



Santos

Rehabilitation Project – Progress Update

12 Feb 2013

Overview

- Rehabilitation Goals
- Rehabilitation Process
- Achievements to date
 - Excess Ponds
 - Lease Sites
- Work in progress – Dieback
- Future plans
- Summary

Rehabilitation goals

Prior to undertaking new work, SANTOS is committed to resolving the legacy issues.

We have committed approx. \$20M towards the following goals;

- Operations improvements
- Mitigate against future environmental issues
- Reduction of environmental footprint
- Remediation of impacted vegetation
- Return abandoned sites to “self sustaining” state
- Significant local industry involvement

Rehabilitation process

Carrying out successful rehabilitation of sites is a complex process. It takes considerable time and has various stages:

- Detailed studies of the existing site and historical practices
- Development of rehabilitation plans and analytical testing
- Regulatory review of the scope of work for each site
- Procurement of contractors
- Execution of work
- Validation of work conducted
- Close-out



Achievements to date

- In the last 6 months:
 - Over 30 hectares of land in the Pilliga have undergone some kind of rehabilitation
 - Emptying, backfill and soil treatment of 4 ponds, 9 sumps and 9 flare pits (22 in total) has been completed
 - 37 individual sites / leases have under gone / commenced some form of rehabilitation (5 x full rehab, 27 partial, 5 x dieback)
 - Over \$5m spent with local contractors

Excess ponds

- A number of ponds and sumps were surplus to needs
- Work has recently been completed at Bohena 3, Bohena 6, Bohena South, Dewhurst and Bibblewindi
- Execution included:
 - Dewatering of the existing ponds and transporting of water to Bibblewindi 3
 - Treatment of sediment in the ponds and transporting it to licensed landfill in Newcastle for proper disposal
 - Removal of the pond liners and similar disposal in Newcastle
 - Earthworks to till gypsum into the soil & return the area to its original contours
 - In some cases organic mulch has been spread to promote growth

Bohena 3

Before – 26 April 2012



After – 20 Nov 2012



- Rehabilitation began at Bohena 3 in October 2012
- Work completed 23 November 2012

Bohena 6

Before – 26 April 2012



After – 31 Jan 2013



- Initial rehabilitation was conducted at Bohena 6 in Q2 2012
- Final rehab completed in Jan 2013

Bohena South

Before - 14 Mar 2012



During - 22 Nov 2012



After - 14 Dec 2012



- Preliminary work commenced 5 November 2012
- Work completed by 14 Dec 2012

Dewhurst 8 pond

Before - 17 July 2012



After - 30 Jan 2013



- The Dewhurst ponds and sumps were located on private land and have been decommissioned according to landholder requests
- Work completed on 1 Feb 2013

Dewhurst 13

Before - 17 Jul 2012



After - 30 Jan 2013



- Work commenced 7 Nov 2012
- Work completed 1 Feb 2013

Bibblewindi 13

Before - 16 July 2012



After - 22 Nov 2012



- Rehabilitation activities began at Bibblewindi 13 on 8 October 2012
- Work concluded on 8 November 2012

Lease site rehabilitation

- Lease site rehabilitation includes:
 - Rehabilitation of previously over-cleared land
 - Rehabilitation of historical well pads and removal of sumps
 - Well decommissioning
 - Monitoring progress of sites which have undergone rehabilitation
 - Follow up review and monitoring of previously rehabilitated sites
- Regrowth on some older Bohena sites has not progressed as expected, so follow up work was conducted to encourage natural re-growth

Bohena 5

Before - 5 Sep 2012



After - 22 Jan 2013



- Wellhead decommissioning was completed in August 2012
- Site rehabilitation completed in December 2012

Work in progress - dieback areas

Water with high salt concentrations has impacted nearby vegetation at:

- Some legacy Bohena well sites
- Bibblewindi Water Treatment Facility



- Bibblewindi – Commenced 26 Oct 12. Earthworks estimated completion March 2013
- Bohena – Commenced 14 Jan 13. Earthworks estimated completion March 2013

Dieback soil treatment

- Using the results of extensive trials and testing, dieback areas are treated as follows;
 - Removal of dead vegetation (safety concerns) – used later
 - Removal of heavily impacted soil
 - Earthworks to improve drainage and site contours
 - In-situ chemical treatment of impacted and affected soils
 - Re-spread retained topsoil
 - Addition of organics to soil
 - Re-spread retained timber
 - Assisted re-vegetation
 - Ongoing irrigation and monitoring

Future Plans – rehabilitation of wells

- A thorough review of wells in the Pilliga area was undertaken in 2012.
- A plug and abandon strategy and an execution plan prepared on the 45 existing wells.
- Fifteen wells are planned to be reconditioned for future use.
- The 30 other wells will be plugged, abandoned and the sites rehabilitated, as they are no longer required under Santos' plans.
- With only about 50 new wells planned over Santos' entire NSW acreage over the next three years, the rehabilitation of 30 existing wells will significantly streamline our operational footprint.

Well abandonment process

Bohena 5

Before - Sep 12



During - Oct 12



After - Jan 13



Summary

- Significant progress has been made resolving legacy issues.
- More work is scheduled as we decommission old wells and facilities.

Questions?

Back-Up Slides

Marking out impacted areas



Soil stockpiles



Soil stockpiles



Soil stockpiles



Soil stockpiles



Excavated area being treated



Gypsum spread on excavated area

