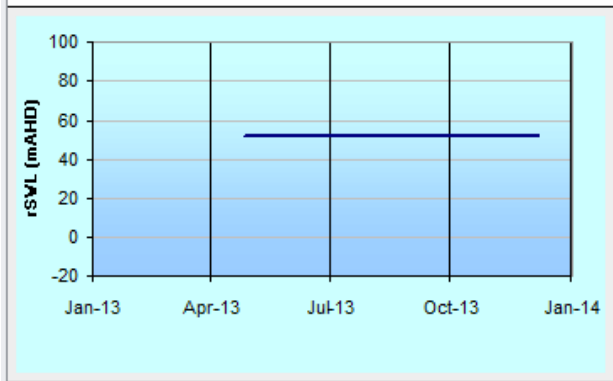
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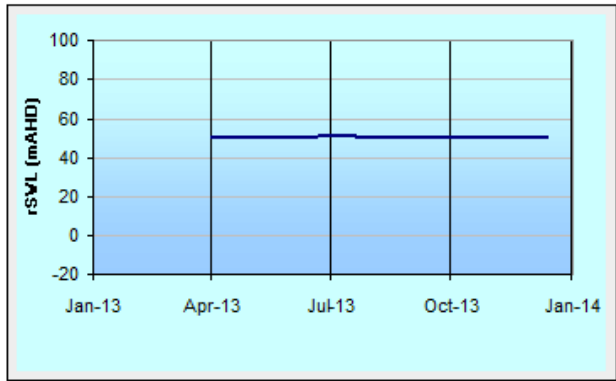
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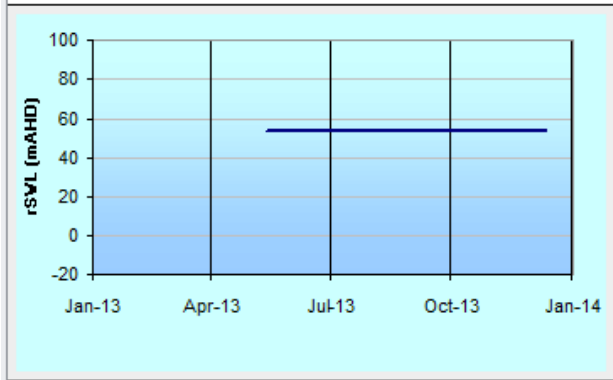
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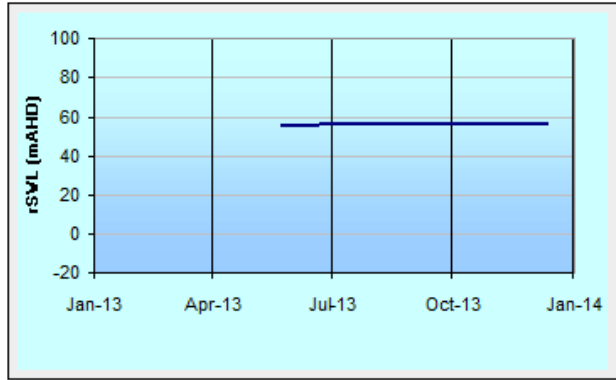
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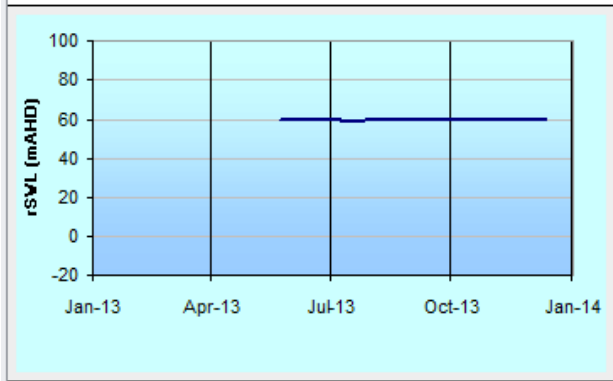
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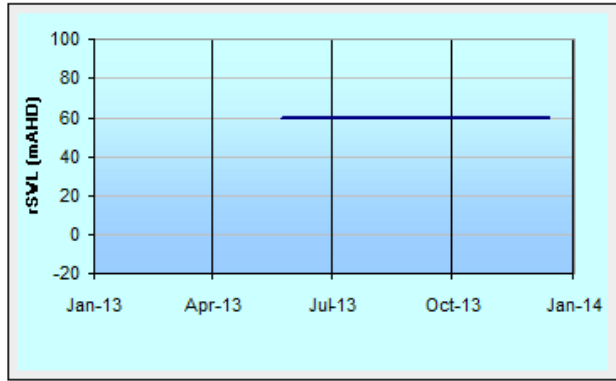
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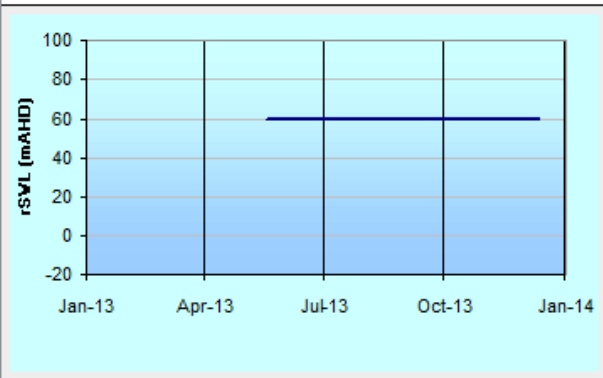


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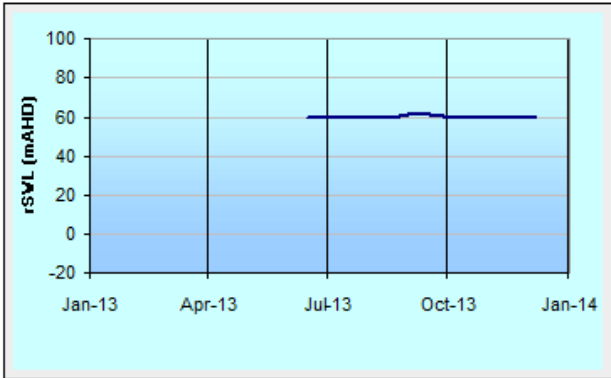


### Four Mile Monitor Well Water Level Graphs – Eyre

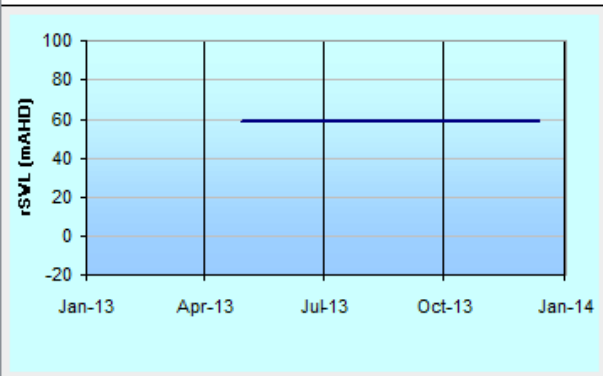
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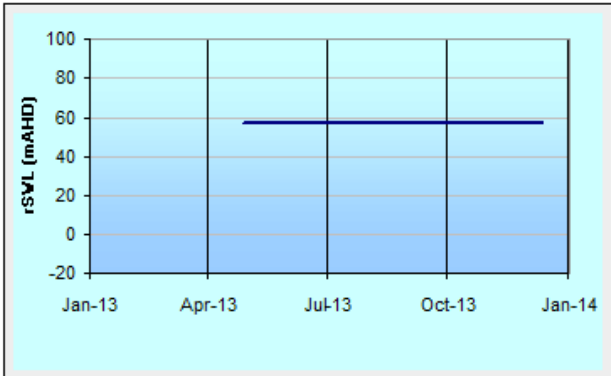
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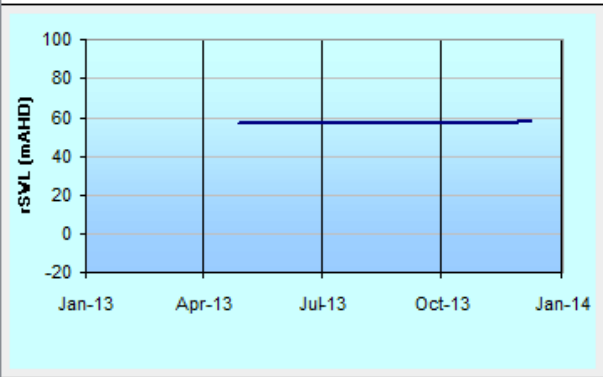
4LMW020\_SC1



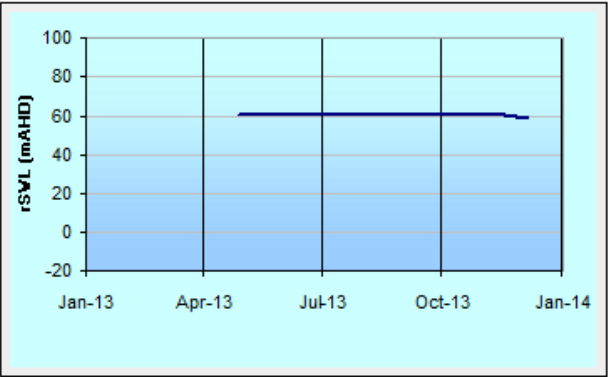
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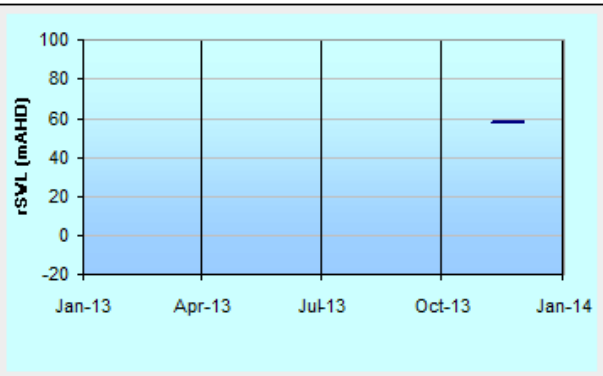
4LMW022\_SC1



4LMW023\_SC1

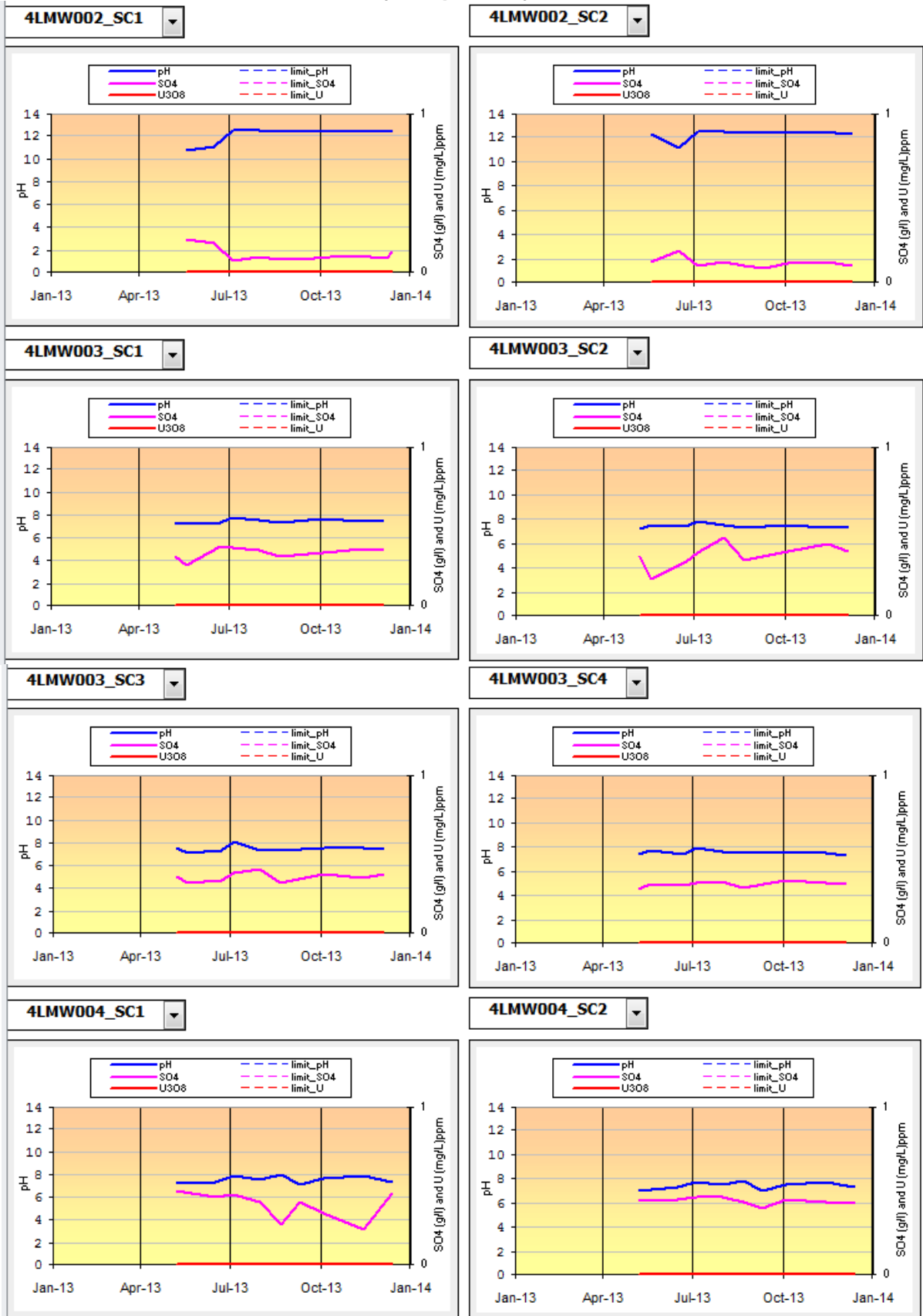


4LMW024\_SC1



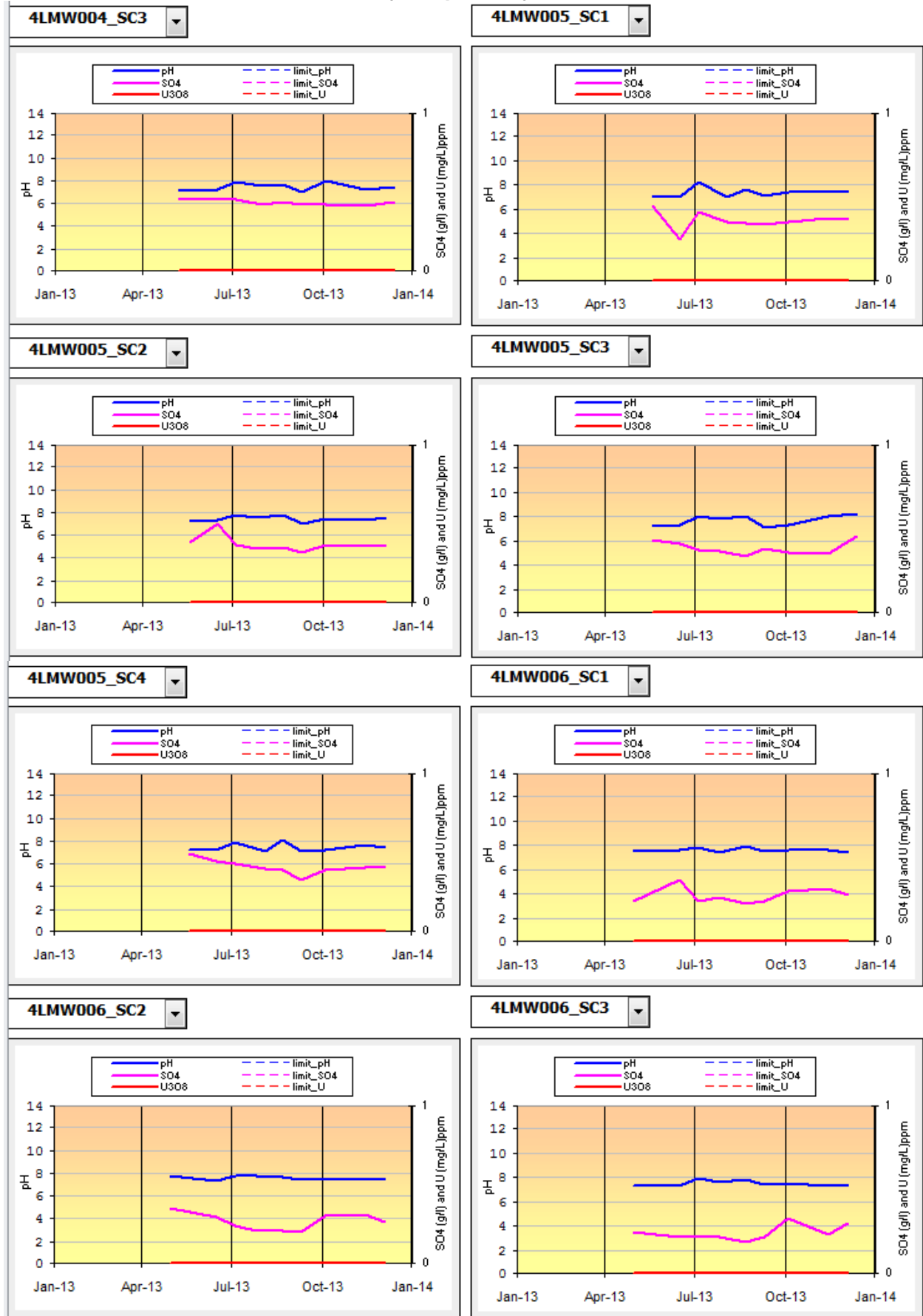
## **Appendix B: Monitor Well Chemistry Graphs – Eyre Formation**

### Four Mile Monitor Well Water Chemistry Graphs – Eyre

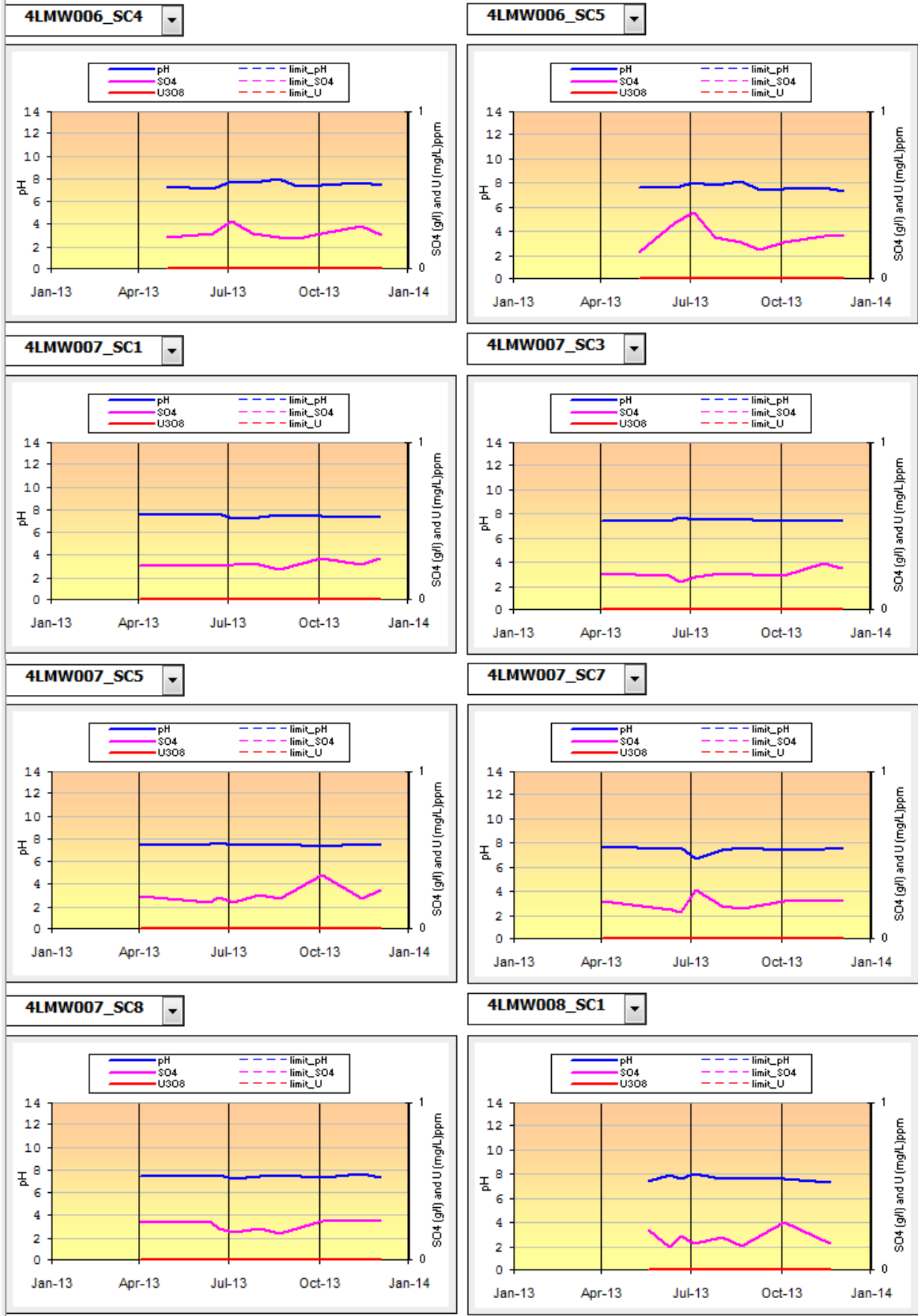


\*\* 4LMW002\_SC1 and 4LMW002\_SC2 – exhibited alkaline chemistries consistent with residual drilling muds near the screened zones. These wells have since been cleaned out resulting in chemistry results consistent with the Eyre Formation baseline water chemistry.

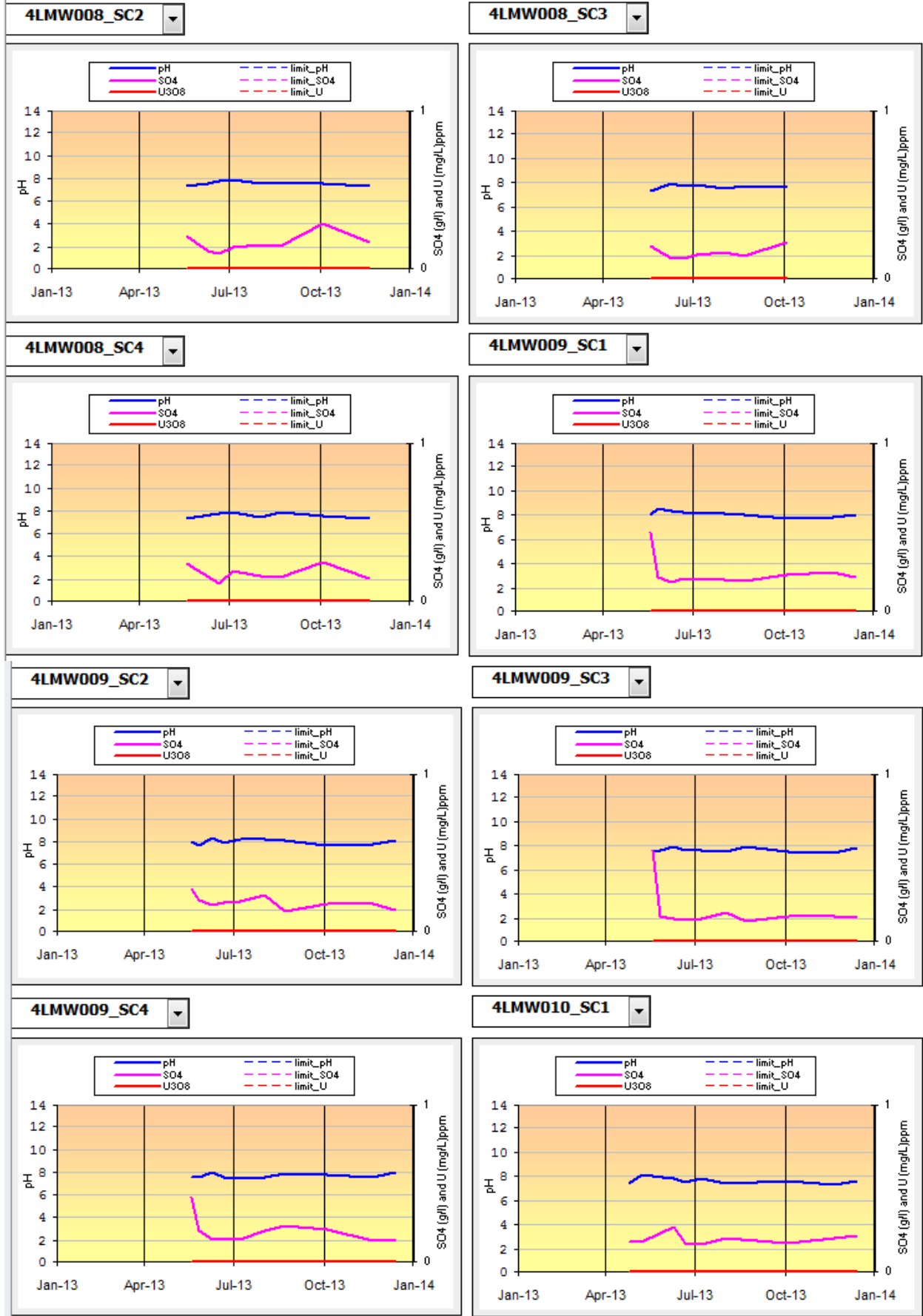
### Four Mile Monitor Well Water Chemistry Graphs – Eyre



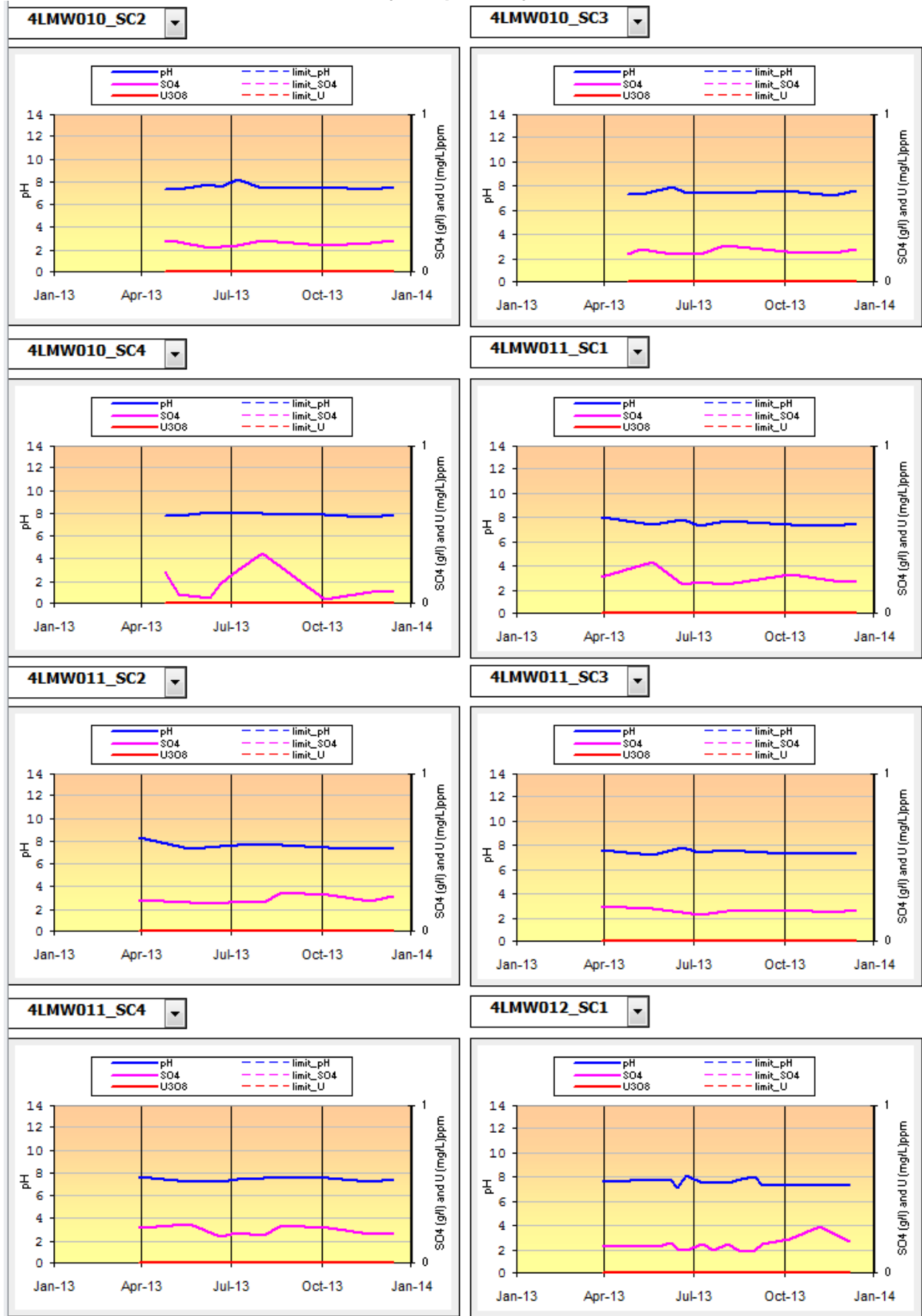
### Four Mile Monitor Well Water Chemistry Graphs – Eyre



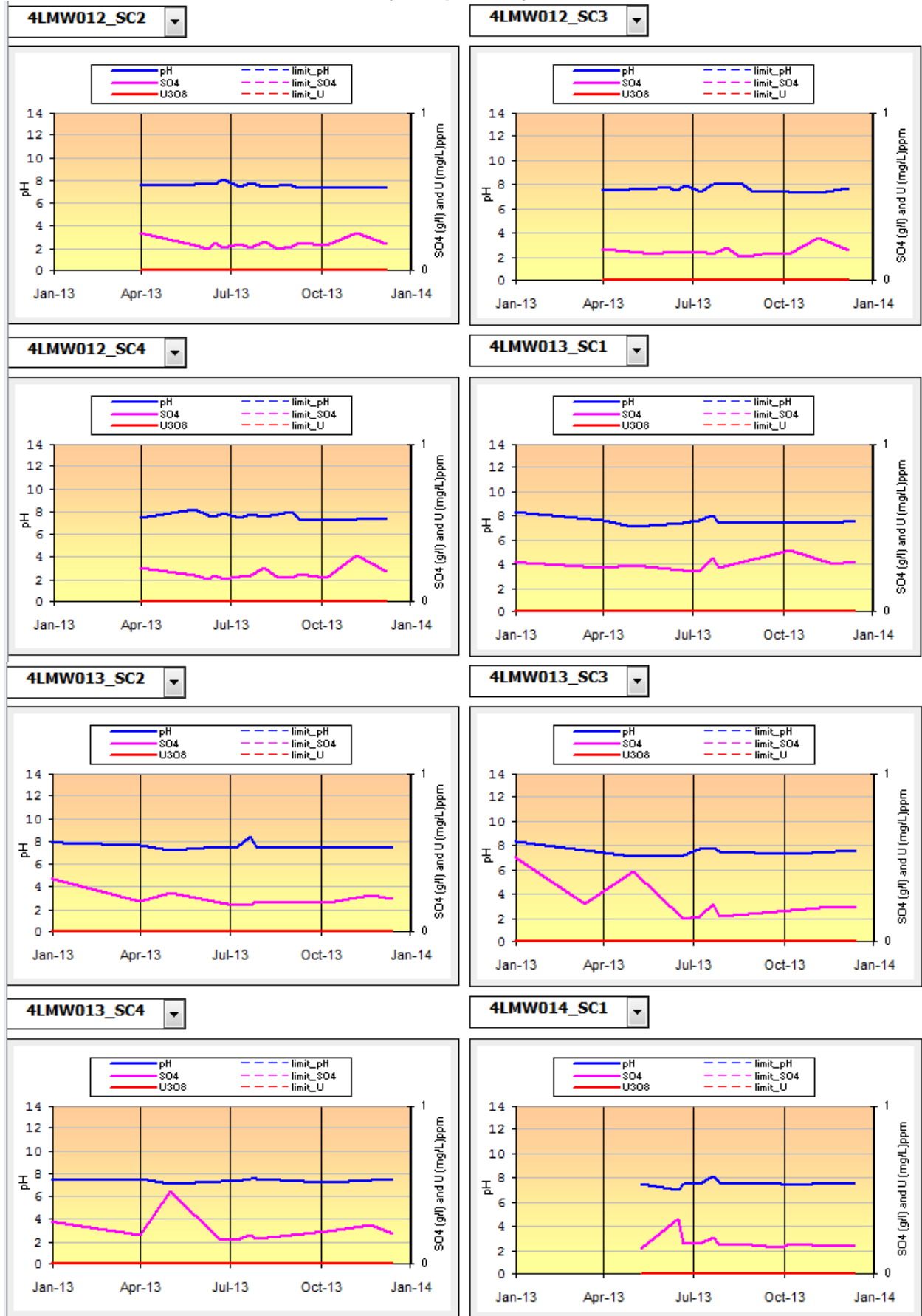
### Four Mile Monitor Well Water Chemistry Graphs – Eyre



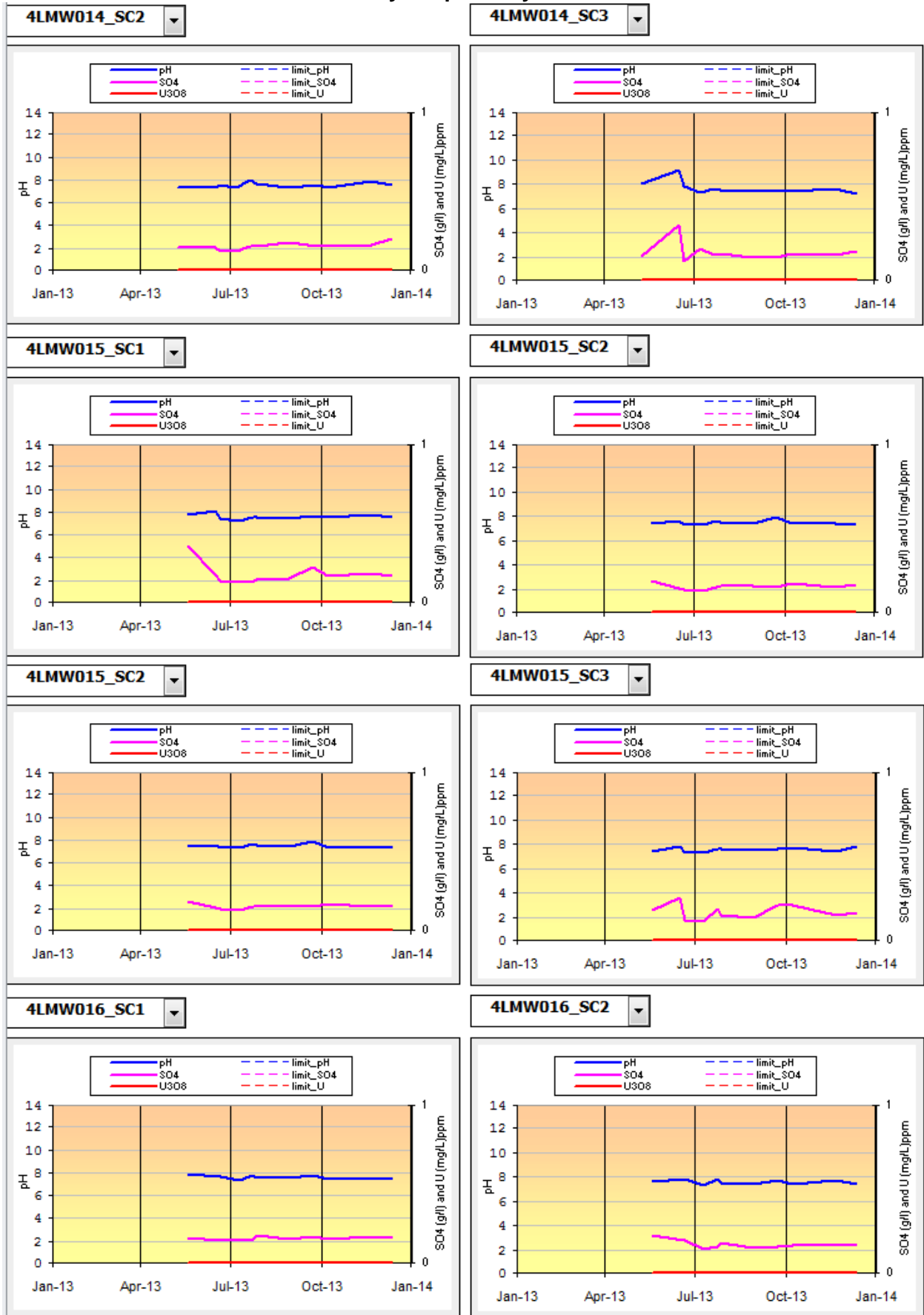
### Four Mile Monitor Well Water Chemistry Graphs – Eyre



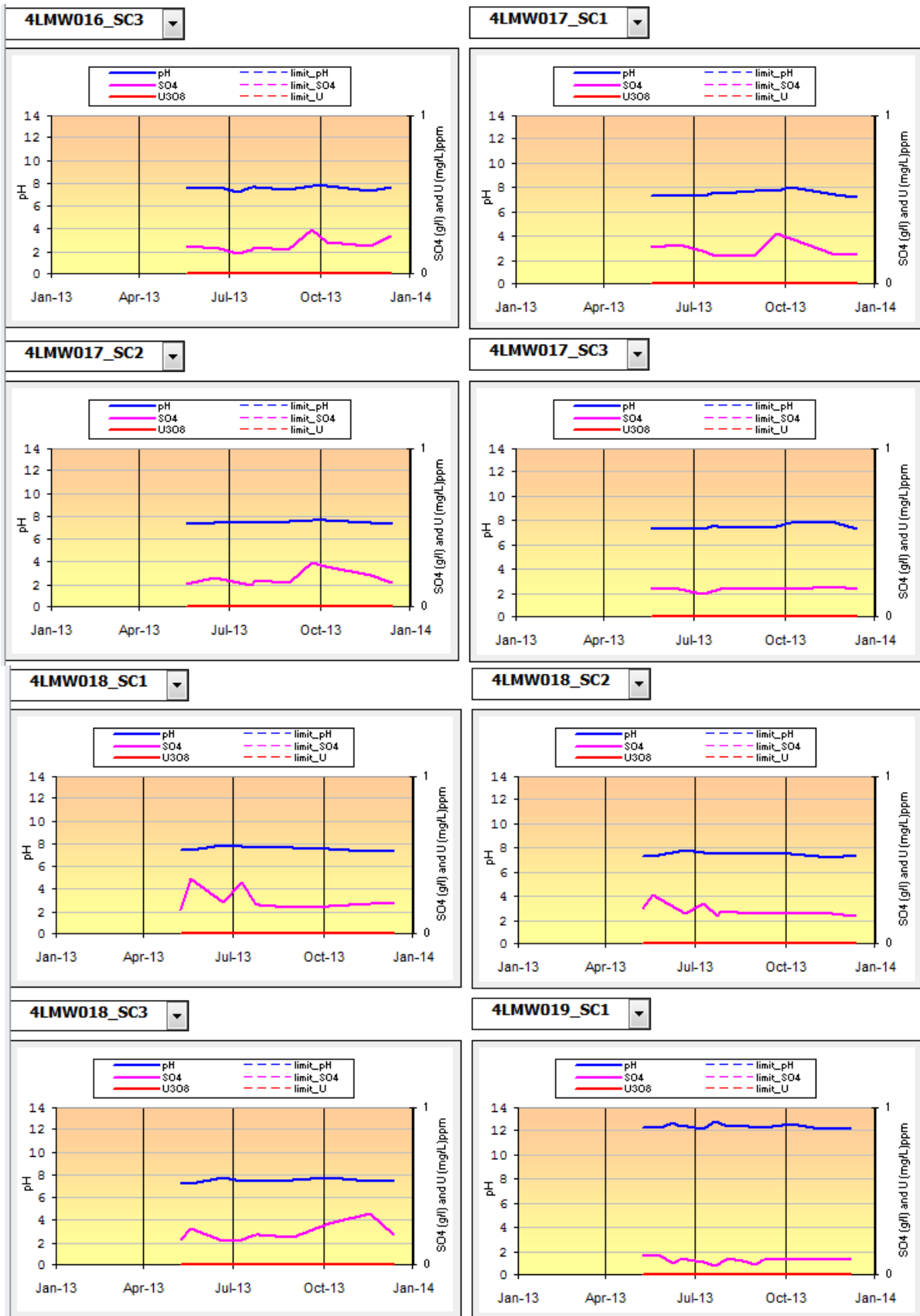
### Four Mile Monitor Well Water Chemistry Graphs – Eyre



### Four Mile Monitor Well Water Chemistry Graphs – Eyre

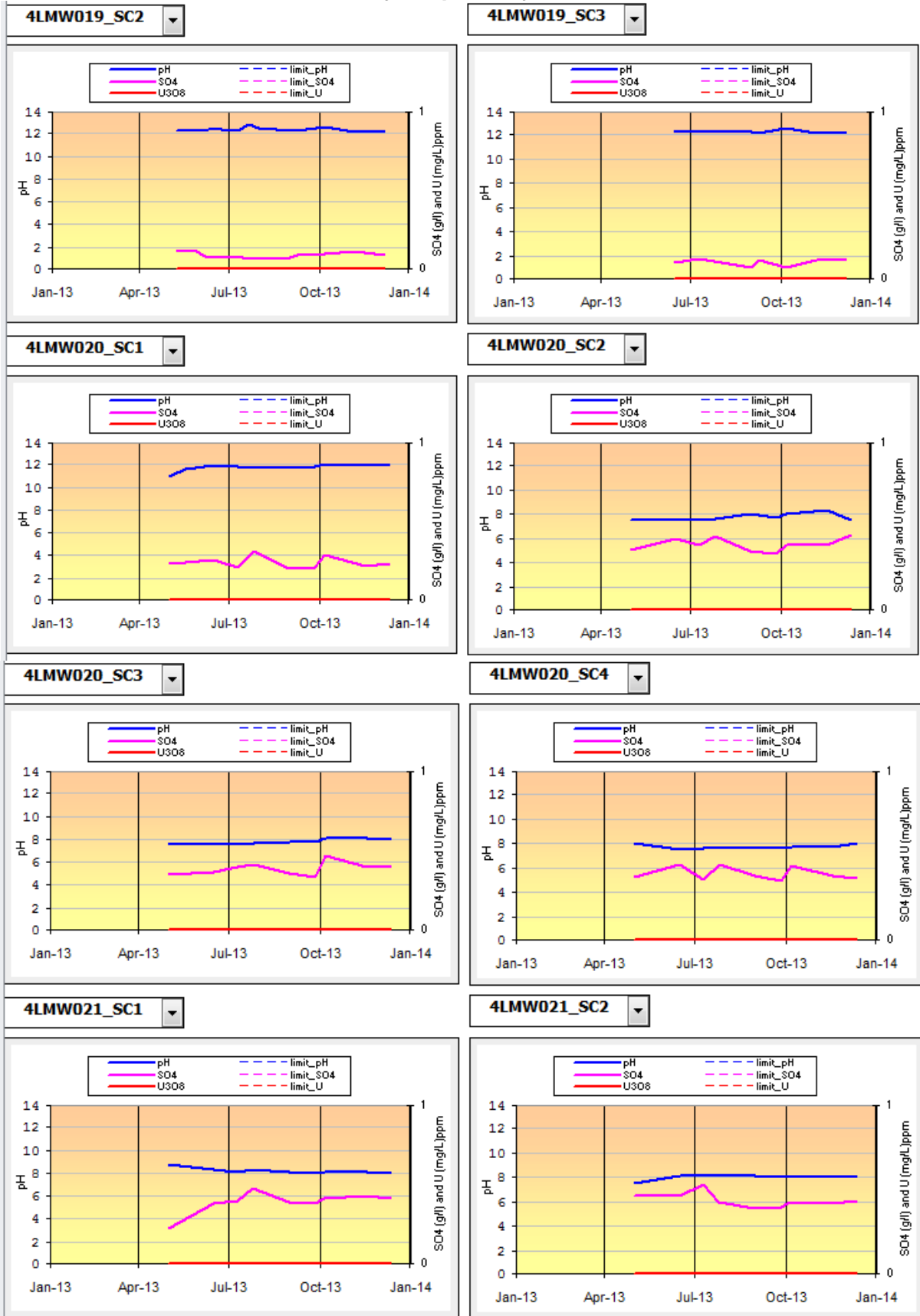


### Four Mile Monitor Well Water Chemistry Graphs – Eyre



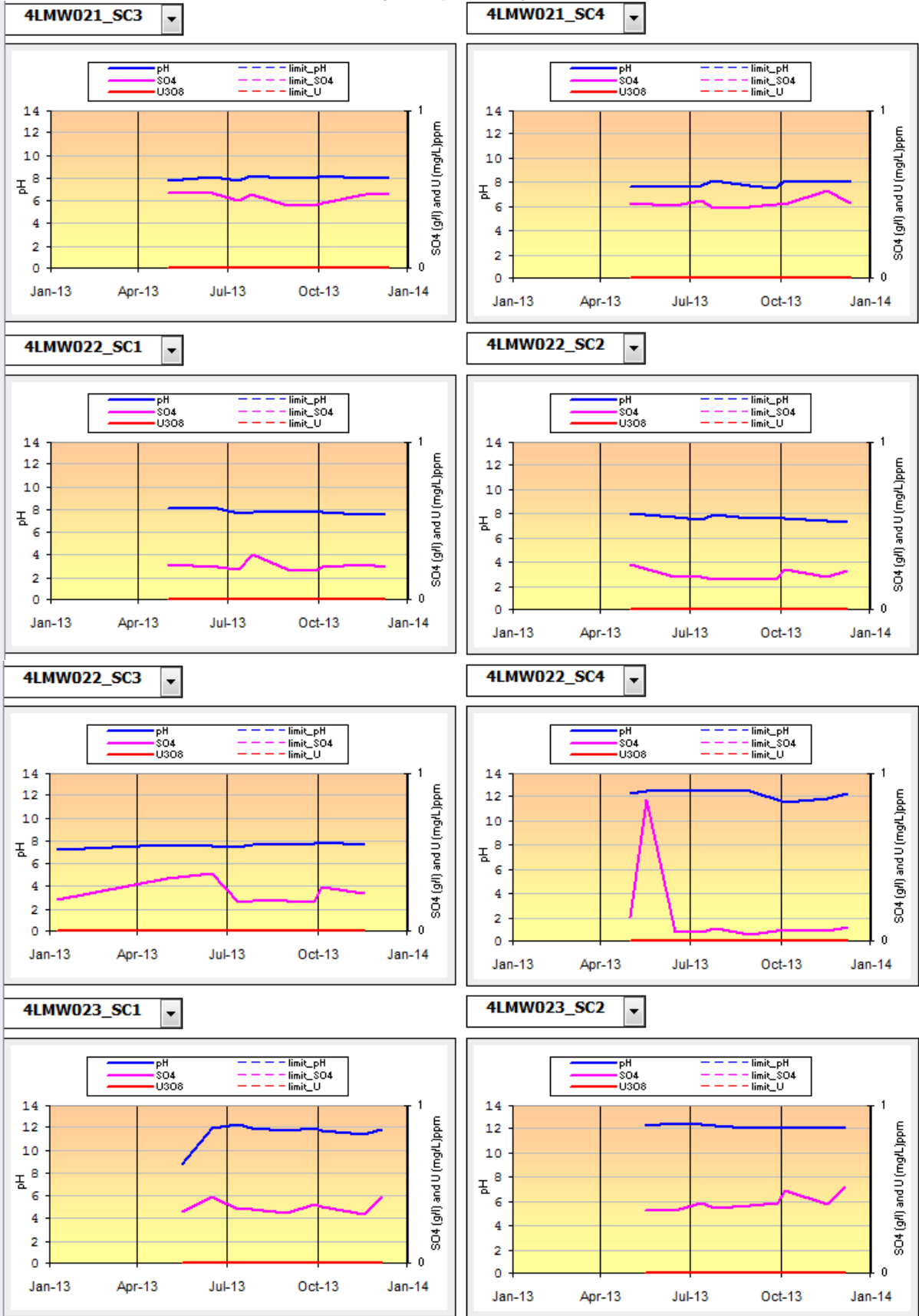
\*\* 4LMW019\_SC1 – exhibited alkaline chemistries consistent with residual drilling muds near the screened zones. These wells have since been cleaned out resulting in chemistry results consistent with the Eyre Formation baseline water chemistry.

### Four Mile Monitor Well Water Chemistry Graphs – Eyre



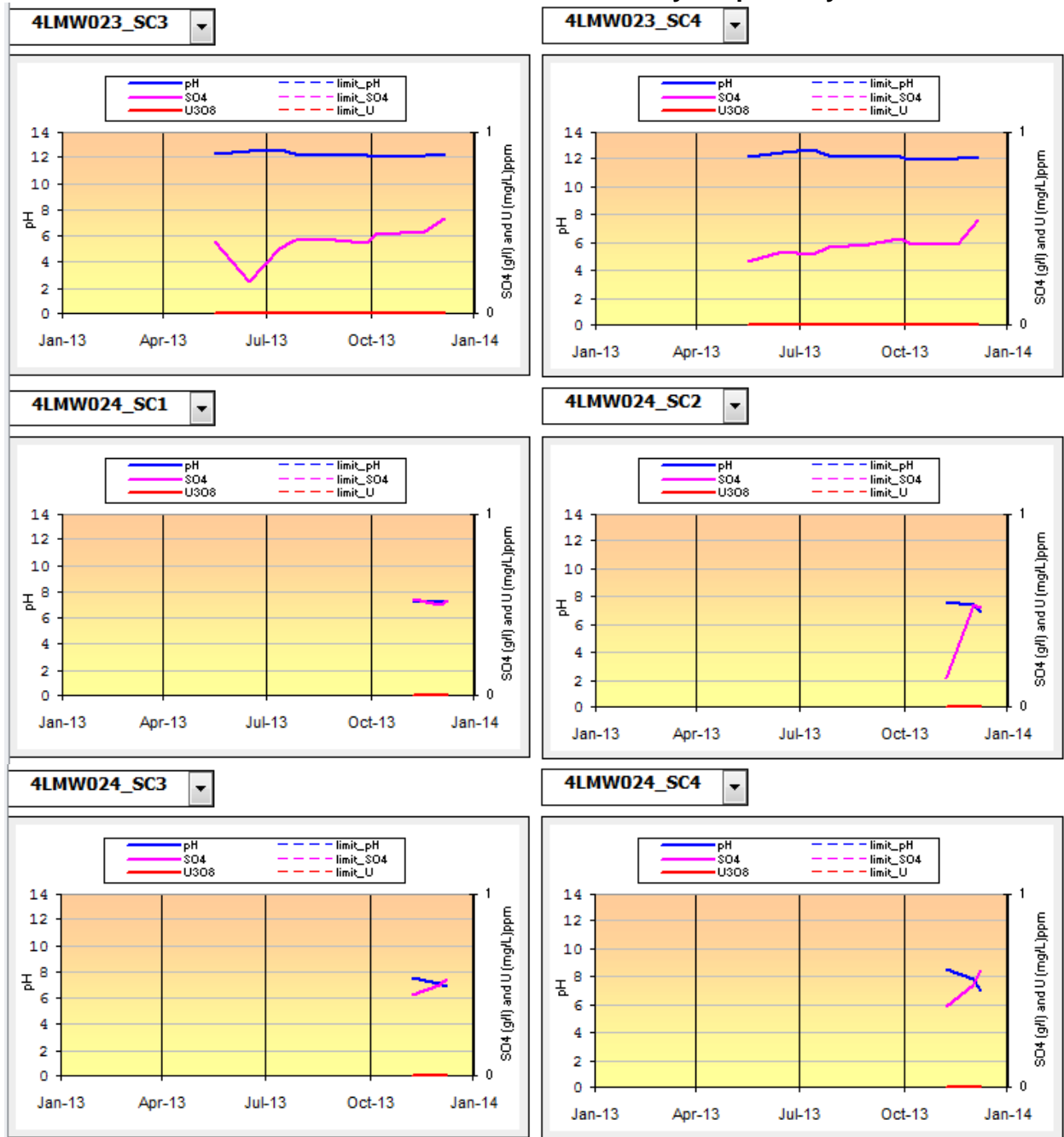
\*\* 4LMW019\_SC2, 4LMW019\_SC3 and 4LMW020\_SC1 – exhibited alkaline chemistries consistent with residual drilling muds near the screened zones. These wells have since been cleaned out resulting in chemistry results consistent with the Eyre Formation baseline water chemistry.

### Four Mile Monitor Well Water Chemistry Graphs – Eyre



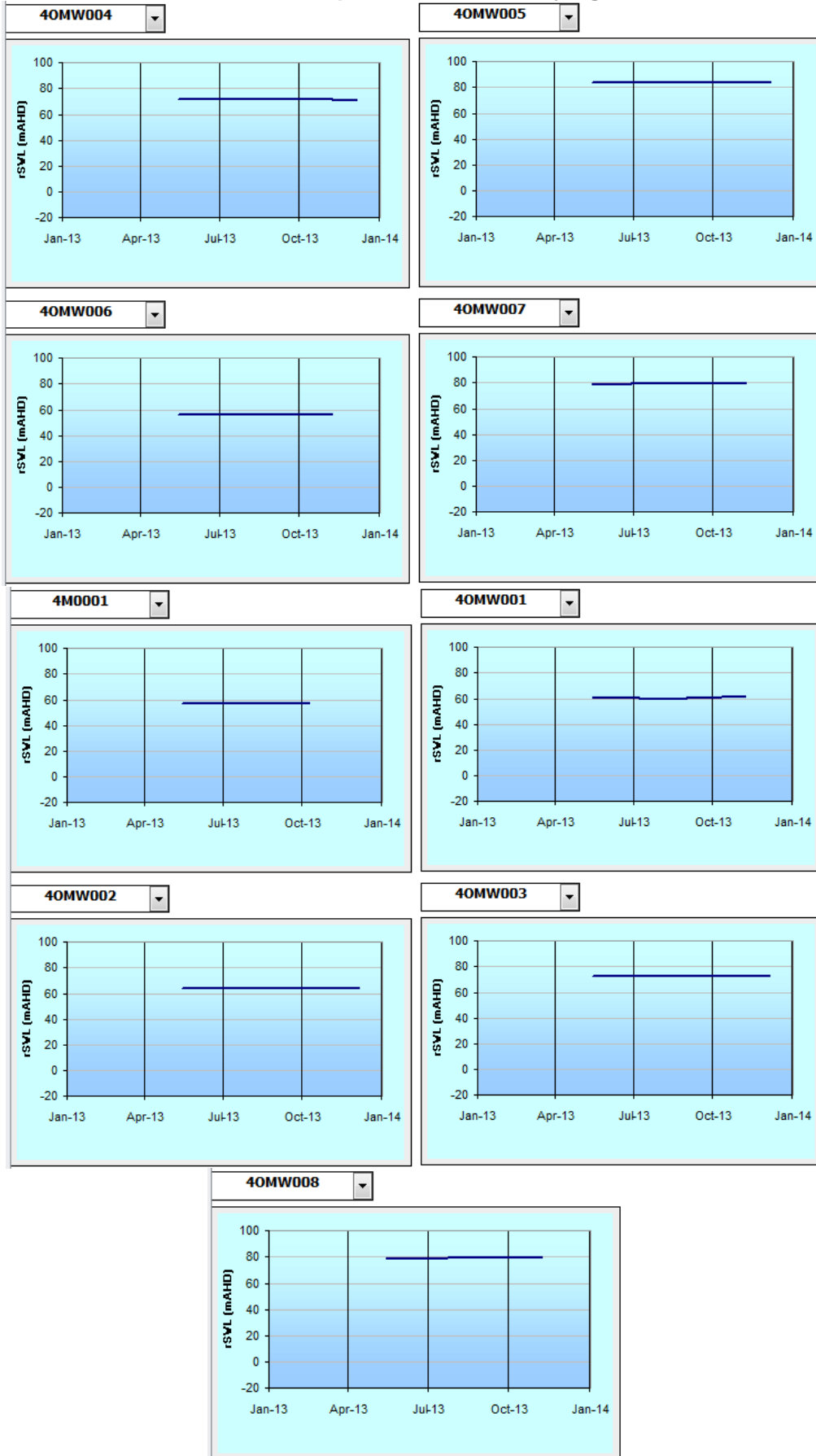
\*\* 4LMW022\_SC4, 4LMW023\_SC1 and 4LMW023\_SC2 – exhibited alkaline chemistries consistent with residual drilling muds near the screened zones. These wells have since been cleaned out resulting in chemistry results consistent with the Eyre Formation baseline water chemistry.

### Four Mile Monitor Well Water Chemistry Graphs – Eyre



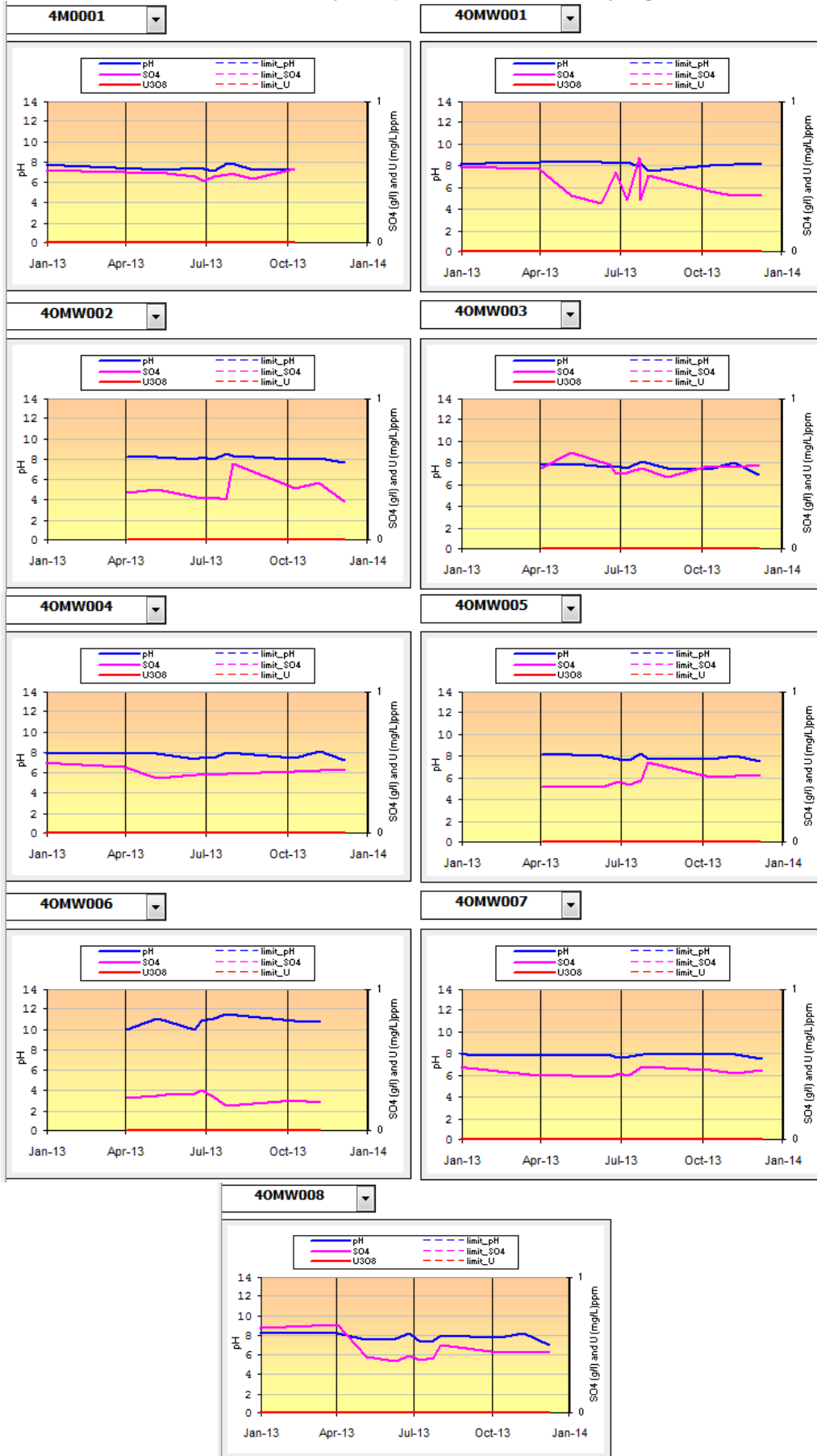
## **Appendix C: Overlying Monitor Well Level Graphs – Namba Formation**

### Four Mile Monitor Well Water Level Graphs – Namba Overlying



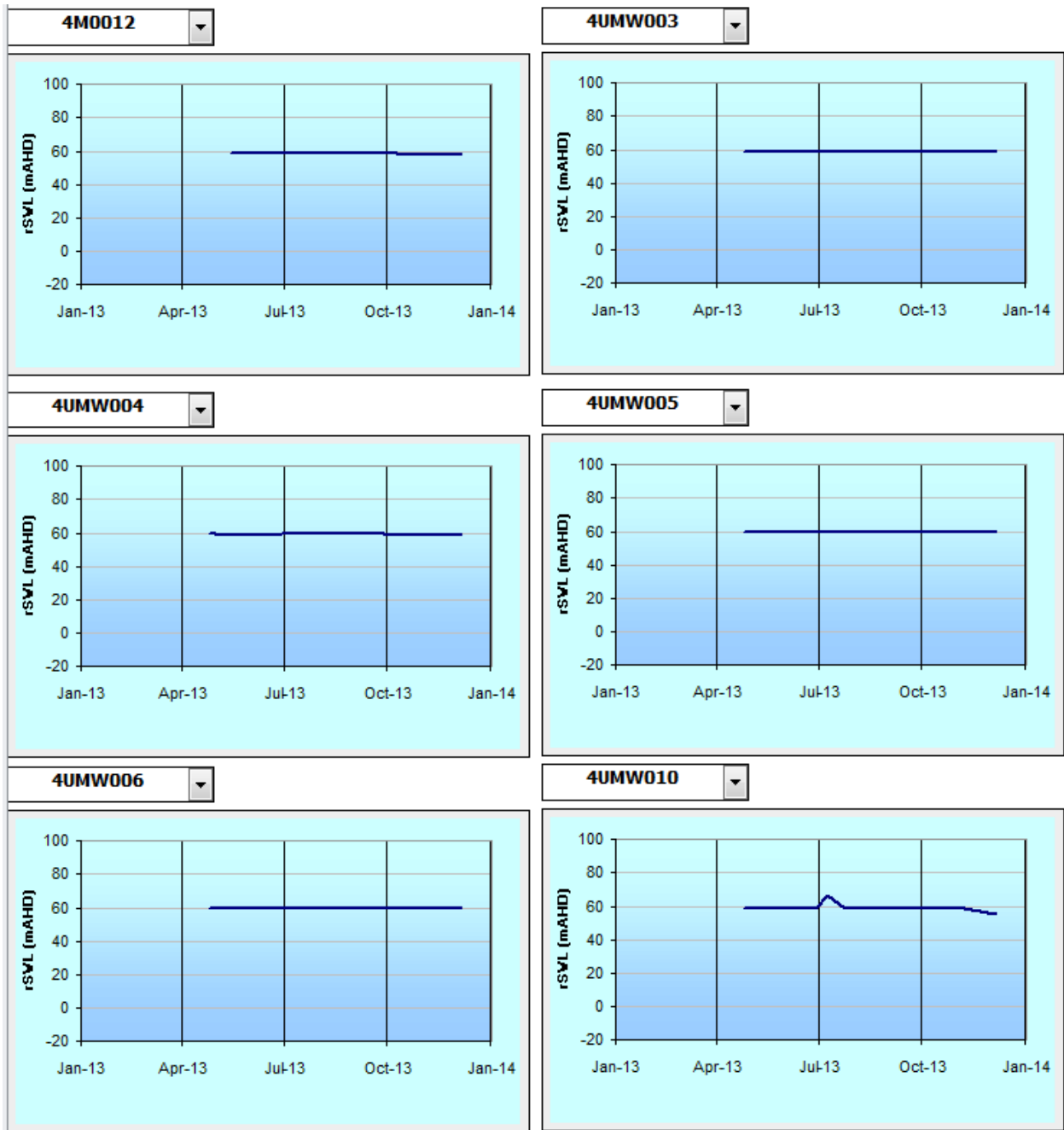
## **Appendix D: Overlying Monitor Well Chemistry Graphs– Namba Formation**

### Four Mile Monitor Well Water Chemistry Graphs – Namba Overlying



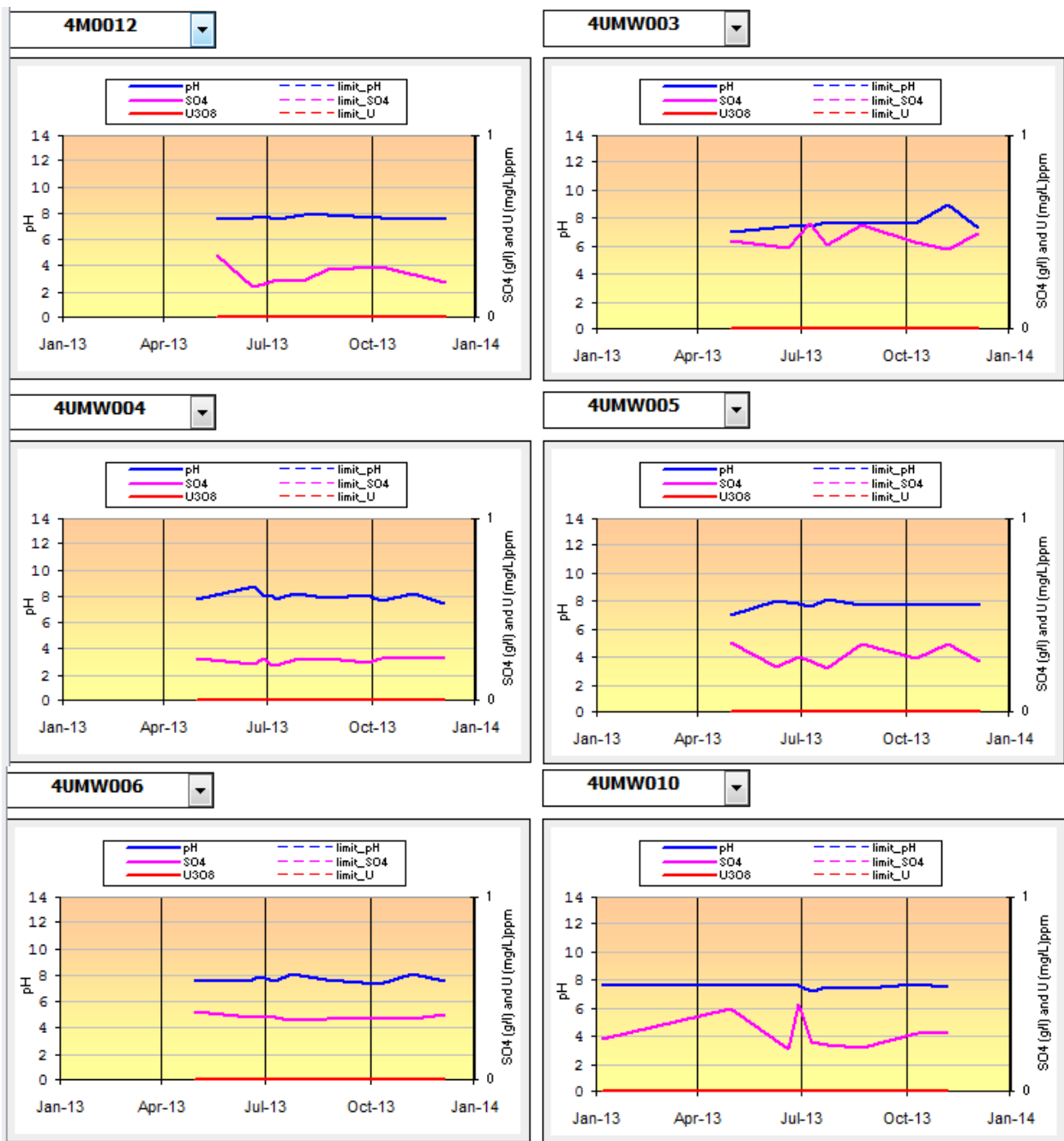
**Appendix E: Underlying Monitor Well Level Graphs – Mt Painter Group Fractured Rock**

### Four Mile Monitor Well Water Level Graphs – Mt Painter Group Fractured Rock



**Appendix F: Underlying Monitor Well Chemistry Graphs – Mt Painter Group Fractured Rock**

### Four Mile Monitor Well Water Chemistry Graphs – Mt Painter Group Fractured Rock



**Appendix G: Status of Obligations, Four Mile ML 6402**

Obligation Origin	Condition		Status of Obligations
State (PIRSA/DMITRE) Approval: First Schedule	1	Mining operations authorised by this Lease must only be for the recovery of uranium as outlined in the mining lease proposal document dated 7th January 2009 and subsequent response document dated 19th March 2009.	Compliant. Mining operations have not yet commenced.
	2	The Lessee is authorised under section 10A(1) of the <i>Mining Act 1971</i> to conduct mining operations to recover radioactive minerals	Compliant.. Mining operations for the recovery of radioactive minerals have not yet commenced.
	3	The Lessee is authorised by the Minister under section 10A(4) of the <i>Mining Act 1971</i> to dispose and sell radioactive minerals	Compliant. Mining operations for the recovery of radioactive minerals have not yet commenced.
	4	In accordance with Regulation 86(1)(a) the Lessee must provide a Compliance report every year, within 2 months after the anniversary of the date the Lease was granted, or at some other time agreed with the Minister	Compliant. The first compliance report is due 31 March 2014
	5	The Lessee agrees to the approved Program for Environment Protection and Rehabilitation (PEPR) (section 70B(5)) and any Compliance or Incident report submitted in accordance with Regulation 86 or 87 being made available for public inspection	Accepted.
	6	In accordance with Regulation 90(1) the Lessee must, prior to commencing operations under this Lease and for the duration of the Lease, maintain public liability insurance to cover all operations under the Lease in the name of the Lessee for a sum not less than \$50 million or such greater sum as specified by the Minister, and make such amendments to the terms and conditions of the insurance as the Minister may require	Compliant. Mining operations have not yet commenced.
	7	In requesting a review of the bond required under the <i>Mining Act 1971</i> the Minister may request that written quotes from an independent third party approved by the Minister are obtained by the Lessee for the cost of rehabilitating the site to the requirements specified in the approved Program under Regulation 65(2)	Accepted. No request was made during reporting period.
State (PIRSA/DMITRE) Approval: Second Schedule - Soil	1	The Lessee must, in constructing and operating the Lease ensure that soil affected by mining activities is suitable for a return to pre-mining use.	Accepted. Fulfilled through PEPR obligations.
State (PIRSA/DMITRE) Approval: Second Schedule - Radiation	2	The Lessee must, in constructing and operating the Lease, ensure that there are no adverse impacts to the environment due to radon release, uranium-bearing materials, or radiological aspects of seepages and spills.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
State (PIRSA/DMITRE) Approval: Second Schedule – Native Vegetation	3	The Lessee must, in constructing and operating the Lease, ensure no permanent loss of abundance or diversity to native vegetation on or off the Lease area through: <ul style="list-style-type: none"> <li>• clearance</li> <li>• dust contaminant deposition</li> <li>• fire or</li> <li>• other damage</li> </ul> unless prior approval under the <i>Native Vegetation Act 1991</i> is obtained.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.

Obligation Origin	Condition	Status of Obligations
State (PIRSA/DMITRE) Approval: Second Schedule - Weeds and Pests (feral animals)	4  The Lessee must, in constructing and operating the lease ensure no introduction of new species of weeds <sup>26</sup> , plant pathogens or pests (including feral animals), nor increase in abundance of existing weed or pest species in the lease area compared to adjoining pastoral properties.  <sup>26</sup> Weeds are defined in this condition as any invasive plant that threatens native vegetation in the local area or any species recognised as invasive in South Australia.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
State (PIRSA/DMITRE) Approval: Second Schedule – Surface Water	5  The Lessee must in constructing and operating the lease ensure no compromise of pastoral use of downstream surface water bodies.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
State (PIRSA/DMITRE) Approval: Second Schedule - Groundwater	6  The Lessee must, in constructing and operating the lease, ensure that there is no compromise to the environmental values of the Willawortina aquifer, should it be saturated.	Compliant for construction phase during reporting period. Mining operations have not yet commenced. Noting that the Willawortina is unsaturated in the FME mining area and most Willawortina wells on the Four Mile ML do not meet stock water quality guidelines (Section 6.5.8.4 of the Beverley North MARP 2011).
	7  The Lessee must, in constructing and operating the lease ensure that there is no compromise to the environmental values of the Namba aquifer.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
	8  The Lessee must, in constructing and operating the lease ensure that there is no compromise to the environmental values of the Eyre Formation aquifer outside the mining lease.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
	9  The Lessee must, in constructing and operating the lease ensure that there is no compromise to the environmental values, or reduction in aquifer pressure of the Mt Painter Group of the Fractured Rock aquifer.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
	10  Mining of ore along a Lease boundary such that mining fluids may transgress into another Mining Lease also granted for the purposes of Uranium mining in the Eyre Formation may, on application, be approved by the Director of Mines, subject to: 1 An agreement between the adjoining tenement holders to the satisfaction of the Director of Mines, and 2 Approved updated PEPRs for both tenements.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
State (PIRSA/DMITRE) Approval: Second Schedule - Native Fauna	11  The Lessee must in constructing and operating the lease ensure that there are no net adverse impacts from the site operations (including fire) on native fauna abundance or diversity in the lease area and in adjacent areas.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
State (PIRSA/DMITRE) Approval: Second Schedule - Aboriginal Heritage	12  The Lessee must, in constructing and operating the Lease, ensure that there is no disturbance to Aboriginal artefacts or sites of significance unless prior approval under the relevant legislation is obtained	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
State (PIRSA/DMITRE) Approval: Second Schedule – Public Safety	13  The Lessee must, in constructing and operating the Lease, ensure that unauthorised entry to the site does not result in any public injuries or deaths that could have been reasonably prevented.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.

Obligation Origin	Condition		Status of Obligations
State (PIRSA/DMITRE) Approval: Second Schedule – Protection of Third Party Property	14	The Lessee must, in constructing and operating the Lease, ensure that there is no unauthorised damage (including that caused by fire) to adjacent public or private property and infrastructure.	Compliant for construction phase during reporting period. Mining operations have not yet commenced
State (PIRSA/DMITRE) Approval: Second Schedule – Closure and Rehabilitation	15	The Lessee must demonstrate to the satisfaction of the Director of Mines that the following mine closure outcomes (in so far as they may be affected by mining operations) are expected to be achieved and sustained after mine closure: <ul style="list-style-type: none"> <li>a. No compromise to the environmental values of the Namba aquifer.</li> <li>b. No compromise to the environmental values of the Eyre Formation.</li> <li>c. No change, outside of natural background variation, to the pre-mining water quality and aquifer pressure of the Mt Painter Fractured Rock aquifer.</li> <li>d. The external visual amenity of the site is acceptable as determined by the Director of Mines in consultation with relevant stakeholders.</li> <li>e. The risks to the health and safety of the public and fauna are as low as reasonably achievable.</li> <li>f. Re-establishment of the pre-mining ecosystem and landscape function.</li> </ul>	Compliant for construction phase during reporting period. Mining operations have not yet commenced thus obligations of the PEPR/RWMP are fulfilled.
State (PIRSA/DMITRE) Approval: Second Schedule – 2	16	The Lessee must, within 10 years of the cessation of mining, demonstrate performance against approved closure criteria such that the outcomes listed under "Closure and Rehabilitation" in Condition 1 will be achieved	Compliant for construction phase during reporting period. Mining operations have not yet commenced thus obligations of the PEPR/RWMP are fulfilled.
State (PIRSA/DMITRE) Approval: Second Schedule - Waste disposal and hazardous substances	17	The Lessee must, in constructing and operating the Lease, ensure that all commercial or industrial waste is disposed of in accordance with relevant legislation	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
State (PIRSA/DMITRE) Approval: Second Schedule – Community Consultation	18	<ul style="list-style-type: none"> <li>a. The Lessee must take responsibility for establishing and implementing a Community Engagement Plan for the term of the Lease to the satisfaction of the Director of Mines.</li> <li>b. The Community Engagement Plan must comply with the requirements approved by the Director of Mines.</li> </ul>	Compliant for construction phase during reporting period. Fulfilled through PEPR obligations
State (PIRSA/DMITRE) Approval: Second Schedule – Landholder Liaison	19	The Lessee must ensure that the occupier of the land is fully advised of their program of activities, particularly in regard to the impact of operations on the land and rehabilitation progress.	Compliant for construction phase during reporting period. Mining operations have not yet commenced. Fulfilled through PEPR obligations

Obligation Origin	Condition		Status of Obligations
State (PIRSA/DMITRE) Approval: Second Schedule – Leading Indicators	20	The PEPR must include additional leading indicator criteria for the following outcomes: a. Ensure that soil affected by mining activities is suitable for a return to pre-mining use. b. Ensure that there is no compromise to the environmental values of the Namba aquifer. c. Ensure that there is no compromise to the environmental values of the Eyre Formation. d. Ensure that there is no compromise to the environmental values, or reduction in pressure of the Mt Painter Fractured Rock aquifer.	Compliant for construction phase during reporting period. Mining operations have not yet commenced. Fulfilled through PEPR obligations.
Federal Approval Conditions - 1	1	1. The person taking the action must ensure that the action does not result in any: (a) Adverse impacts on other existing users of water from the Great Artesian Basin.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
	2	(b) Reduction in the Environmental Values of the Willawortina, Eyre Formation, Namba or Mt Painter Group Fractured Rock aquifers outside the Four Mile Mining Lease.	Compliant for construction phase during reporting period. Mining operations have not yet commenced. Noting that the Willawortina is unsaturated in the FME mining area and most Willawortina wells on the lease do not meet stock water quality guidelines (Section 6.5.8.4 of the Beverley North MARP 2011).
	3	(c) Reduction in aquifer pressure of the Mt Painter Group Fractured Rock aquifer (in order to protect the Paralana Hot Springs).	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
	4	(d) Permanent loss of abundance or diversity of native vegetation on or off the Four Mile Mining Lease through clearance, dust or contaminant deposition, fire or other damage unless prior approval under the relevant legislation is obtained.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
	5	(e) Net adverse impacts (including from fire) from the site operations on native fauna abundance or diversity in the Four Mile Mining Lease areas and adjacent areas	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
	6	(f) Introduction of new weeds, plant pathogens or pests (including feral animals), or increase in abundance of existing weed or pest species in the Four Mile Mining Lease compared to adjoining pastoral areas.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
	7	(g) Disturbance to Aboriginal artefacts or sites of significance unless prior approval under the relevant legislation is obtained.	Compliant for construction phase during reporting period. Mining operations have not yet commenced. No heritage listed sites identified on ML 6402 during construction phase in reporting period.
	8	(h) Compromise of pastoral use of downstream surface water bodies.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
	9	(i) Soil affected by mining activities being unsuitable for return to pre-mining land use following mine closure	Compliant for construction phase during reporting period. Mining operations have not yet commenced.

Obligation Origin	Condition		Status of Obligations
	10	(j) Adverse impacts to the environment from radiological aspects of the action.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
Federal Approval Conditions - 2	11	The person taking the action must not dispose of any unauthorised waste within the Four Mile ML.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
Federal Approval Conditions - 3	12	<p>The person taking the action must develop a Monitoring and Management Plan to measure the achievement of each outcome in Condition 1. The Monitoring and Management Plan must specify:</p> <ul style="list-style-type: none"> <li>a. criteria to demonstrate the clear and unambiguous achievement of the outcomes in Condition 1</li> <li>b. the parameters to be monitored</li> <li>c. how frequency of monitoring will be determined</li> <li>d. the responsibility for interpreting the monitoring results</li> <li>e. the threshold triggers and the response activities that will be implemented if a threshold is reached.</li> <li>f. the trigger levels at which mining must cease until approval is obtained from the Minister to recommence.</li> <li>g. an outline of control and management strategies that may be used to achieve the groundwater outcomes in Condition 1.</li> <li>h. reporting arrangements to management, external stakeholders and the public, including procedures for reporting non-compliance.</li> </ul> <p>The Monitoring Plan must also include a program for obtaining monitoring data to validate predictions of enhanced natural attenuation of mining fluids and determine the impact of groundwater flush.</p> <p>The action cannot commence operation until the Monitoring Plan is approved by the Minister. The approved Monitoring Plan must be implemented.</p>	Compliant for construction phase during reporting period. Mining operations have not yet commenced thus obligations of the PEPR/RWMP are fulfilled.

Obligation Origin	Condition	Status of Obligations
Federal Approval Conditions - 4	<p>13</p> <p>(i)The person taking the action must develop a Mine Closure and Completion Plan for the Four Mile Lease (the Mine Closure Plan). The Closure Plan must demonstrate that the following outcomes, in so far as they may be affected by mining operations, will be achieved indefinitely post mine closure:</p> <ul style="list-style-type: none"> <li>a. No change, outside of natural background variation, to the water quality of the Namba and Mt Painter Fractured Rock aquifers.</li> <li>b. No reduction in the Environmental Values of the Eyre Formation aquifer.</li> <li>c. No change, outside of natural background variation, to the aquifer pressure in the Mt Painter Fractured Rock aquifer.</li> <li>d. The health and safety of the public and fauna are not compromised.</li> <li>e. Ecosystem and landscape function is resilient, self-sustaining and indicating that the pre-mining ecosystem and landscape function will ultimately be achieved.</li> </ul> <p>The action cannot commence operation until the Mine Closure Plan is approved by the Minister.</p> <p>(ii)The Mine Closure Plan must be revised by the person taking the action prior to mine closure to take into account the results of the monitoring in Condition 3 to validate predictions of enhanced natural attenuation of mining fluids. The revised Plan must be submitted to the Minister for approval. The revised Mine Closure Plan must:</p> <ul style="list-style-type: none"> <li>(a) Specify closure criteria that will be used to demonstrate the clear and unambiguous achievement of the closure outcomes;</li> <li>(b) Show how closure criteria can be achieved within 10 years of the cessation of mining;</li> <li>(c) Include a program for monitoring progress towards achievement of closure criteria;</li> <li>(d) Include remedial actions to be taken in the event that monitoring demonstrates that closure criteria will not be achieved in the 10 year period.</li> </ul> <p>The revised Mine Closure Plan must be submitted to the Minister for approval. The approved revised Mine Closure Plan must be implemented until the Minister is satisfied that the closure criteria have been achieved</p>	<p>Compliant for construction phase during reporting period. Mining operations have not yet commenced thus obligations of the PEPR/RWMP are fulfilled.</p>
Federal Approval Conditions - 5	<p>14</p> <p>To secure compliance with Condition 3 and 4 of this approval, the person taking the action must, before commencing operation of the mine, comply with any requirement under the relevant approval granted by the government of South Australia to provide a bond in accordance with s 62 of the <i>Mining Act 1971</i> (SA).</p>	<p>Bond has been lodged in accordance with <i>Mining Act</i>. Mining operations have not yet commenced.</p>

Obligation Origin	Condition		Status of Obligations
Federal Approval Conditions - 6	15	<p>To secure compliance with Conditions 3 and 4 of the approval;</p> <p>(a) If at any time the Minister determines in writing that he is not satisfied that either the Monitoring and Management Plan or the Mine Closure Plan is not being or will not be implemented, the Minister may require the person taking the action to provide a bond in favour of the Commonwealth for the full cost of rehabilitation liability.</p> <p>(b) The Minister may vary the bond amount required under Condition 6(a) to cover the full cost of rehabilitation liability at any time.</p> <p>(c) In providing for or varying a bond amount in accordance with Condition 6 (a) and 6(b), the Minister may request that the person taking the action obtain written quotes for the cost of rehabilitation liability under the Mine Closure Plan from a third party approved by the Minister.</p> <p>(d) The person taking the action must meet all the charges and costs in obtaining and maintaining the bond.</p> <p>(e) The bond shall not be returned to the person taking the action unless and until the Minister is satisfied that the closure criteria specified in the approved Mine Closure Plan have been achieved</p>	No such determination made by the Minister. Compliant for construction phase during reporting period. Mining operations have not yet commenced.
Federal Approval Conditions - 7	16	The person taking the action must prepare a Community Engagement Plan to enable open dialogue with stakeholders on compliance with the approval conditions. The action cannot commence operation until the Community Engagement Plan is approved by the Minister. The Community Engagement Plan must be implemented.	Compliant for construction phase during reporting period. Mining operations have not yet commenced. Fulfilled through PEPR obligations in Chapter 4 of PEPR.
Federal Approval Conditions - 8	17	Within 14 days of commencement of the action, the person taking the action must advise the Department of the actual date of commencement.	Compliant for construction phase during reporting period. Mining operations have not yet commenced.
Federal Approval Conditions - 9	18	Within three months of every anniversary of the commencement of the action, or by a date otherwise agreed by the Minister, the person taking the action must provide a report to the Department addressing compliance with the conditions of this approval. The person taking the action must ensure that the report is publicly available on the internet within 30 days of it being submitted to the Minister. Reports must be provided until the Minister is satisfied that the closure outcomes in Condition 4 have been met	Compliant. First MARCR is due 31 March 2014.
Federal Approval Conditions - 10	19	If at any time after five years from the date of this approval, the Minister notifies the person taking the action in writing that the Minister is not satisfied that there has been substantial commencement of the action, the action must not thereafter be commenced without the written agreement of the Minister.	Compliant. No such notification made by the Minister during reporting period.
Federal Approval Conditions - 11	20	Upon the direction of the Minister, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.	Compliant. No such direction received during reporting period.

Obligation Origin	Condition		Status of Obligations
Federal Approval Conditions - 12	21	If the person taking the action wishes to carry out any activity otherwise than in accordance with the Plans referred to in Conditions 3, 4 and 7, the person taking the action must submit a revised Plan for the Minister's approval. If the Minister approves the revised Plan submitted, the person taking the action must implement this Plan instead of the Plan originally approved.	Compliant. No such amendments have been submitted.
Federal Approval Conditions - 13	22	If the Minister believes that it is necessary or desirable for the better protection of the environment to do so, the Minister may request the person taking the action to make specified revisions to the Plan approved pursuant to Conditions 3, 4 and 7, and to submit a revised Plan for the Minister's approval. The person taking the action must comply with any such request. If the Minister approves the revised Plan pursuant to this paragraph, the person taking the action must implement this Plan instead of the Plan originally approved.	Compliant. No such request made during reporting period.
Federal Approval Conditions - 14	23	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the above conditions of approval, and make them available upon request to the Department. Such records may be subject to audit by the Department and used to verify compliance with the conditions of approval	Compliant. Records have been maintained during reporting period. No request for production of records made by Department during reporting period.

Obligation Origin	Condition		Status of Obligations
Federal Approval Conditions - other	24	<p>In addition to the above conditions, the following Commonwealth condition applies to those construction works to be undertaken (for the Four Mile project) on the Beverley ML.</p> <p>The person taking the action must ensure that the action, and any other activity it undertakes on the Beverley Mining Lease, achieves the following outcomes (in so far as they may be affected by mining operations):</p> <ul style="list-style-type: none"> <li>a. No compromise to other existing Great Artesian Basin users within the Beverley mine region.</li> <li>b. No compromise to pastoral use of the Willawortina aquifer.</li> <li>c. No compromise of potential pastoral use (should it meet pastoral water quality standards) of the Namba aquifer outside the Beverley mining lease.</li> <li>d. No loss of abundance or diversity on or off the Beverley mining lease to native vegetation through clearance or other damage unless prior approval under relevant legislation is obtained.</li> <li>e. No net adverse impacts from the site operations on native fauna abundance or diversity in the lease area and adjacent areas.</li> <li>f. No introduction of new weeds, plant pathogens or pests (including feral animals), or increase in abundance of existing weed or pest species in the lease area compared to adjoining pastoral areas.</li> <li>g. No uncontrolled fires caused by mining operations.</li> <li>h. No disturbance to Aboriginal artefacts or sites of significance unless prior approval under the relevant legislation is obtained.</li> <li>i. No compromise of pastoral use of downstream surface water bodies.</li> <li>j. Soil affected by mining activities is suitable for return to pastoral use.</li> <li>k. No adverse impacts to the environment due to radon release, uranium-bearing materials, or radiological aspects of seepages and spills.</li> <li>l. No contamination of land and soils either on or off the site caused by waste products and hazardous materials used in the mine operations that would compromise a return to pastoral use</li> </ul>	Compliant for Four Mile-related construction phase on the Beverley ML during reporting period.

Obligation Origin	Condition		Status of Obligations
<p>Licence to Carry out Mining or Mineral Processing Conditions State EPA – Radiation Protection Branch</p> <p>Note: The Licence to Carry out Mining or Mineral Processing relating to Four Mile (LM7) was issued in June 2013 and is currently held by Heathgate Resources Pty Ltd.</p>	<p>1</p>	<ol style="list-style-type: none"> <li>1. A plan showing areas in which new wellfield development is planned in the next licence period;</li> <li>2. Any significant changes in the plant layout, major equipment or processes introduced during the preceding period;</li> <li>3. Estimates of the quantities of radioactive wastes produced in the previous licence period;</li> <li>4. An updated Radiation Management Plan (RMP) and Radioactive Waste Management Plan (RWMP), highlighting any changes.</li> </ol>	<p>Compliant for construction phase during reporting period. Mining operations have not yet commenced.</p>