

Memorandum

TO: WATER ADVISORY & REGULATORY OFFICER, KATHERINE
DATE: 08/02/2013
THROUGH:
FILE REF: KLR2012/0279-0030
FROM: WATER RESOURCES PLANNER, DARWIN
SUBJECT: GROUNDWATER EXTRACTION LICENCE TLAM05 INCREASE
 LINDSAY & BETTINA MACFARLANE
 NT PORTION 6403, MATARANKA

CURRENT SITUATION

An application has been received from Lindsay & Bettina MacFarlane for an increase in groundwater extraction licence TLAM05 (currently 500ML/yr) to a total of 5,800ML/yr on NT Portion 6403, Mataranka for the beneficial use of agriculture.

Details of the application are as follows:

Licence:	TLAM05
Licensee/ applicant:	Lindsay & Bettina MacFarlane
Land Parcel:	NT Portion 6403, Mataranka
Parcel Area:	95 square kilometres 15 hectares
WCD:	Daly Roper
Aquifer:	Tindall Limestone Aquifer (Mataranka)
Beneficial Use:	Agriculture
Entitlement:	5,800ML/yr
Bore/s:	RN34505 plus a number of proposed bores
Period of use:	Ten year licence requested

BACKGROUND

A water allocation plan for the Tindall Limestone Aquifer, Mataranka is yet to be declared. Until the plan is declared, the water allocation framework is used to determine the sustainability of the allocation of licence entitlements. Under this framework, no more than 20% of the sustainable yield for a resource can be allocated for consumptive use.

Modelling has been undertaken to determine the impacts of granting a 5,800 ML licence application adjacent to Elsey National Park in the Tindall Limestone Aquifer, Mataranka draft planning area.

Legislative Assembly of the Northern Territory

TABLED DOCUMENTS

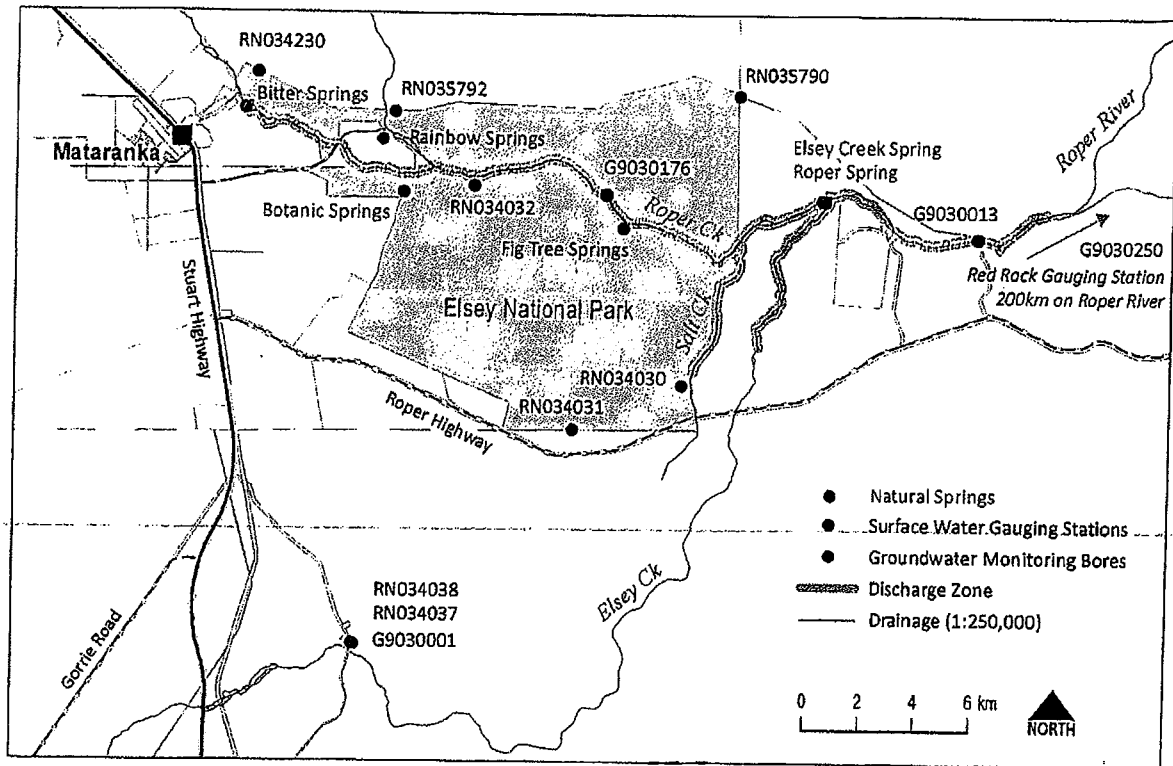
Committee: *Estimates*

Paper No: *10-3* Date: *18/6/14*

Submission No: *Walk...*

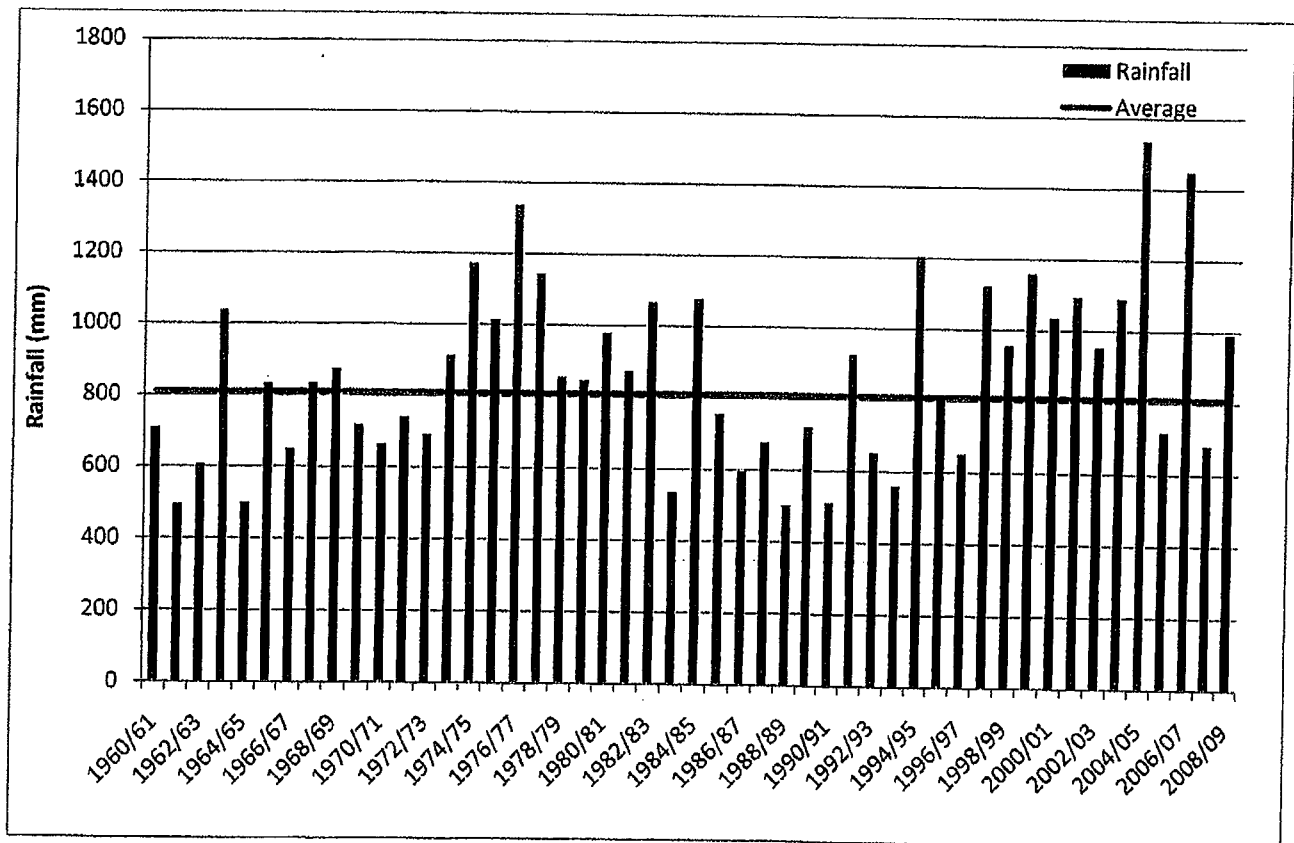
Prepared: *[Signature]*

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Key groundwater monitoring bores and surface water gauging stations for planning in the Mataranka Area.

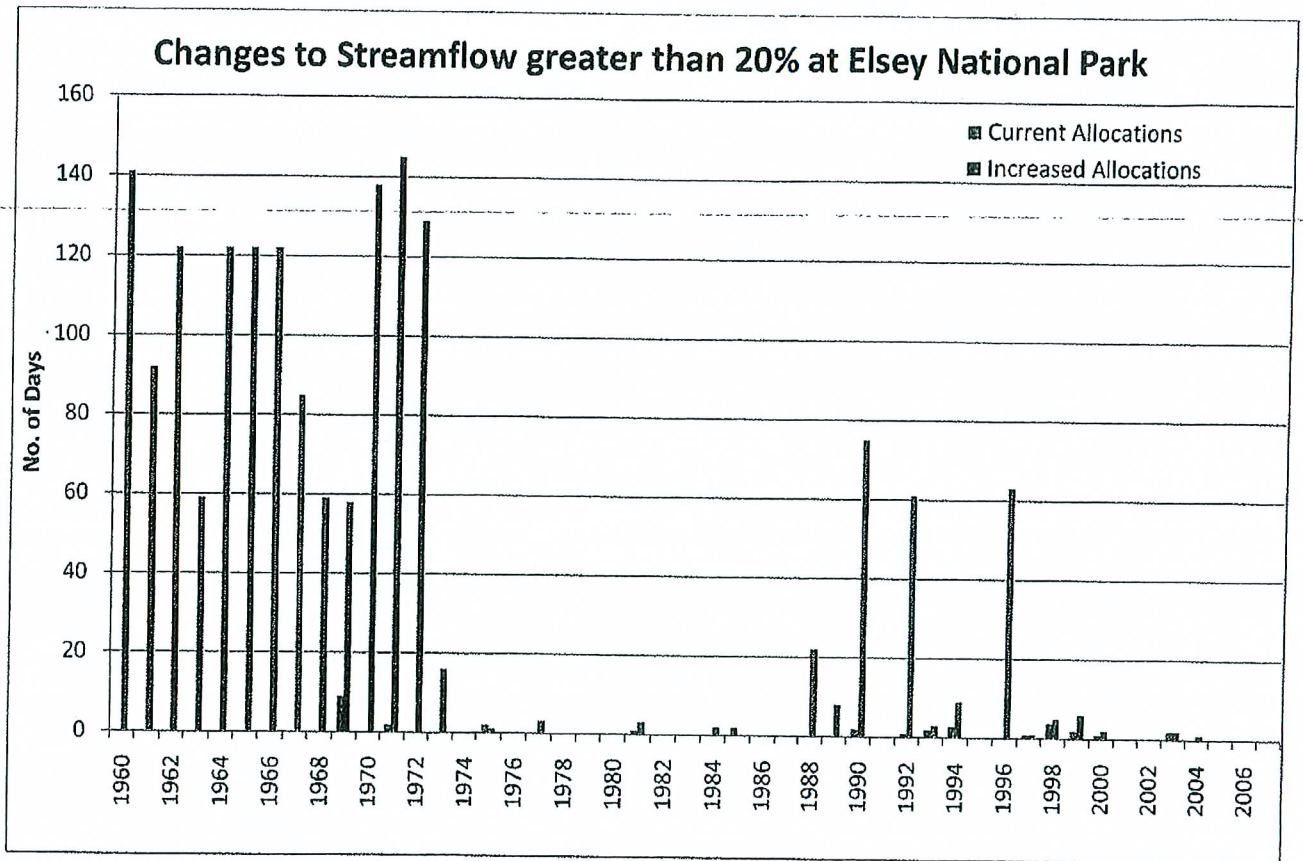
The mean annual rainfall in Mataranka is 810mm, but varies across the region on a seasonal basis depending on localised storm events. Over 90% of Mataranka's rainfall occurs between November and March.



Average Annual Rainfall for Mataranka

Changes to streamflow have been modelled for Elsey National Park, Elsey Homestead, Moroak, Judy Crossing and Red Rock. The late dry season (August to December) period has been used to determine the effects on current extraction, and the impact of granting increased entitlement.

The number of days whereby the impact to streamflow is greater than 20% at Elsey National Park increases quite considerably with the increase in licensed entitlements. Whilst this is more prevalent in earlier years which received average or below average rainfall, the effect is still evident in years of increased rainfall.

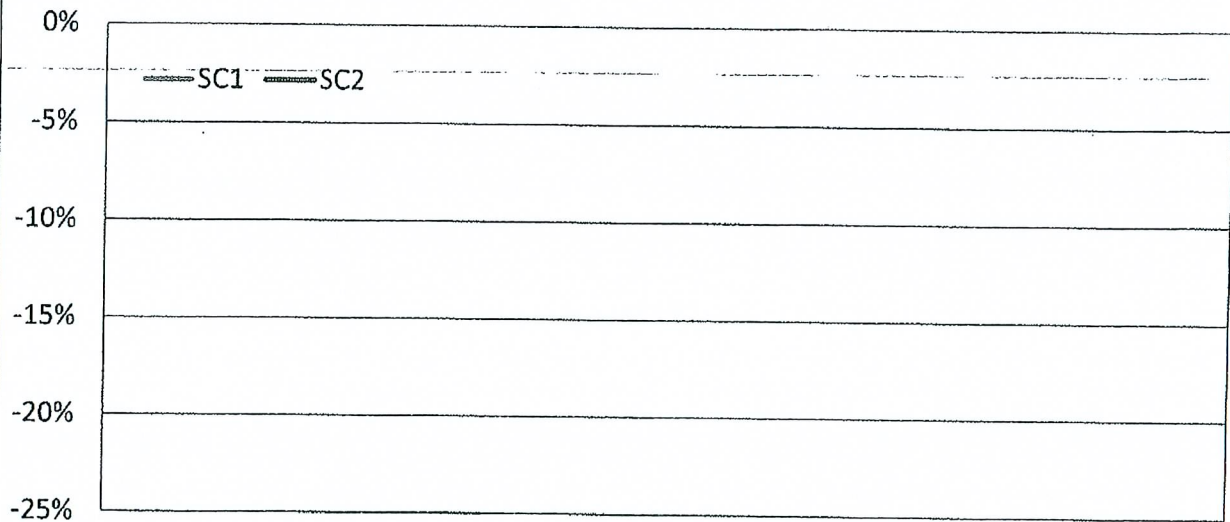


Bitter Springs

There is an impact on flow rate at Bitter springs due to the increased allocation. Although this impact is less than 20% in recent years of above average rainfall, there is a doubling of the impact, with flows reduced by a further 5% due to an increase in licenced entitlement.

In periods of low recharge, the impact of increased extraction causes the flow rate to decrease by more than 20%. If climate conditions similar to that of the 1960's were to return, there is likely to be detrimental effects to the flow at Bitter springs under an increased allocation scenario.

Percentage drop in flow rate at RN03423 (Bitter Springs) for SC1(current use) and SC2 (new proposed extractions) scenarios

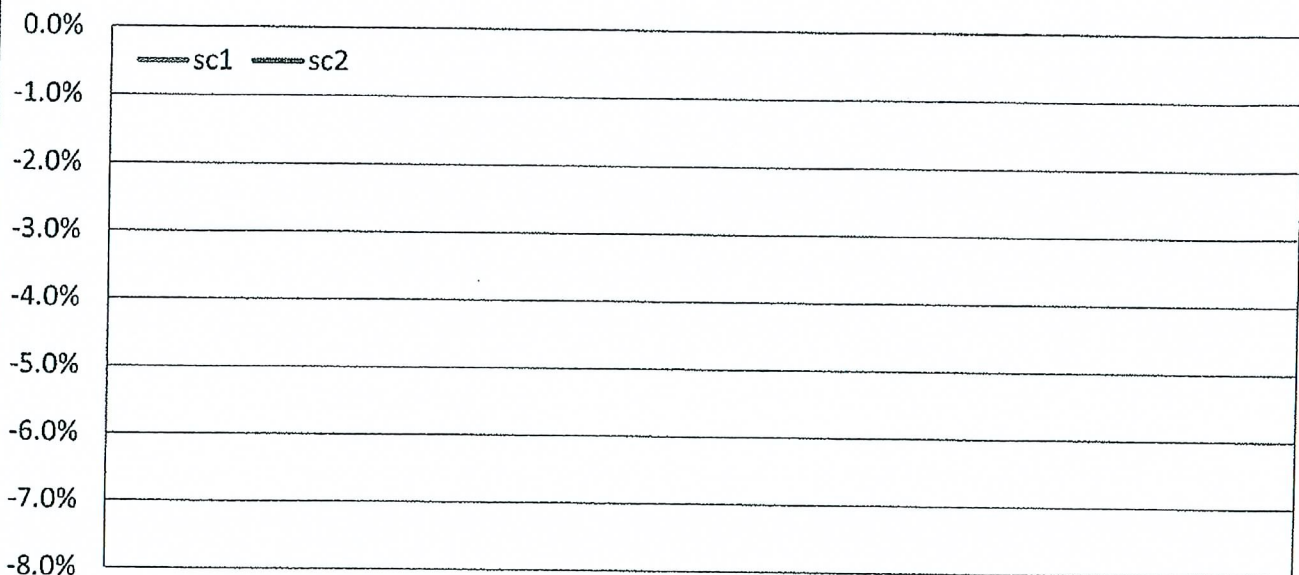


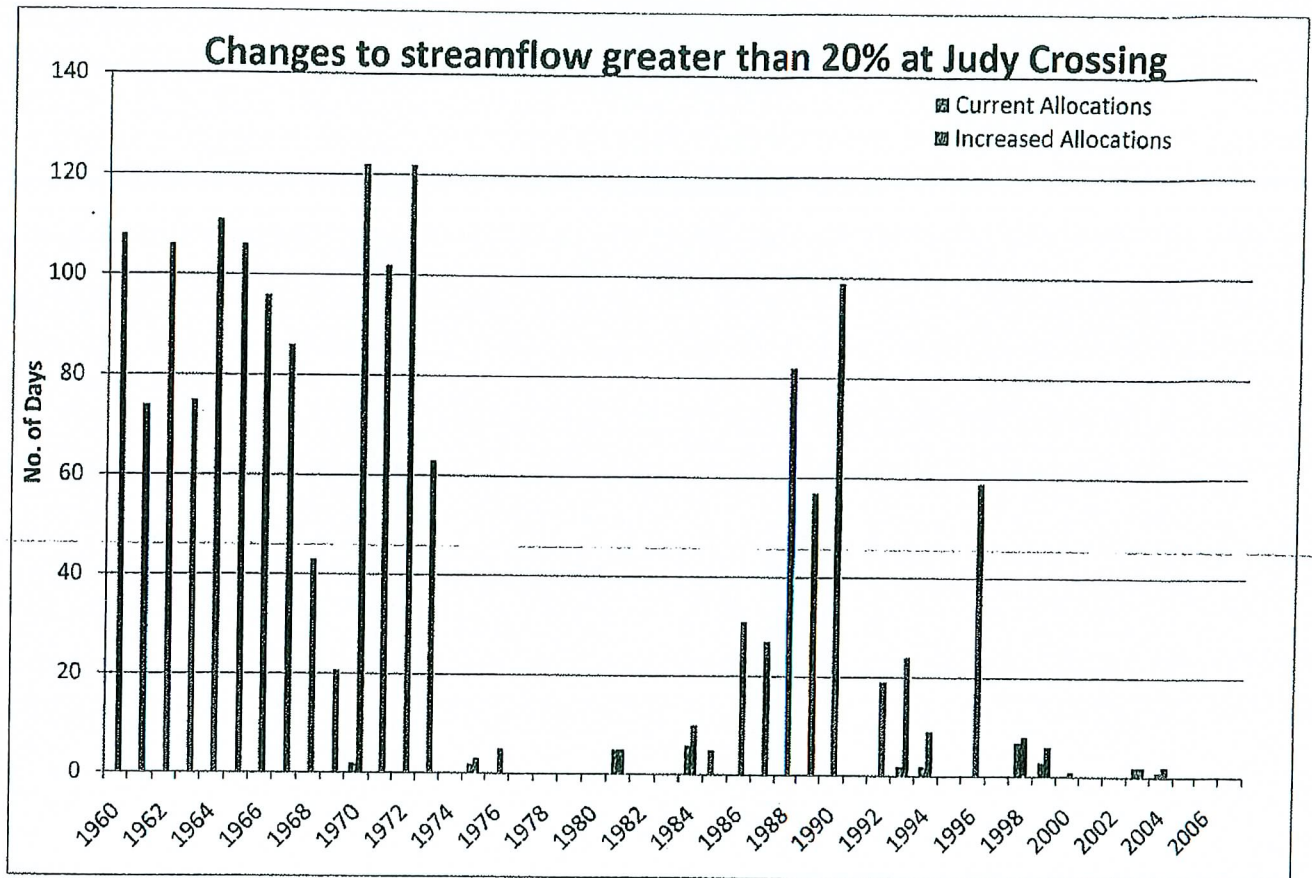
Rainbow Springs

An increase of licence extraction would also lead to a doubling of the percentage drop in flow rate at Rainbow Springs. The change in flow rate which may cause other impacts to the springs, such as a deterioration of the springs from a tourism, ecological and cultural perspective is unknown.

It may be acceptable to allow this decrease in flow rate, however, further work needs to be undertaken to ascertain the minimum flow rate required to maintain the springs for all purposes.

Percentage drop in flow Rate at RN035796 (Rainbow Springs) under SC1 (current use) and SC2 (new proposed extarctions) scenarios

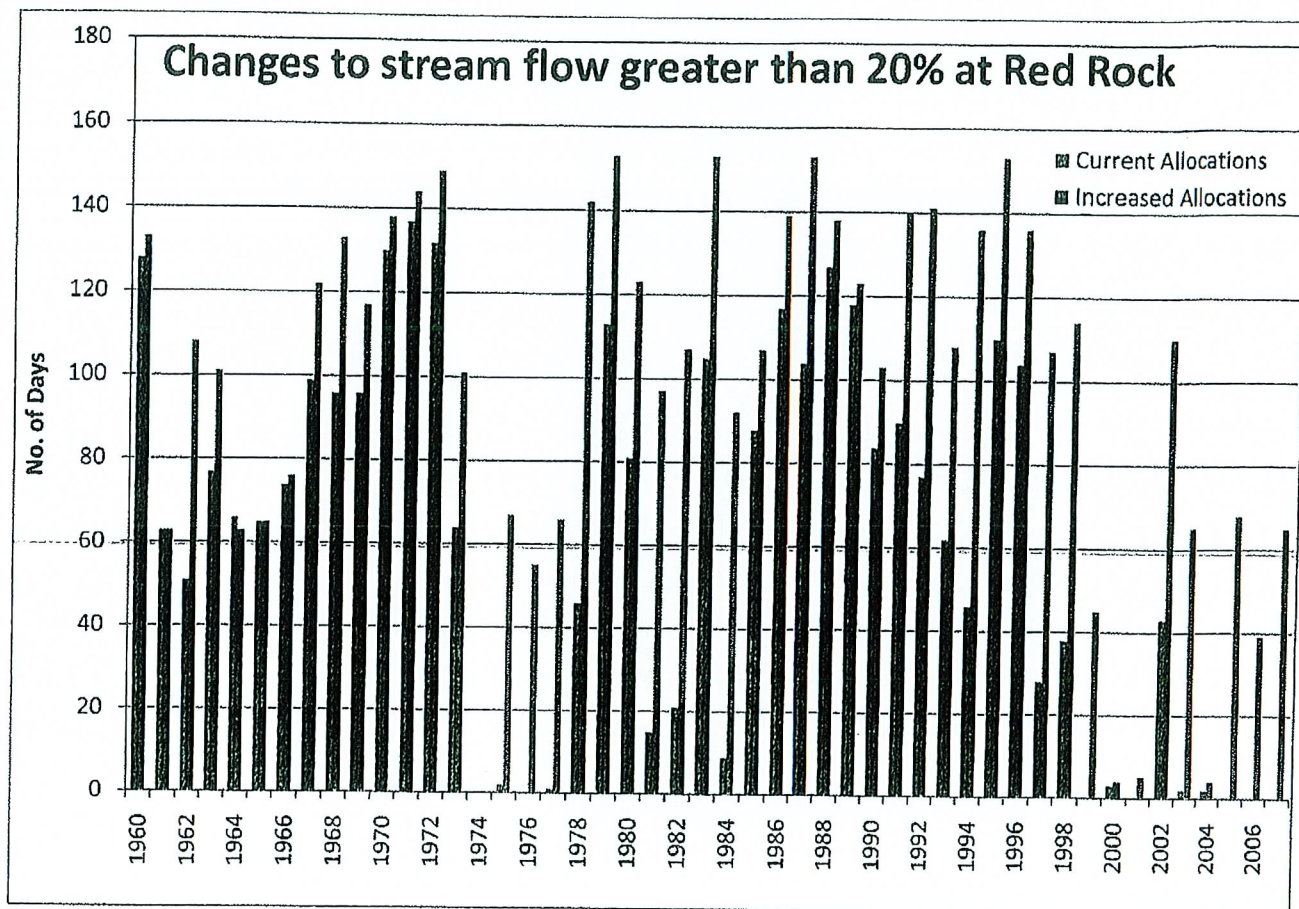




Judy Crossing

An increase of the number of days with changes to streamflow greater than 20% may also impact on the SIL Ilmenite project. The impact of increased entitlement on this project has not been fully investigated.

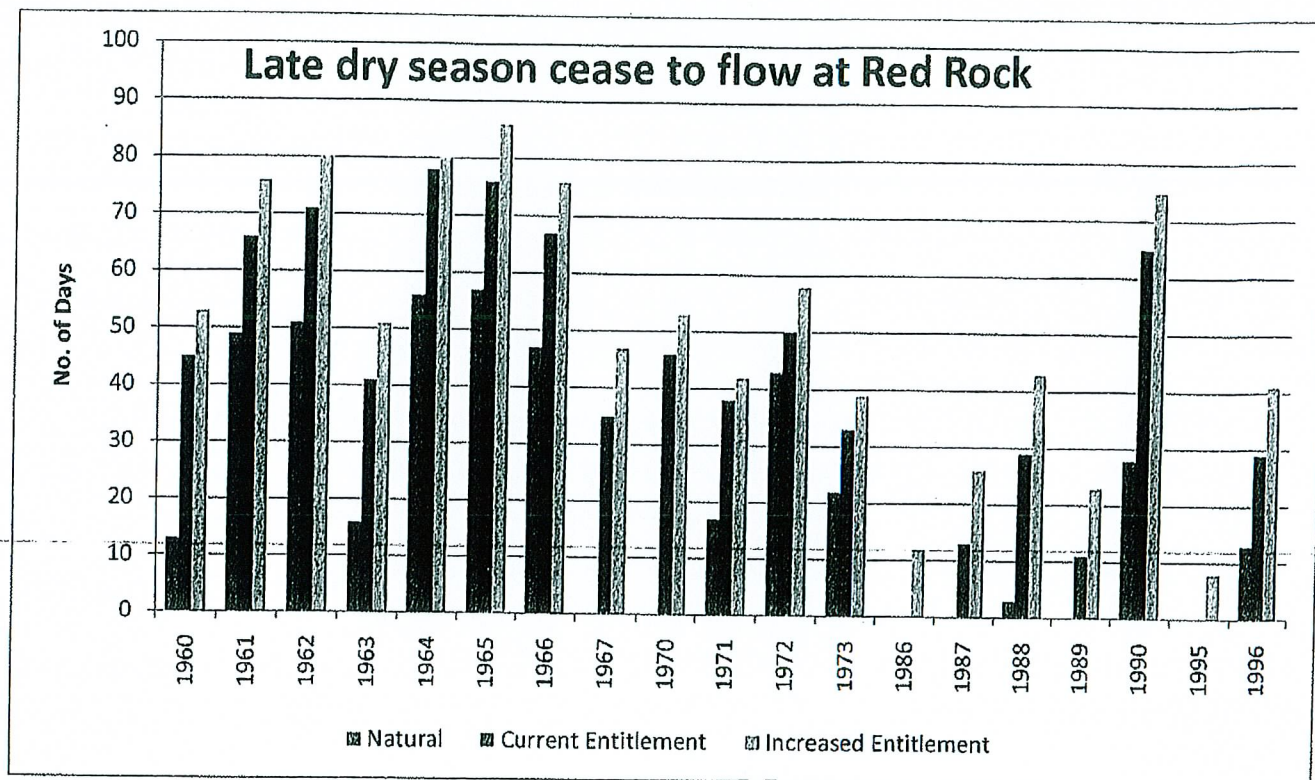
Assessment of the SIL80 project have led to a determination that extraction for the project has to cease when flow at Judy Crossing falls below 9 cumecs. An increase of the licenced extraction upstream may increase the frequency of this occurring.



Red Rock

An increase in licenced entitlement will lead to an increase in the number of days that streamflow is decreased by 20%.

The number of days where Red Rock ceases to flow in the late dry season (August to December) increases under increased extraction granted outside of a water allocation plan.



An increase in the number of cease to flow days at Red Rock could have implications for the town water supply at Ngukurr. Currently, water is sourced from the Roper River, downstream of Red Rock. An increase in the number of days where the Roper River ceases to flow could cause an increase of salinity in the pool where town water supply is sourced.

In successive years of low rainfall, such as the 1960's, the salinity levels of the pool at Ngukurr have increased, making this an unsuitable for public water supply. It is unknown how long this takes to occur.

The salt water interface is located at 9km upstream of Kangaroo Island. In order to maintain the location of the saltwater interface, required inflow is 85ML/day (roughly one cumec).

Pumps used to supply town water to Ngukurr were turned off in August last year for the first time in eight years. This was due to anecdotal reports of increased salinity in drinking water by residents.

Power and Water are planning to develop a third borefield for the Ngukurr township. These bores will be located SW of the town in the Mt Birch Sandstone aquifer close to the river, which is proven to be connected to the river. Power and Water have indicated that they have concerns for an increase extraction which could lead to an increase of frequency and duration of salinity events affecting public water supply.

Current licence holders have commented on this application, and the issues across all responses were:

- The proposed extraction is adjacent to Elsey National Park which has significant Groundwater Dependent Ecosystems such as springs. Reduced flows may impact on the environmental, cultural and recreational values attributed to these assets.
- This single application is more than the total of all current existing licences, and double the amount of water which was extracted from the aquifer in 2011/12.
- The granting of licence applications should be staged in line with development.

- The equity of granting a large licence to one applicant whilst other landholders have refrained from submitting licence applications whilst the planning process is underway.
- The water allocation planning process is well underway for the Tindall Limestone Aquifer, Mataranka, and all applications (including this one) should be assessed against the criteria set out in the plan.

RECOMMENDATION

Options

Decline application

- water planning process underway, new licences to be issued when the plan is declared under the rules of the plan.
- The impact of increasing extraction is not sustainable outside the plan. The impacts to streamflow are greater than 20%, and the frequency of change to streamflow is increased, as is the number of days that cease to flow occurs at Red Rock.

Grant a conditional licence

- Full allocation as requested is declined. An incremental allocation dependent on proven water supply is given, however, a smaller licence has been issued previously, and is yet to be used.
- Conditions on trade may be imposed (currently trading outside a plan is not allowed, with only transfer of licence available).
- Assess application under plan conditions -- ie staged development, and general reliability allocation.

The preferred option is to assess the application under draft water allocation plan rules to ensure that development is sustainable, fair and equitable.

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MARDI MILES
WATER RESOURCE PLANNER

/ / 2013