QCA review of irrigation prices

Supplementary information

Response to issues – operating cost forecasts

September 2011

Contents

1. Introduction

The QCA has engaged Halcrow, Arup, Aurecon and GHD (the consultants) to review SunWater's expenditure forecasts, excluding indirect and overhead costs and insurance. In undertaking this review, the consultants made various comments about the methods used by SunWater to forecast its operating expenditure (opex), and in particular the line items 'operations', 'preventative maintenance' and 'corrective maintenance'.

In some instances, the consultants have commented that they are unable to draw conclusions as to the prudency and efficiency of these opex forecasts.

SunWater has been provided with these reports and has been asked to comment on these findings by the consultants.

The purpose of this paper is to provide this response and is structured as follows:

- Section 2 describes the structure and level of SunWater's cost data,
- Section 3 provides a description of SunWater's forecasting methodology;
- Section 4 responds to the findings of the consultants, in particular that there was insufficient information to make an assessment of prudence and efficiency; and
- Section 5 presents a conclusion.

This paper does not attempt to address the range of detailed issues raised in each consultant's report, and it should be noted that SunWater disputes a number of those detailed findings and intends to respond separately to the QCA. SunWater has also responded separately to issues raised for electricity forecasts, and hence this paper only discusses the non-electricity opex forecasts.

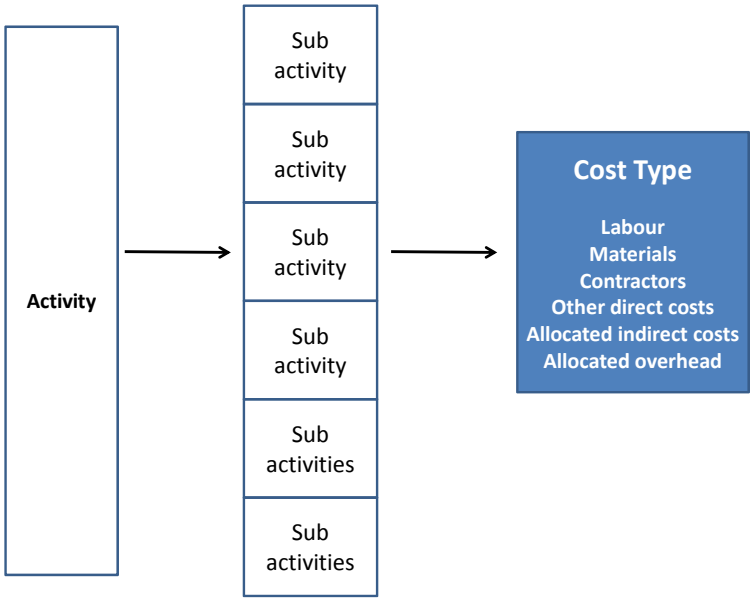
2. Information provided by SunWater

This section outlines the historic data that is recorded by SunWater and the level at which it forecasts expenditure into the future.

Data structure – historic costs

SunWater records historic cost data by sub-activity and cost type (refer below).

Figure 1. Data structure – historic costs



The activity and sub-activity structure is:

- The operations activity comprises nine sub activities:
    - Customer management;
    - Workplace health and safety;
    - Environmental management;
    - Water management;
    - Scheme management;
    - Dam safety;
    - Schedule and delivery;
    - Metering;
    - Facilities management.
- The preventative maintenance activity comprises three sub activities:
    - Condition monitoring
    - Servicing
    - Weed control
- The corrective maintenance activity comprises two sub activities:
    - Unplanned maintenance; and
    - Emergency maintenance

SunWater provided historic data at this level to each consultant.

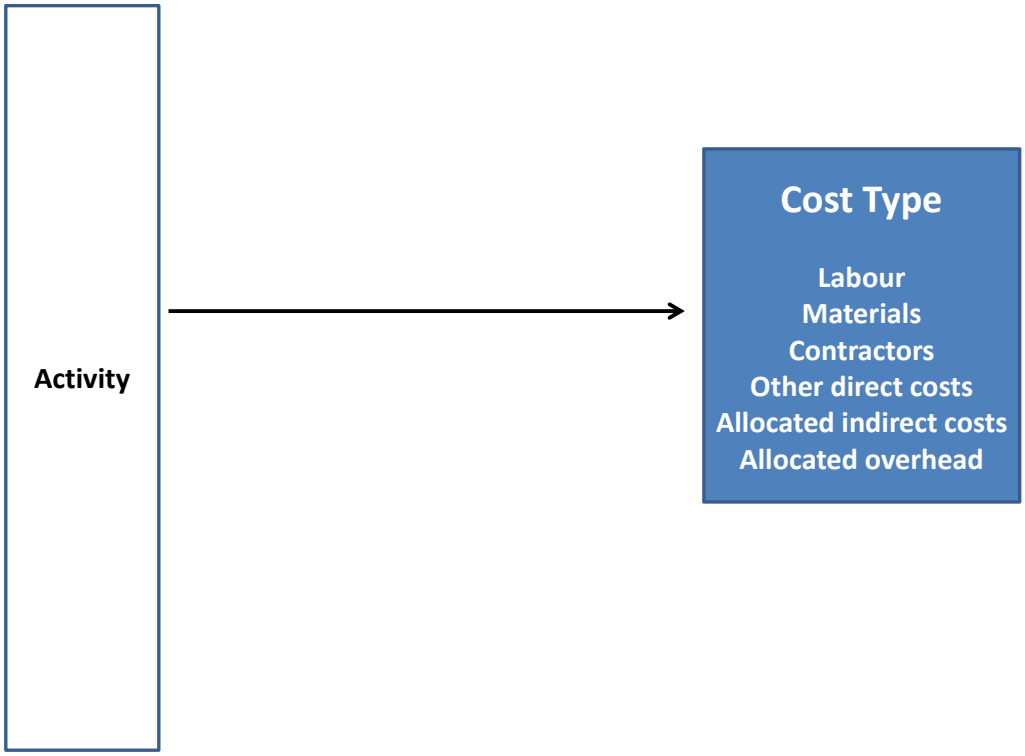
Data structure – forecast expenditure

SunWater's forecasts have been presented by activity and cost type. Importantly, SunWater has forecast its costs at the activity level, and not the sub-activity level. That is, costs are forecast according to:

- Operations
- Preventative Maintenance
- Corrective Maintenance

SunWater's forecasts are also expressed by cost type. The figure below sets out the data structure.

Figure 2. Data structure – forecast expenditure



This is more detailed than the data provided in the Network Service Plans (NSPs) as it shows the cost types that comprise each activity. This data has also been provided to consultants.

Rationale for forecasting at the activity level

SunWater's business model involves the sharing of resources across a range of different activities.

For example, there is not a dedicated workforce to the sub-activity 'metering' or 'scheme management' or 'schedule and deliver'. The workload within each activity will change year on year, depending on operational circumstances. For example scheme management costs will be far higher in years when flooding occurs, activating Emergency Action Plans and requiring 24 hour surveillance at the dam. Similarly, if a

drought occurs and water is limited, the costs for the 'schedule and deliver' sub activity may be higher as there will be more intense management of water releases, increased surveillance of water use etc.

Similarly, operations staff are often called upon to perform maintenance activities or work on renewals projects. For example, if water demands are low, then operations staff can be re-deployed to undertake maintenance or renewals activities. Moreover, periods of low demand provide a window of opportunity to perform maintenance or renewals without interrupting supplies to customers. This also explains why some sub-activities may appear to vary with water demands, however the operations and maintenance costs as a whole do not.[1]

This has important consequences for the resourcing of the operations and maintenance activities. Many water supply schemes involve only a handful of employees involved in all or nearly all operational sub activities, as well as corrective and preventative maintenance. For example, in the South region, most water supply schemes have only one or two employees who carry out tasks across all activities and sub activities, and may also work on renewals projects from time to time. The table below provides an illustration for South Region (refer also to Attachment 2).

Table 1. Direct employees in South Region, scope of activities or sub activities

Water Supply Scheme or Distribution System	**Direct employees**	**Range of activities/ sub activities**
Macintyre Brook WSS	1 Storage Supervisor 1 Operator	Operations Corrective maintenance Preventative maintenance
Upper Condamine WSS	1 Storage Supervisor 1 Senior Operator 2 Operators	Operations Corrective maintenance Preventative maintenance
Maranoa Weir WSS	No direct employees. Serviced from St George-based operations staff	Operations Corrective maintenance Preventative maintenance
Chinchilla Weir WSS	No direct employees. Serviced from Pittsworth -based operations staff	Operations Corrective maintenance Preventative maintenance
Cunnamulla WSS	No direct employees. Serviced from St George -based operations staff	Operations Corrective maintenance Preventative maintenance
St George WSS	1 Storage Supervisor 2 Operators	Operations Corrective maintenance Preventative maintenance
St George Distribution System	1 Operations Supervisor	Corrective maintenance Preventative maintenance
	1 Senior Operator 2 operators	Operations Corrective maintenance Preventative maintenance

In short, the labour and other resources that comprise the direct operating costs are 'sized' to perform a range of tasks under a range of circumstances. The actual tasks performed change each year.

[1] Or if they do, this is likely to be due to labour resources working on renewals projects in lieu of contractors.

The majority of direct costs examined by the consultants was labour (refer below). To forecast labour costs at the sub-activity level essentially requires a judgement about how a few employees will spend their time across more than nine operating sub activities, as well as any future time spent on maintenance. Nonetheless, SunWater's forecasts allocated these shared labour resources to individual water supply schemes / distribution systems and to the three activities within each. This occurred via the 'Resource Planning Tool" which was applied to assign direct labour costs to routine (operations, preventative and corrective maintenance) and non-routine work (eg renewals) activities. The work instructions for the resource planning tool are described in Attachment 1.

SunWater does not forecast costs at the sub activity level as it is simply not useful or practical to do so, and implies precision that does not exist. Furthermore, forecasting at this level will result in significant errors between sub-activity costs, given the difficulties in predicting work between activities, and the variability of work between years. Rather, SunWater examines the range of activities required and determines the resourcing requirement to perform those activities in aggregate. This approach reflects the operational reality that employees' efforts will move between different activities within years and between years, depending on the prevailing circumstances.

The implications for the Consultants' review of prudence and efficiency are discussed in later sections.

3. Forecasting methodology

This section outlines SunWater's methodology for forecasting operating costs in the NSPs.

Assumptions about the operating environment and forecasting parameters

Section 2 highlighted the challenges for SunWater in forecasting expenditure, namely:

- its workforce is employed across a range of assets, and in various activities; and
- the type of work varies from year to year, depending on climatic and operational circumstances.

In response, SunWater made assumptions about the operating environment over the regulatory period. Given the volatility in seasonal conditions, it was necessary to take a view about the average or typical conditions as the basis for the five-year forecast. This often involved judgements, having regard to the historic operating conditions and costs to inform the forecast. Importantly, this did not involve a rigid process of determining a precise 'typical year', but rather meant that certain forecasting parameters were set, including:

- the pattern of water use (peak flows, peak demand periods etc) will be consistent with past trends;[2]
- the climate in each scheme is for a typical year ie no high rainfall or drought conditions
- climatic conditions result in expected environmental conditions and impacts with respect to water quality, weed growth, erosion and other impacts on infrastructure;
- asset performance is consistent with no unexpected major breakdowns or system failures experienced; and
- work load is consistent with yearly trend.

The characteristics of this 'typical year' for forecasting purposes are not precise, and were not documented. However, this was not necessary as the purpose of the forecasting parameters was to ensure that the costs presented were not based on the extreme operating conditions that can be experienced.

Key forecasting assumptions

The methodology used to forecast the costs examined by the consultants is set out below.

[22] Water demand was only relevant when forecasting electricity costs, as variation in demand on a monthly, quarterly or annual basis does not affect non-electricity opex in aggregate.

Direct Labour

Direct labour is the largest operating cost examined by the consultants, comprising around 60% of all proposed expenditure (excluding electricity).

There are three elements to SunWater's direct labour assumption:

- total amount of labour;
- the unit cost of labour; and
- how and where that labour will be applied.

First, SunWater's direct labour forecast assumes the continuation of the number of positions / employees as at 1 July 2010, throughout the regulatory period, unless there was an identified need for additional operations staff in which case this was identified.

SunWater then calculated the unit cost of labour in accordance with its Enterprise Bargaining Agreement (EBA). An hourly charge out rate was determined for various positions/employees.

SunWater forecast annual increases to this rate in accordance with the EBA until it ends, and then at CPI thereafter (2.5%).

SunWater then reviewed how and where the labour would be applied.

In some cases, the labour force was employed for work across a number of different water supply schemes or distribution systems. Through a workshop process, SunWater forecast the proportion of time (or number of hours) that the workforce would spend in each. This forecast was made having regard to historical data, but was essentially forward looking based on expectations about where those labour resources would be applied into the future. This required management judgement. The rationale for the decision for each employee was not documented at the time.

SunWater then made a forecast for the types of activities that those employees would carry out in each scheme. As set out above, these forecasts were made at the activity level only. For preventative maintenance, SunWater adopted the labour component recommended by Parsons Brinkerhoff (PB) for preventative maintenance work.

Again, SunWater's assumptions were made through a workshop process with managers, and with reference to how employee time had been used in the past, along with assumptions about how employees' time would be spent, on average, in a typical year.

The outcomes of this process are documented in a resource planning tool (refer Attachment 1). SunWater did not document the rationale for how it has split each individual's time into these activities. In many cases, the forecasts were based on management judgement at the time.

Contractors

Contractor costs comprise around 14% of the costs examined by consultants in aggregate. Preventative maintenance accounts for the vast majority (around 63%) of contractor costs. The contractor component to preventative maintenance costs was drawn directly from the PB recommendations.

For other contractors, SunWater assessed the workload for those contractors and the price for that work, with reference to recent rates and any known price increases.

Materials

Materials costs comprise about 12% of the costs examined (excluding electricity). Preventative and corrective maintenance account for around 90% of materials costs.

The materials cost for preventative maintenance was drawn directly from the PB recommendations, with the balance mostly relating to the chemical costs of acrolein. The cost of acrolein was forecast based on assumption about the number of acrolein cylinders required, and the unit cost of those cylinders.

The table below presents the assumed annual use of acrolein in each system, along with the historic usage for comparison. The assumed cost per cylinder was $6,114, which was the latest price paid when developing the forecast (this price was for 2009).

Table 2. Acrolein costs

Distribution System	**Number of Acrolein Cylinders (200 L) per year**					**Annual Cost 2009 $**
	2007/08 Actuals	**2008/09 Actuals**	**2009/10 Actuals**	**2010/11 Budget**	**Projected Annual Usage**	
Bundaberg	42.5	25	38	42	38	$232,332
Lower Mary	0	0	0	1	1	$6,114
Dawson Valley	0.5	1	1	1	1	$6,114
Emerald	6	3	15	16	10	$61,139
Eton	12	15	17	18	18	$110,050
Burdekin Haughton	23	47	26	35	35	$213,986
Mareeba Dimbulah	0	0	0	0	2	$12,228
TOTAL	**84**	**91**	**97**	**113**	**105**	**$641,963**

The forecasts incorporated specific changes to the use or application of acrolein in each system, for example:

- Lower Mary - Acrolein has not been used in the past in the Lower Mary Distribution System. It was proposed to treat sections of the channels and reservoirs in order to control aquatic weeds and minimise the fouling of water meters by weeds.
- Burdekin Haughton - 35 cylinders of acrolein was projected, including for the Barratta and Haughton Main Channels twice a year, which was not done in past years.
- Mareeba Dimbulah – it was proposed to treat the West Barron Main Channel (B Section) twice a year with acrolein to control aquatic weed. Acrolein had not been used previously.

The price of acrolein increased significantly during the current price path, but has fallen slightly since developing the forecasts to $5,721 per cylinder or a 6.87% decrease from the 2009 rate assumed for the forecast

The materials costs for corrective maintenance were developed based on an historic assessment.

Administration

Administration costs comprise around 7% of the costs examined (excluding electricity). Operations costs account for around 98% of these costs, which predominantly involve rates and land tax for SunWater's land. [3] The forecast rates and land tax costs were based on the 2010 costs, indexed at CPI of 2.5%.

[3] Administration also includes insurance, which was not reviewed.

4. QCA Consultant Questions

The findings of the consultants about SunWater's operating costs can be summarised as follows:

- Halcrow – while commenting there was insufficient data to arrive at definitive conclusions about efficiency and prudency, Halcrow made findings about whether costs were reasonable or not, and identified some cost items that could not be explained (which were consequently excluded). Halcrow then presented, for its cluster, recommended adjustments to the NSP forecasts based on these findings. Most of Halcrow's adjustments related to acrolein costs and unexplained preventative maintenance costs, and its view that contractor and materials costs would not rise above inflation;
- GHD – while commenting that the information provided did not allow a full evaluation of costs, GHD offered a view as to whether the NSP forecasts should be adjusted, based on their examination of the costs and the potential for efficiency gains. Most of the gains recommended by GHD related to automation of the water ordering process in some schemes, and less frequent meter readings[4]. GHD did not quantify these potential gains;
- Aurecon – was unable to validate the prudency and efficiency of the costs comprising the Operations Activity due to data limitations, but did arrive at conclusions for preventative and corrective maintenance (generally finding those costs were prudent and efficient);
- ARUP – while offering some observations about operating costs and cost trends, ARUP did not arrive at any conclusions about operating or maintenance costs on the basis that they could not link forecast costs to work orders (or sub-activities). ARUP also commented that they were not provided with formal criteria regarding prudency and efficiency.

All consultants found that SunWater's operational systems and processes were sound or represented best practice.

The table below provides a summary.

Table 3. Summary of findings

Consultant	Operations	Corrective Maintenance	Preventative Maintenance
Halcrow	Findings about reasonableness	Findings about reasonableness	Findings about reasonableness
GHD	Findings about efficiency gains	Findings about efficiency gains	Findings about efficiency gains
Aurecon	No findings possible, as SunWater did not provide forecasts at sub-activity level	Findings about prudency and efficiency	Findings about prudency and efficiency
ARUP	No findings possible, SunWater did not link	No findings possible, SunWater did not link	No findings possible, SunWater did not

[4] This relied on customers reading their meters monthly, with SunWater performing the quarterly read. GHD noted that this gain could require negotiation with customers and the resource regulator (DERM).

	costs to work orders	costs to work orders	link costs to work orders

The consultants have raised a number of different questions and concerns about the adequacy of the data provided. Two issues in particular have arisen:

- A lack of transparency about how the 'typical year' was developed, and in particular the adjustments made to historic, actual costs;
- Costs for the Operations Activity were presented at too high a level to enable conclusions to be drawn about prudency and efficiency (ie they required forecasts at the sub activity level).

Typical year

Some consultants have interpreted SunWater's forecasting methodology to mean that it was based around a four-year average cost. This appears to be based on SunWater's statement that:

> *The costs for each Activity Type in the NSPs has been based on the costs over the past 4 years (excluding spurious costs) plus or minus any other known changes in costs... Adjustments have been made for the preventative maintenance in line with the Parsons Brinkerhoff report and costs.*

While, SunWater acknowledges that the descriptions it has provided to the consultants could be interpreted that its forecasts are centred on a historic average, the consultants have given too great an emphasis on this 'typical year' concept. For example:

- Aurecon stated that[5]:
    - *the methodology employed of determining forecasts by averaging preceding years cost data is the most appropriate, particularly with modifications for cost out-liers... Aurecon views the greatest challenge to SunWater's methodology... to be the reliability and validity of the historical data used.*
- Halcrow stated that:[6]
    - *... it has been difficult to verify the basis / justification of the adjustments made to the four year average by SunWater when developing forecast expenditures... Halcrow also notes that while forecasts based on historical averages may be appropriate, there is a risk that inefficiencies are carried forward from year to year... In addition, Halcrow notes that SunWater has not adopted a four year average in preparing its budgets in all cases.*

[5] Aurecon (2011). pp23-24
[6] Halcrow (2011) pp18-19

Despite these concerns, SunWater notes that Halcrow was able to form a view about the prudency and efficiency of operating costs, while Aurecon was not.

SunWater acknowledges that its description of how it forecast costs, and the relevance of the 'typical year" could have been more clearly articulated to the consultants. At the same time, the consultants may have given undue emphasis on the 'typical year' in their approach to the review. Despite this, SunWater notes that Halcrow was able to form a view about the prudency and efficiency of the costs through other means.

Details of costs for the Operations Activity

Two of the QCA consultant reports (ARUP and Aurecon) claimed that they were unable to make conclusions about the prudency and efficiency of operating costs, because these costs were not forecast at the sub-activity level.

Halcrow also commented that a definitive assessment of prudence and efficiency has not been possible, and to make such an assessment it would be necessary for it to see detailed activity based budgeting. GHD also commented that SunWater did not provide data to the level of disaggregation requested.

These matters are discussed below.

Determining efficiency at the level of data provided

ARUP made a number of observations that it could not make conclusions because costs were not sufficiently disaggregated, for example in its review of Burdekin-Haughton Bulk Water costs: [7]

> *The information which has been analysed shows the general trends in operational costs but does not associate costs directly with work orders. Therefore the assessment of prudency and efficiency of costs cannot be assessed.*

Aurecon stated that:

> *... SunWater was not able to provide 2011 cost estimates for the sub-activities, which Aurecon views as critical in verifying the prudency and efficiency of these costs.*

In essence, these consultants have concluded that because the forecast costs for the operations activity was not made at the sub-activity level they were unable to assess efficiency or prudency.

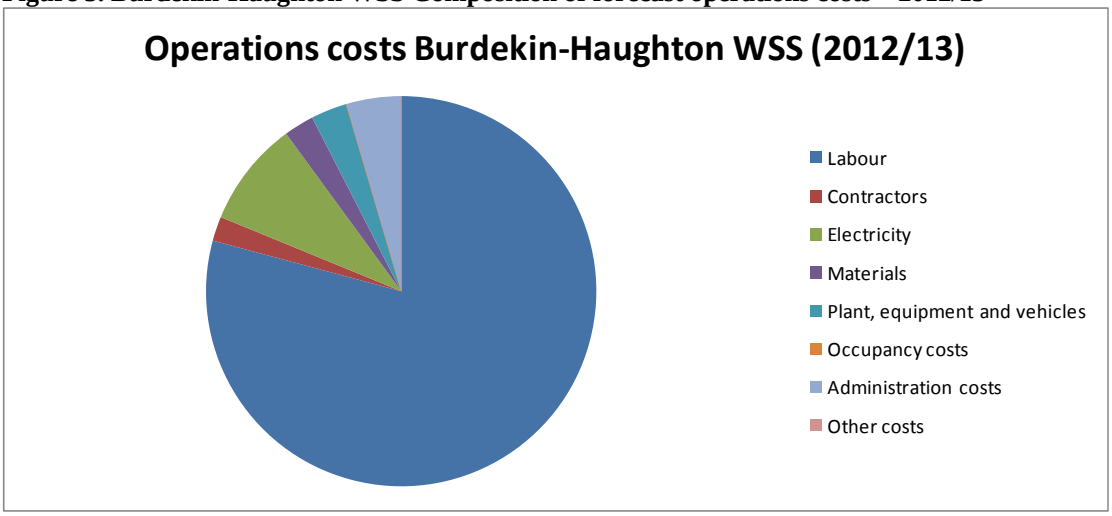
In adopting this approach, these two consultants have failed to recognise the way in which SunWater resources the operations activity, which involves deploying its operational employees to perform a range of activities. This is extremely important as

[7] ARUP (2011). Review of SunWater's Network Service Plans – Cluster 4. Review of NSPs. Final. (p39)

labour was the most significant operations cost, comprising around 60% of the direct costs examined by the consultants.

The Burdekin Haughton Water Supply Scheme is presented below as an example. In this scheme (reviewed by ARUP), labour costs account for 79% of the total operations costs.

Figure 3. Burdekin-Haughton WSS Composition of forecast operations costs – 2012/13



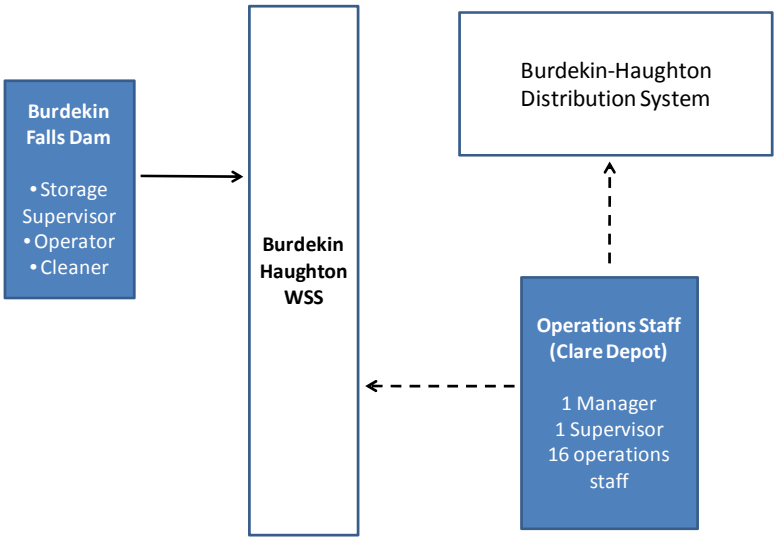
Note: Excludes indirect and overhead costs and insurance that were outside the scope of the consultant's review.

In this scheme, labour for operations activities are drawn from:

- three operations staff employed at Burdekin-Falls Dam, and
- some time, for some of 18 other operations staff who service the distribution system as well as weirs in the water supply scheme.

Figure 4 below provides an illustration.

Figure 4. Sourcing of labour resources for the Burdekin-Haughton WSS



The labour costs for these employees is forecast at the activity level, requiring a split between operations, preventative maintenance and corrective maintenance.

In order to provide data at the sub-activity level for operations, SunWater would need to forecast how its labour costs would be split between the nine sub-activities. In the Burdekin-Haughton WSS, this would require:

- labour costs for employees at Burdekin Falls Dam to be forecast by splitting those costs into nine sub-activities for operations;
- labour costs for employees at the Clare Depot to be split their time between bulk water and distribution (see Attachment 1), and then be split further by sub-activity. This would mean that labour costs for the Clare Depot would be split into 18 different operational sub-activities (9 for bulk water, 9 for distribution) as well as for the five sub-activities that comprise preventative and corrective maintenance.

The task for assigning labour costs for staff whose costs relate to a number of different water supply schemes would become even more onerous. For example, in the Far North, the costs for managerial and technical staff are currently forecast at the activity level for four different water supply schemes and two distribution systems. Forecasting these costs by sub-service would then mean that costs would need to be split into 54 different operations sub activities (9 operations sub-activities @ 6 schemes) alone, as well as by sub-activity for preventative and corrective maintenance.

Given the year-on-year variation that can occur for the workload at the sub-activity level, forecasting at this level of detail can only lead to error or misleading estimates as it requires judgements that cannot be made with any precision.

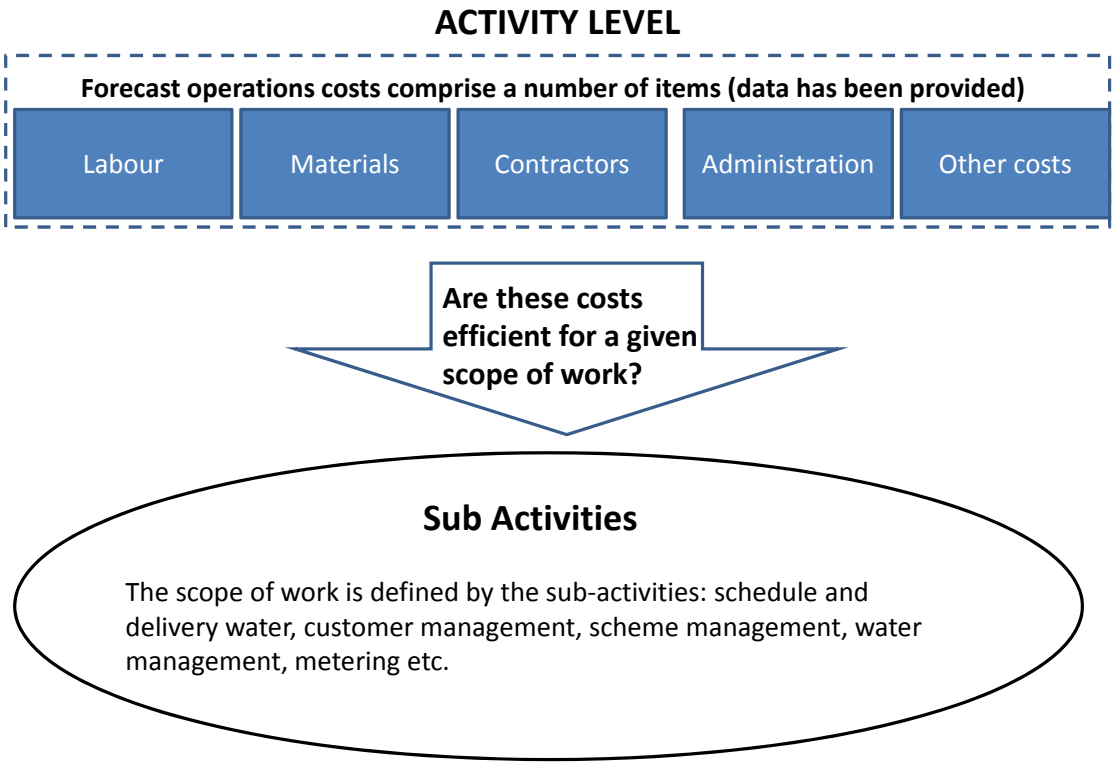
Accordingly, any assessment of labour costs at the sub activity level will inevitably be more to do with the assumptions about how employees' time has been split on sub activities, rather than any meaningful assessment of efficient costs. Consider the case

where the labour costs for one sub activity are found to be inefficient. This may simply be the result of the estimate of how much time a few operations employees will spend on an individual sub activity in a 'typical' year. Consider also an assessment of another sub activity that finds that the labour costs are efficient. Again, this finding may simply be the result of how operations employees' time has been split to that sub activity. This approach will inevitably lead to efficiency assessments 'missing the forest for the trees' and not reflecting the reality that few labour resources are deployed across a wide range of sub activities, and in many cases, different schemes / distribution systems.

Alternative approach

A better approach would be to consider the workload associated with the suite of sub activities that comprise operations, and then assess whether those labour costs are reasonable for that scope. The diagram below provides an illustration of how this approach would be applied.

Figure 5. Alternative approach for assessing operating expenditure



Notably, ARUP did not describe the labour costs and corresponding FTEs that are employed for the operations tasks in aggregate, although this data was available to them.

Moreover, Aurecon and ARUP did not attempt to offer a view about whether the labour or other costs for the aggregate operations activity was prudent or efficient,

In contrast, Halcrow, was able to form a view based on the information provided to them. Halcrow determined (from the data provided to all consultants) the FTEs assigned to the operations activity in each scheme to inform its conclusions about

reasonableness. This enabled Halcrow to offer a view about operations costs in its Biloela cluster:[8]

> *On the basis of the review undertaken, Halcrow is generally satisfied that forecast operating expenditure presented by SunWater in its NSPs for the Biloela schemes is reasonable.*

GHD was also able to reach a number of conclusions about the costs forecast for a given scope of work. For example, GHD was able to arrive at a view about materials and contractor costs in its review of the Toowoomba cluster, where it concluded for a number of schemes:[9]

> *Contractor and materials costs are considered appropriate. This consideration is made understanding that SunWater no longer maintain machinery such as backhoes in the region and rely on contractors. This decision was made on the basis that the utilisation of the equipment did not justify the retention of the equipment. Materials are also considered appropriate. SunWater have advised the main expense in this cost line is for poisons for weed management.*

GHD also commented about the labour requirements at certain schemes. For example, at St George GHD noted that "it is clear that the management and maintenance of the scheme is labour intensive. Daily interventions are required to release the required water volumes."[10]

In closing, SunWater does not accept that ARUP or Aurecon did not have sufficient information to form a view about the proposed operations expenditures, as these consultants have not sought to adapt their approach to the available information as Halcrow, and to a lesser extent GHD, have done.

Corrective and preventative maintenance

Some consultants questioned how the corrective and preventative maintenance forecast were derived, and in particular how the outcomes of the PB review were implemented.

For example, Halcrow noted that PB made a suite of recommendations to improve the effectiveness of preventative maintenance practices, and commented that SunWater intended to act on those recommendations. Halcrow noted that "the forecast expenditure in the NSPs do not reflect any savings that might be achieved as a result of their implementation".[11]

Halcrow sought to verify that the maintenance costs in the NSPs aligned with the costs recommended by PB, and concluded that the NSP costs were higher.

[8] Halcrow (2011). p247
[9] GHD (2011). For example, p57
[10] GHD (2011). P82
[11] Halcrow (2011). p22.

The scope of the PB engagement was to:

- Identify all preventative maintenance (condition monitoring and servicing) work instructions currently in use
- Identify associated costs for plant, labour, materials and subcontractors to enable a calculation of a total cost for each in use work instruction
- Develop a cost matrix to capture all relevant data as provided by SunWater and associated costs relating to each work instruction, which in turn could be use as an input to provide annualised planned preventative maintenance costs for each water supply scheme and distribution system
- Assess the level of confidence of SunWater's planned preventative maintenance baseline costs

As part of this process PB provided a cost template (Excel spreadsheet) for known and planned preventative maintenance costs including confidence rating (high level assessment) of the planned preventative maintenance baseline costs.

SunWater used PB's spreadsheet to compare to the costs that were to be included in NSPs. Where discrepancies were found, SunWater met with PB to discuss and resolve those discrepancies (except for those that were not material). This spreadsheet was the basis for the preventative maintenance costs used in each NSP, and also formed the basis of the components to the costs (ie labour, materials and contractors). This spreadsheet was available to the consultants, and we understand was reviewed in some detail by Halcrow.

Importantly the PB forecasts relate to the servicing and condition monitoring sub activity, while SunWater’s forecasts are made at the preventative maintenance activity level which also includes weed control. SunWater can provide reconciliation for the preventative maintenance activity, showing individual elements.

5. Conclusion

SunWater's forecasts of operating costs are forward looking, and informed by recent cost information. The forecasting parameters were intended to exclude the more extreme operating environments and are instead based on a 'normal' or 'typical' year. This typical year is not defined with precision – rather it is defined by what it is not.

SunWater forecasts its costs at the activity level (of which there are three), as it is meaningless and imprecise to attempt to forecast at the more granular, sub activity level particularly for the operations activity. This is because its workforce, which often comprises only a few FTEs in each scheme, is involved in a wide range of the 14 sub activities for that scheme and the mix of work between sub activities can vary year on year depending on the operating environment.

Two of the four consultants made qualified findings about the forecast cost of the operations activity, while three of the four consultants were able to provide a view about the forecast preventative maintenance and corrective maintenance activity costs.

While SunWater accepts some criticisms about the details available, it does not accept that these deficiencies were to the extent that the consultants could not take a view about the efficiency and prudency of the costs they were charged to examine.

One reason that ARUP and Aurecon found difficulties was their pursuit of examining forecast costs at a sub-activity (or work-order) level, although SunWater did not forecast costs in this way. Moreover, SunWater submits that it is not useful or practical to do so, and any review at this micro-level becomes more about how labour costs are split between sub-activities rather than the overall level of labour resourcing in each scheme

Attachment 1. Process for forecasting labour costs

The following is an extract from the instructions for forecasting direct labour costs to individual water supply schemes / distribution systems, and activities within those schemes / systems.

Regional Centre Selection
Select your regional centre from the drop-down selection). This will change the service contracts in row 7 to those controlled by the region.

Personnel Data
The Full Time Equivalent (FTE), Position/Name, Work centre, Hr/Wk and SW Band fields must be completed for all staff at a region level irrespective of their involvement in field work. It should also include staff contractors. The FTEs number should also take into account the SLIFIs target.

- Enter the FTE for the employee. It should be 1.0, 0.5 or 0.25.
- Enter the employees name.
- Select the Hr/Wk. This should be either 36.25 (office based) or 38 (field based).
- Enter the employee's SW band For staff contractors use the equivalent SW band, e.g. SW08.

The Hours Total (G) will be calculated based on the FTE and Hr/Wk.

Target Utilisation
A target utilisation percentage should be entered for each staff member in the Target Utilisation field.

The target utilisation represents the expected utilisation for that staff member. For example, a regional manager would be low but an operator maintainer should approaching 90%.

Once these values have been entered the overall target utilisation should be checked.

The overall target utilisation should be greater than 80% for each regional centre.

Overheads Allocation
The hours anticipated for overhead activities, i.e. courses, meetings, should be entered for each staff member in column DE, i.e. 05-Overheads.

Regional Centre Staff Allocation - Routine
For routine work, the estimated hours for individual staff based on management experience/knowledge of work required for each service contract must be entered for operational, preventive and corrective work against each of the service contracts.

The estimated hours were then used to compare with the actual hours from the previous financial year. To obtain actual hours for the previous financial year, i.e. 2008-09, go to the 2008-09 Routine Mhrs worksheet and select your regional centre.

Regional Centre Staff Allocation - Non-Routine
Planned man-hours for the R&E program for the next financial year, i.e. 2010-11, can be obtained from the SAP WMS Planning 2011 worksheet.

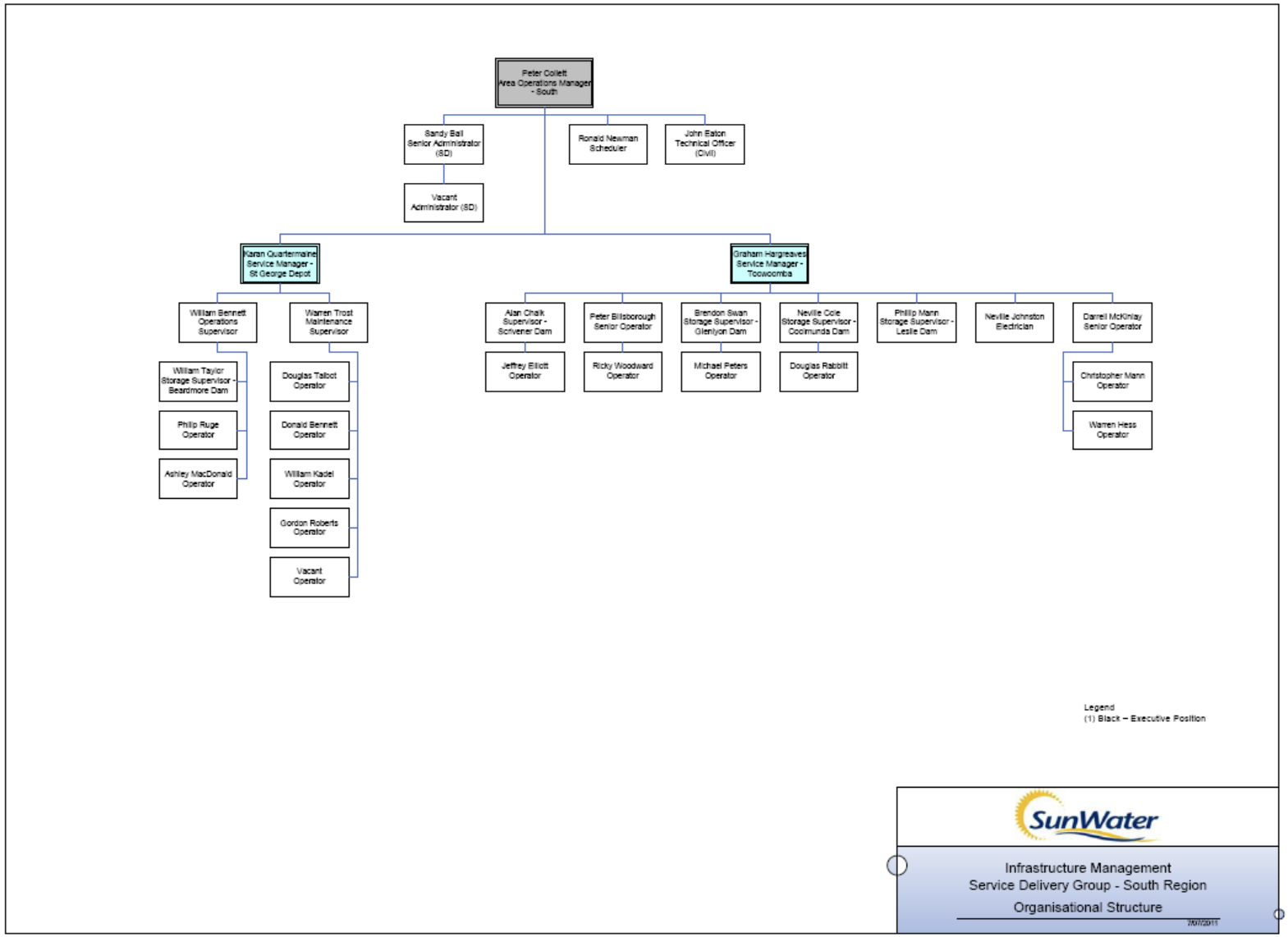
Allocation of Other Resource Centre Staff
Where work is to be done by other region/resource centres, the planned hours must be entered, i.e. the Other Areas part of the spreadsheet.

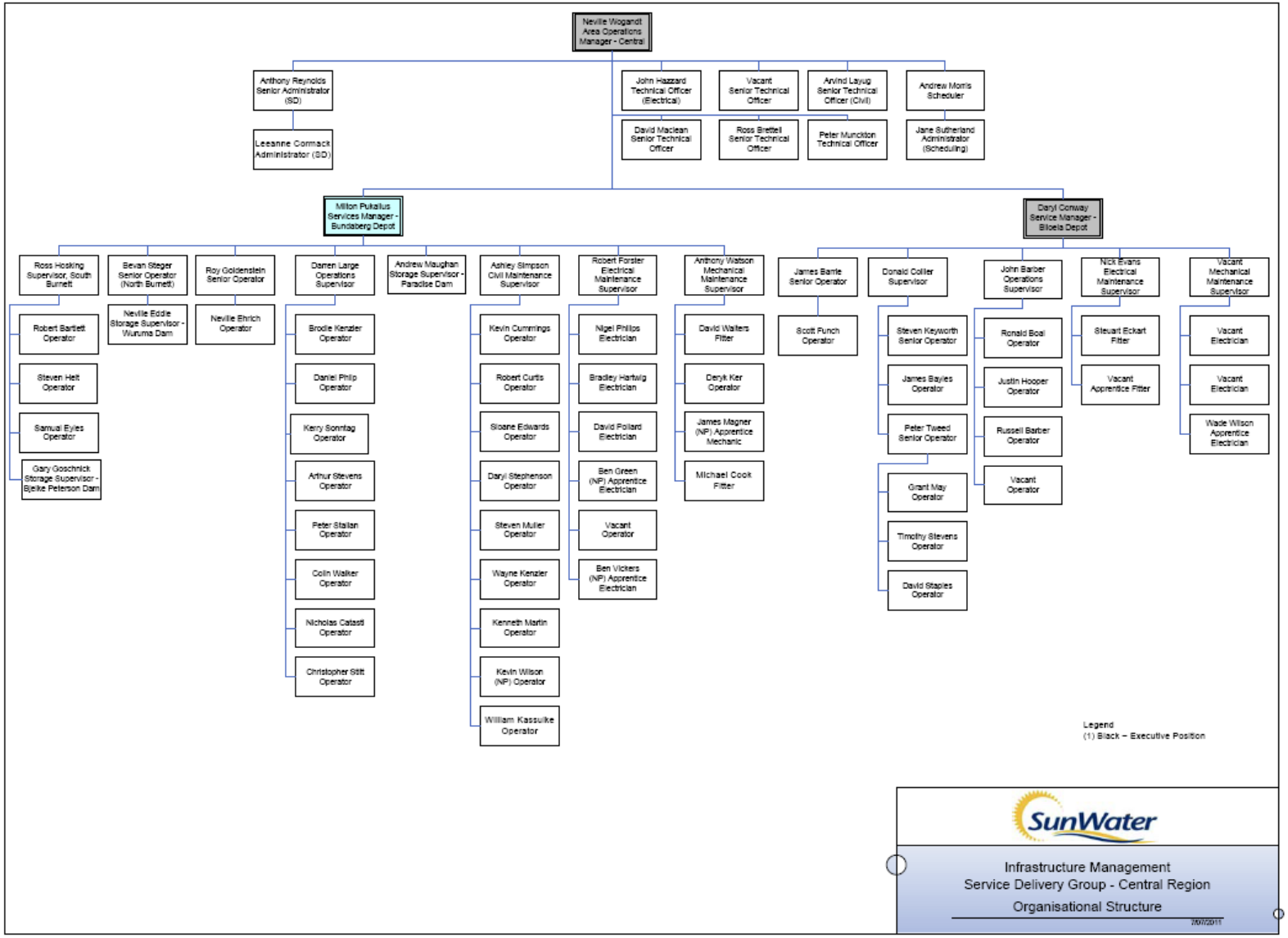
For non-routine, the hours are available on the R&E Download worksheet.

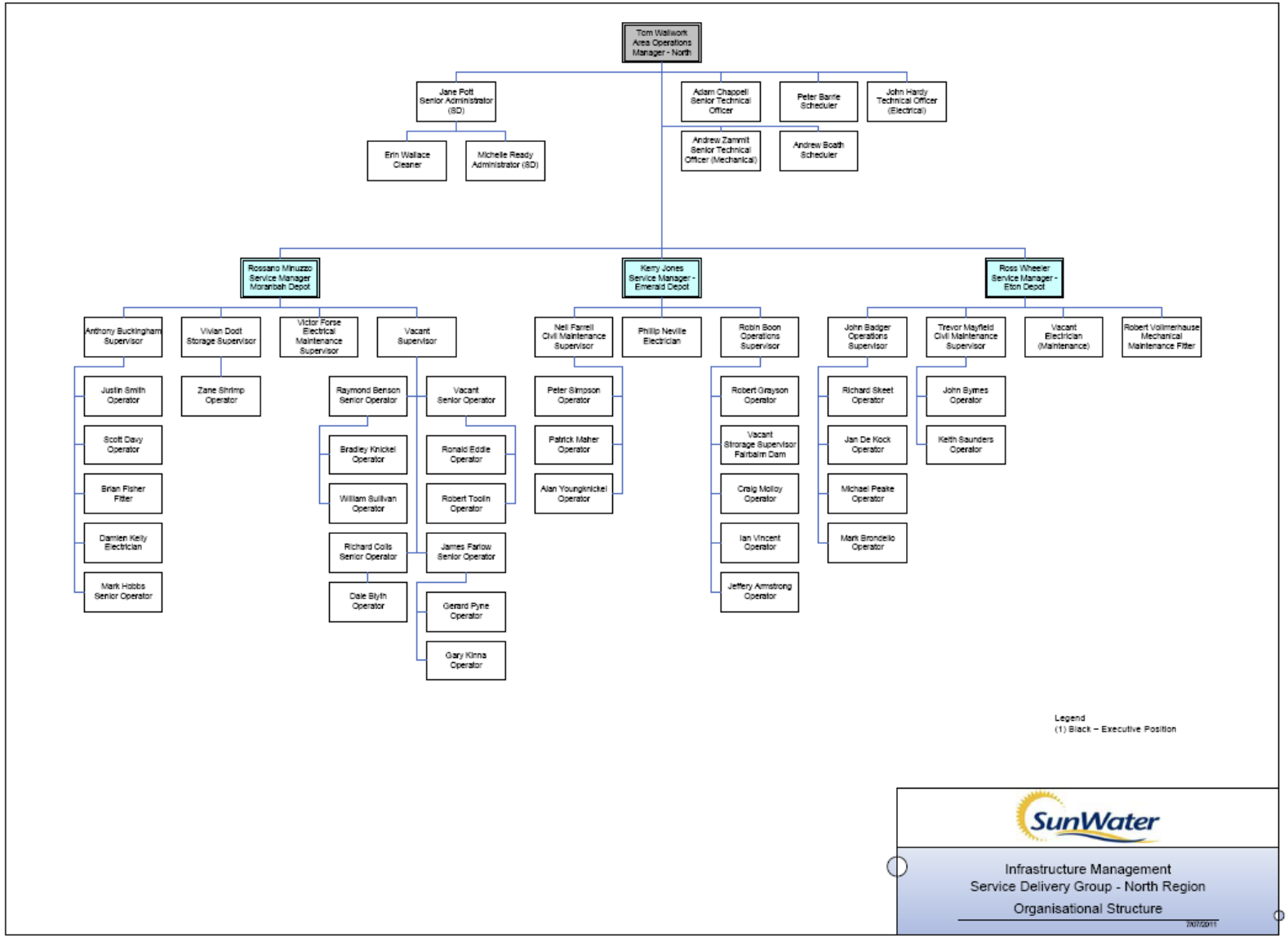
Available and Required Effort
The balance between effort available and work required will be identified in the spreadsheet. Depending on the balance the spreadsheet will display either “Excess resources” or “Insufficient resources”.

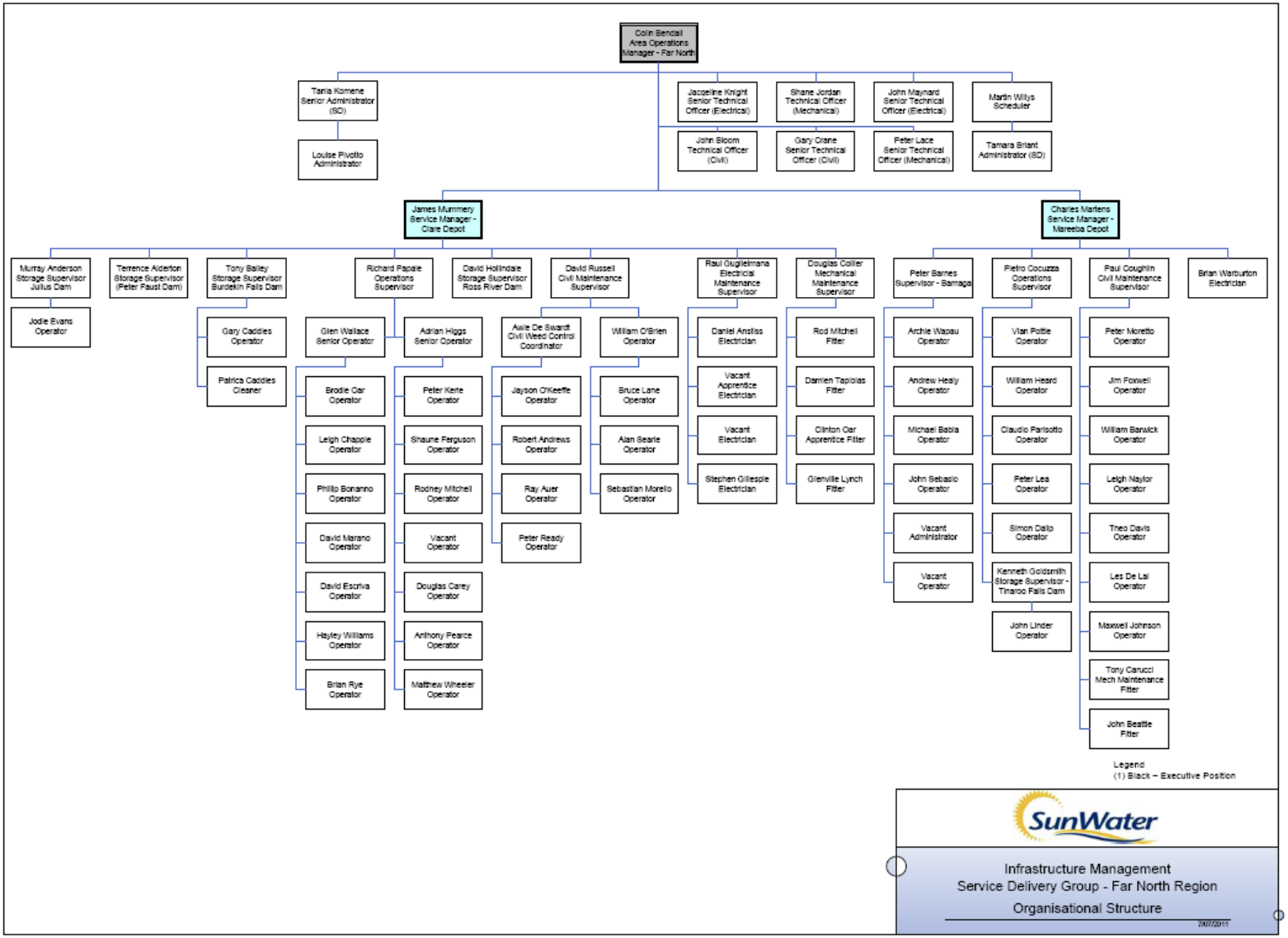
Where there are insufficient resources, the balance may be able to be achieved by outsourcing work. Conversely, if there are excess resources, it is up to regional manager to decide how to best utilise that surplus (eg offset contractor costs elsewhere).

Attachment 2. Organisational Structures


Peter Collett
Area Operations Manager - South
Sandy Ball
Senior Administrator (SD)
Ronald Newman
Scheduler
John Eaton
Technical Officer (Civil)
Vacant
Administrator (SD)
Karan Quartermaine
Service Manager - St George Depot
Graham Hargreaves
Service Manager - Toowoomba
William Bennett
Operations Supervisor
Warren Trost
Maintenance Supervisor
William Taylor
Storage Supervisor - Beardmore Dam
Philip Ruge
Operator
Ashley MacDonald
Operator
Douglas Talbot
Operator
Donald Bennett
Operator
William Kadel
Operator
Gordon Roberts
Operator
Vacant
Operator
Alan Chalk
Supervisor - Scrivener Dam
Jeffrey Elliott
Operator
Peter Billsborough
Senior Operator
Ricky Woodward
Operator
Brendon Swan
Storage Supervisor - Glenlyon Dam
Michael Peters
Operator
Neville Cole
Storage Supervisor - Coolmunda Dam
Douglas Rabbitt
Operator
Philip Mann
Storage Supervisor - Leslie Dam
Neville Johnston
Electrician
Darrell McKinlay
Senior Operator
Christopher Mann
Operator
Warren Hess
Operator
Legend
(1) Black – Executive Position
SunWater
Infrastructure Management
Service Delivery Group - South Region
Organisational Structure
20/07/2011


Neville Wogandt
Area Operations Manager - Central
Anthony Reynolds
Senior Administrator (SD)
Leeanne Cormack
Administrator (SD)
John Hazzard
Technical Officer (Electrical)
Vacant
Senior Technical Officer
Arvind Layug
Senior Technical Officer (Civil)
Andrew Morris
Scheduler
David Maclean
Senior Technical Officer
Ross Brettell
Senior Technical Officer
Peter Munckton
Technical Officer
Jane Sutherland
Administrator (Scheduling)
Milton Pukallus
Services Manager - Bundaberg Depot
Daryl Conway
Service Manager - Biloela Depot
Ross Hosking
Supervisor, South Burnett
Bevan Steger
Senior Operator (North Burnett)
Roy Goldenstein
Senior Operator
Darren Large
Operations Supervisor
Andrew Maughan
Storage Supervisor - Paradise Dam
Ashley Simpson
Civil Maintenance Supervisor
Robert Forster
Electrical Maintenance Supervisor
Anthony Watson
Mechanical Maintenance Supervisor
James Barrie
Senior Operator
Donald Collier
Supervisor
John Barber
Operations Supervisor
Nick Evans
Electrical Maintenance Supervisor
Vacant
Mechanical Maintenance Supervisor
Robert Bartlett
Operator
Steven Helt
Operator
Samual Eyles
Operator
Gary Goschnick
Storage Supervisor - Bjelke Petersen Dam
Neville Eddie
Storage Supervisor - Wuruma Dam
Neville Ehrich
Operator
Brodie Kenzler
Operator
Daniel Philp
Operator
Kerry Sonntag
Operator
Arthur Stevens
Operator
Peter Stallan
Operator
Colin Walker
Operator
Nicholas Catasti
Operator
Christopher Stitt
Operator
Kevin Cummings
Operator
Robert Curtis
Operator
Sloane Edwards
Operator
Daryl Stephenson
Operator
Steven Muller
Operator
Wayne Kenzler
Operator
Kenneth Martin
Operator
Kevin Wilson
(NP) Operator
William Kassulke
Operator
Nigel Philips
Electrician
Bradley Hartwig
Electrician
David Pollard
Electrician
Ben Green
(NP) Apprentice Electrician
Vacant
Operator
Ben Vickers
(NP) Apprentice Electrician
David Walters
Fitter
Deryk Ker
Operator
James Magner
(NP) Apprentice Mechanic
Michael Cook
Fitter
Scott Funch
Operator
Steven Keyworth
Senior Operator
James Bayles
Operator
Peter Tweed
Senior Operator
Grant May
Operator
Timothy Stevens
Operator
David Staples
Operator
Ronald Boal
Operator
Justin Hooper
Operator
Russell Barber
Operator
Vacant
Operator
Stevart Eckart
Fitter
Vacant
Apprentice Fitter
Vacant
Electrician
Vacant
Electrician
Wade Wilson
Apprentice Electrician
Legend
(1) Black – Executive Position
SunWater
Infrastructure Management
Service Delivery Group - Central Region
Organisational Structure
7/07/2011


Tom Wallwork
Area Operations Manager - North
Jane Pott
Senior Administrator (SD)
Erin Wallace
Cleaner
Michelle Ready
Administrator (SD)
Adam Chappell
Senior Technical Officer
Andrew Zammit
Senior Technical Officer (Mechanical)
Peter Barrie
Scheduler
Andrew Booth
Scheduler
John Hardy
Technical Officer (Electrical)
Rossano Minuzzo
Service Manager Moranbah Depot
Anthony Buckingham
Supervisor
Justin Smith
Operator
Scott Davy
Operator
Brian Fisher
Fitter
Damien Kelly
Electrician
Mark Hobbs
Senior Operator
Vivian Dodt
Storage Supervisor
Zane Shrimp
Operator
Victor Forse
Electrical Maintenance Supervisor
Raymond Benson
Senior Operator
Bradley Knickel
Operator
William Sullivan
Operator
Richard Colls
Senior Operator
Dale Blyth
Operator
Vacant
Supervisor
Vacant
Senior Operator
Ronald Eddie
Operator
Robert Toolin
Operator
James Farlow
Senior Operator
Gerard Pyne
Operator
Gary Kinna
Operator
Kerry Jones
Service Manager - Emerald Depot
Neil Farrell
Civil Maintenance Supervisor
Peter Simpson
Operator
Patrick Maher
Operator
Alan Youngknickel
Operator
Phillip Neville
Electrician
Robin Boon
Operations Supervisor
Robert Grayson
Operator
Vacant
Storage Supervisor Fairbairn Dam
Craig Molloy
Operator
Ian Vincent
Operator
Jeffery Armstrong
Operator
Ross Wheeler
Service Manager - Eton Depot
John Badger
Operations Supervisor
Richard Skeet
Operator
Jan De Kock
Operator
Michael Peake
Operator
Mark Brondello
Operator
Trevor Mayfield
Civil Maintenance Supervisor
John Byrnes
Operator
Keith Saunders
Operator
Vacant
Electrician (Maintenance)
Robert Vollmerhause
Mechanical Maintenance Fitter
Legend
(1) Black – Executive Position
SunWater
Infrastructure Management
Service Delivery Group - North Region
Organisational Structure
7/07/2011


Colin Bendall
Area Operations Manager - Far North
Tania Komene
Senior Administrator (SD)
Louise Pivetto
Administrator
Jacqeline Knight
Senior Technical Officer (Electrical)
John Bloom
Technical Officer (Civil)
Shane Jordan
Technical Officer (Mechanical)
Gary Crane
Senior Technical Officer (Civil)
John Maynard
Senior Technical Officer (Electrical)
Peter Lace
Senior Technical Officer (Mechanical)
Martin Wilys
Scheduler
Tamara Briant
Administrator (SD)
James Mummery
Service Manager - Clare Depot
Charles Martens
Service Manager - Mareeba Depot
Murray Anderson
Storage Supervisor Julius Dam
Jodie Evans
Operator
Terrence Alderton
Storage Supervisor (Peter Faust Dam)
Tony Bailey
Storage Supervisor Burdekin Falls Dam
Gary Caddies
Operator
Patrica Caddies
Cleaner
Richard Papale
Operations Supervisor
Glen Wallace
Senior Operator
Brodie Oar
Operator
Leigh Chapple
Operator
Phillip Bonanno
Operator
David Marano
Operator
David Escriva
Operator
Hayley Williams
Operator
Brian Rye
Operator
Adrian Higgs
Senior Operator
Peter Kerle
Operator
Shaune Ferguson
Operator
Rodney Mitchell
Operator
Vacant
Operator
Douglas Carey
Operator
Anthony Pearce
Operator
Matthew Wheeler
Operator
David Hollindale
Storage Supervisor Ross River Dam
David Russell
Civil Maintenance Supervisor
Axle De Swardt
Civil Weed Control Coordinator
Jayson O'Keeffe
Operator
Robert Andrews
Operator
Ray Auer
Operator
Peter Ready
Operator
William O'Brien
Operator
Bruce Lane
Operator
Alan Searle
Operator
Sebastian Morello
Operator
Raul Guglielmana
Electrical Maintenance Supervisor
Daniel Anstiss
Electrician
Vacant
Apprentice Electrician
Vacant
Electrician
Stephen Gillespie
Electrician
Douglas Collier
Mechanical Maintenance Supervisor
Rod Mitchell
Fitter
Damien Tapiolas
Fitter
Clinton Oar
Apprentice Fitter
Glenville Lynch
Fitter
Peter Barnes
Supervisor - Barrage
Archie Wapau
Operator
Andrew Healy
Operator
Michael Babia
Operator
John Sebastio
Operator
Vacant
Administrator
Vacant
Operator
Pietro Cocuzza
Operations Supervisor
Vian Pottie
Operator
William Heard
Operator
Claudio Parisotto
Operator
Peter Lea
Operator
Simon Dallo
Operator
Kenneth Goldsmith
Storage Supervisor - Tinaroo Falls Dam
John Linder
Operator
Paul Coughlin
Civil Maintenance Supervisor
Peter Moretto
Operator
Jim Foxwell
Operator
William Barwick
Operator
Leigh Naylor
Operator
Theo Davis
Operator
Les De Lai
Operator
Maxwell Johnson
Operator
Tony Carucci
Mech Maintenance Fitter
John Beattie
Fitter
Brian Warburton
Electrician
Legend
(1) Black – Executive Position
SunWater
Infrastructure Management
Service Delivery Group - Far North Region
Organisational Structure
2007/2011