COUNTRY FIRE AUTHORITY

FISKVILLE TRAINING COLLEGE

WATER REUSE INVESTIGATION REPORT

February 2012

The ALS Water Sciences Group is part of the Environmental Division of ALS, one of the largest and most geographically diverse environmental testing businesses in the world.

CERTIFICATE OF APPROVAL FOR ISSUE OF DOCUMENTS

Client: Country Fire Authority
Project Title: **Fiskville Training College**
Report Title: Water Reuse Investigation Report
Document No: 212927-2012-001
Document Status: Final
Date of Issue: February 2012
Comments:

	Position	Name	Signature	Date
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Document Revision Control

Version	Description of Revision	Person Making Issue	Date	Approval
1	Final	Peter te Hennepe	31/01/2012	

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1 Introduction

Country Fire Authority (CFA) approached ALS to carry out an investigation regarding the risks associated with recycling the runoff water used during their fire training courses and recommend water and wastewater treatment, sediment remediation and monitoring options for the Fiskville site.

1.1 Background

The CFA runs a fire fighting training program at a site in Fiskville on the Geelong-Ballan Road. There are four dams and one lake on site. The water from one of the dams (Dam 2) is used for fire fighting training. The runoff from training activities undergoes on-site primary wastewater treatment and the effluent is discharged back into Dam 2. The CFA is interested in determining the quality of water from Dam 2 to ensure that the water used during training does not adversely impact on the health of the trainees and CFA staff members.

1.2 Scope

An examination of the dams' and Fiskville Lake's water quality and the sludge quality from one of the dams (Dam 1) was requested by the CFA. The parameters in Table 1-1 were proposed based on EPA Victoria's *Industrial Waste Resources Guidelines – Soil Hazard Categorisation and Management* (2009).

However, in order to ensure that the parameters in Table 1-1 capture all of the potential contaminants that may be on the site, a preliminary site investigation was conducted on the same day sampling of the dams and lake was undertaken.

Table 1-1 Parameters tested

Parameters	Dam 1, 3, 4 and Fiskville Lake	Dam 2	Dam 1 Sediment
Heavy metals (As, Cd, total Cr VI, Cu, Pb, Hg, Mo, Ni, Sn, Se, Ag, and Zn)	✓	✓	✓*
Total cyanide	✓	✓	✓*
Total fluoride	✓	✓	✓*
Speciated phenols (halogenated plus non-halogenated)	✓	✓	✓*
Monocyclic aromatic hydrocarbons (MAHs)	✓	✓	✓*
Polycyclic aromatic hydrocarbons (PAHs)	✓	✓	✓*
Total petroleum hydrocarbons (TPHs)	✓	✓	✓
Polychlorinated biphenyls (PCBs)	✓	✓	✓
Chlorinated hydrocarbons (volatile plus semi-volatile)	✓	✓	✓*
Organochlorine pesticides (OCPs)	✓	✓	✓*
E. coli		✓	
Pseudomonas aeruginosa		✓	
Turbidity		✓	
Biological oxygen demand (BOD)		✓	
Suspended solids		✓	
pH		✓	
Chlorine		✓	

Notes

1. Dam 1 sediment was tested for the leachable compounds with an asterisk (*).

2 Site Visit

ALS carried out a preliminary investigation and sampling of the site at Fiskville on the 2nd February 2012. The preliminary site investigation, which was based on Australian Standards *AS4482.1-2005 Guide to the investigation and sampling of sites with potentially contaminated soil*, was used as a tool to examine the history of the site. The objective of this standard is to derive the information which will highlight possible contaminants which may pose a risk to human health and the environment. The process also highlighted any knowledge gaps in the analyses selected for the initial sampling run.

One water sample was taken near the exit or overflow point for all water bodies except Dam 2 where a sample was taken at the extraction point.

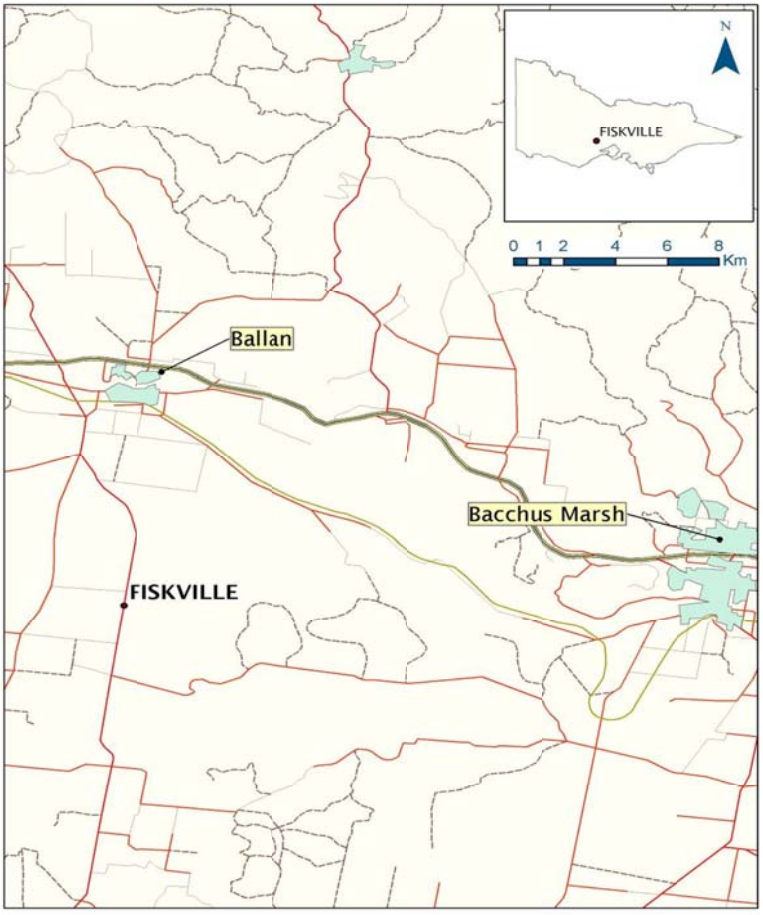
Two composite samples of the sediment were taken from the edge of Dam 1 for preliminary sludge quality analysis. Several grab samples of the sediment near the edge of the dam were placed in a bucket and mixed thoroughly to achieve a homogenous sample. Two sub-samples were taken from this bucket and submitted to the laboratory for analysis. Taking a more representative sample of the sediment via a boat was discussed and was deferred pending the results from this preliminary analysis. Edge sampling was determined to be a suitable, quick and cost effective method to provide a preliminary estimate of Dam 1's sediment quality.

3 Site Characteristics

This section details the findings from the preliminary site investigation based on AS4482.1-2005.

3.1 Site Location

The Fiskville CFA site is situated approximately 80 kms from Melbourne, just south of the town of Ballan (see Figure 3-1). The land acquired by the CFA near Fiskville is approximately 450 acres and is used for training, accommodation and hospitality.



Source: Created by WSG using Arc GIS

Figure 3-1 Fiskville location map

3.2 Site History[1]

3.2.1 Previous Owners

The Australian Government in 1922 required a radio service with the United Kingdom. At that time the Government commissioned Amalgamated Wireless (Australia) Ltd (AWA) to establish a transmitter site near Ballan, which later was named Fiskville in 1933 in honour of its founder Mr Fisk. During World War II, the Department of Defence acquired the site and operated the Ballan facility for military radio operations.

The station had three 25 KW HF transmitters, 94 antennas. From 1927 until 1941 power was supplied by three 165 HP oil-engines coupled to direct dynamos. It was reported that there was no batteries use on site. Commercial power was supplied to the site in 1941.

As the Wireless Service expanded and technology advanced, the original aerials at Fiskville were updated and a workshop was opened on site to allow new parts to be manufactured. During this period the extent of the manufacturing component was unclear but thought to be minimal. At the start of World War II, the Fiskville workshop was expanded to make high speed telegraph equipment.

In 1947 Overseas Telecommunications Commission (OTC) assumed full control of the radio services of AWA and operated the site until satellite communications rendered the site obsolete. The Fiskville station was closed in May 1969.

3.2.2 Present Owners and Uses

In 1971, the CFA bought the property for a specialised training facility. During the early stages of 1970's to late 1980's, the facility used a variety of fuels (origin unknown) during their specialised training programs. Water used to extinguish the fires was recirculated through a series of ponds and reused as required on future fire training programs. During this period, drums containing the fuels where disposed of on site in a large hole and covered.

Present day CFA fire training courses at Fiskville use gas, unleaded petrol or diesel to activate and or fuel their fires. The CFA runs a variety of training exercise which includes the burning of old cars, wood, hay, straw, plastic, wooden pallets plus other materials. Recycled water and, in some cases, Class A foam, Class B foam and foam stocks were used during the on-site training programs.

[1] The information for this section was sourced from communications with CFA and the website http://en.wikipedia.org/wiki/CFA_Training_College,_Fiskville.

4 Site Overview

4.1 Raw Materials Used on Site

Class A foam, Class B foam and other widely-varying foam stocks were used during the on-site training programs over the past 40 years. In present day practice for fire fighting and training purposes, Class A foam has been adopted as the standard foam.

The Fiskville site uses gas, unleaded petrol or diesel to activate and/or fuel their fires. The CFA runs a variety of training exercises which include the burning of old cars, wood, hay, straw, plastic, wooden pallets (see Figure 4-1).

Figure 4-1 Raw materials

4.1.1 Production of Goods

The Fiskville CFA site is not a manufacturing site and does not produce any goods. The site has several workshops which carry out general maintenance of equipment and machinery if required.

4.1.2 Chemical Storage and Transfer Locations

The site has several areas where gas, unleaded petrol and petrol are stored with no bunding. Runoff from these sites will either be adsorbed into the ground or flow into neighbouring paddocks. Figure 4-2 displays the main fire training area which captures the majority of the water used via the slope of the large slab and a series of drains.

Figure 4-2 Main fire training area

4.1.3 Waste Production

Any waste produced on site, their location and the method of disposal may impact on the quality of stormwater runoff and soil on site due to spills, and leaching of contaminants from and erosion of waste material. During the site visit, the main source of waste production was the stockpile of burnt cars. Once the old cars had been burnt several times, and all combustible material had been used up, the cars are stored and stacked in a secure, bunded area for future crushing and metal recycling.

4.1.4 Plans of Sewer

The Fiskville facility can house over sixty trainees at one time. A fully functional restaurant and accommodation facilities are available onsite. All wastewater from the site is transferred into a small treatment plant on the property. The overflow from the treatment plant enters a series of agricultural pipes which disperse the overflow into the ground.

The CFA mentioned that the treatment facility was going to be updated in the near future.

4.1.5 Storage Tanks

Several large storage tanks were observed on the site that contained, either gas, unleaded petrol or diesel. None of these tanks were bunded.

4.1.6 Transfer Lines

CFA are at present investigating the services provided on the property. Transfer lines regarding power, water, gas, petrol, diesel and sewage are being documented as the information becomes available.

4.1.7 Dispensing Points and Control Systems

Dispensing points for petrol or diesel for vehicles and outlets for petrol, diesel and gas for fire production on the Fiskville site is extensive and is controlled by the CFA's OH&S and extensive internal procedures and management documentation.

4.1.8 Adjacent Land Use

The land adjacent to the Fiskville training site is mainly farmland. Large cattle and sheep farms seem to be the major agricultural use in the area. North of the site is the Fiskville Airport, which is a small airport that is only used for emergency purposes or by the CFA for training purposes involving an out of service helicopter.

4.1.9 Victorian EPA Priority Sites Register

Priority sites are sites for which Environmental Protection Authority Victoria (EPA) has issued a Clean-up Notice or a Pollution Abatement Notice. This list was last updated 27/01/2012 at the time of undertaking this investigation. The EPA website[2] was checked and no record was found relating to the Fiskville site.

4.1.10 Victorian EPA Certificates & Statements of Environmental Audit List

EPA has a list of properties for which a certificate or statement of environmental audit has been issued. A certificate of environmental audit is issued for a property where, following an EPA audit, the auditor is of the opinion that the environmental condition of the land is suitable for any beneficial use. A statement of environmental audit is issued for a property where, following an EPA audit, the auditor is of the opinion that the land is not suitable for all beneficial uses, but is suitable for specific uses or developments. The statement may contain conditions pertaining to clean up or management of contamination.

Examination of this list from the EPA website[3] indicated that the Fiskville site, which is in the Moorabool Shire Council, has not been issued with a certificate or a statement of environmental audit, nor have any of the adjoining properties.

4.1.11 Complaint History

The CFA reported that several complaints have been received from local farmers regarding possible pollution from the site regarding the training exercises. The CFA have acquired the house directly south of their property, which was the only house in close proximity of the CFA site. A significant number of trees have also been planted in and around the property to reduce the impact of the fire training programs.

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[2] http://www.epa.vic.gov.au/land/docs/PSR-access-register.pdf

[3] http://www.epa.vic.gov.au/envaudit/search-environmental-audits.asp

Some farmers have also complained about the possibility of the runoff from the site entering Fiskville Lake and any overflow from the lake consequently entering their property. CFA are actively investigating these complaints.

4.2 Geology / Hydrogeology

4.2.1 Distribution of Geology[4]

The Fiskville study area is within the Central Victorian Bioregion. The Central Victorian Uplands is an area dominated by Lower Paleozoic deposits which gives rise to areas of higher elevation with granite and sedimentary terrain and old volcanic rocks.

4.2.2 Groundwater Flow and Direction

Several observations bore have been installed near the area where the containers and drums are buried. Other observation bores are also located on the property. CFA has mentioned that no analyses have been carried out as the bores have always been found to be dry. Therefore, groundwater flow and direction could not be ascertained at this time.

Further investigation into the number, location and depth of the bore is advised.

4.2.3 Location of Surface Water

The CFA Fiskville site has four manmade dams and a lake – Fiskville Lake (details in Section 4.4). There is one main natural open drain passing through the property. The drain starts from the northern side of the property and flows through the property and then into Fiskville Lake. When the lake is full, the overflow will continue in the drain stretching south into the neighbouring properties.

4.2.4 Groundwater Quality

No groundwater water quality data is available for the site as the bores have been found to be dry on all occasions.

4.3 Meteorological Data

Rainfall data for the area was acquired from the Bureau of Meteorology (BOM) website. As shown below (see Figure 4-3), the rainfall trend appears to be decreasing with time.

[4] The information for this section was sourced from website www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/veg_management_central_uplands.

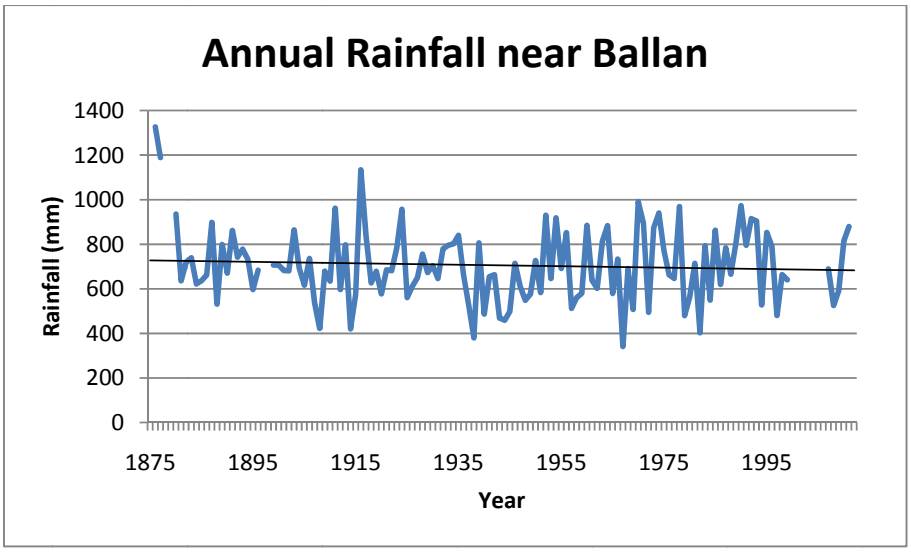

Figure 4-3 Rainfall data

The small downward trend with respect to rainfall would have minimal impact on the site assessment.

4.4 System for Water Supply

Fiskville CFA utilise five ponds for the supply and backup for provision of water for training purposes. Figure 4-4displays the positioning of each dam at the CFA site in Fiskville.

Source: Google Earth

Figure 4-4 Fiskville dams and lake layout

The immediate runoff from the training site passes through a coarse filter basket (Figure 4-5).

Figure 4-5 Coarse filter basket

Once filtered, the water flows into a large holding basin (Figure 4-6) which settles the solids and allows the supernatant to flow into another separation cell (Figure 4-7). The settling, separation and mixing design is based on triple interceptor concept.

During times where the training area is not used, the solids produced in the settling tank is dried and shovelled into piles, removed and stockpiled for future attention. The oil fraction from the grease separator is also removed with the solid waste. Appropriate disposal of this waste may need to be considered.

CFA noted that large flows into the system reduced the effectiveness of the triple interceptor to adequately treat the wastewater.

Figure 4-6 Dried and piled settled waste

Figure 4-7 Grease interceptor cell

The final effluent from the triple interceptor system enters Dam 1 (Figure 4-8) via a pump system. At the time of the visit an aerator was operating in Dam 1.

Figure 4-8 Dam 1 and pump station

The overflow from Dam 1 gravity feeds into Dam 2 which consists of a series of bends and an island. The water is extracted from Dam 2 (Figure 4-9) and pumped into the holding cell for fire fighting activities.

Figure 4-9 Dam 2 near pump station

The overflow from Dam 2 enters a small drain which runs into Dam 3 (see Figure 4-10).

Figure 4-10 Dam 3 entry point

The overflow from Dam 3 also passes to Dam 4 and then to Fiskville Lake. At times of low rainfall or low water availability from Dam 2, water is pumped from either Dam 3, 4 or Fiskville Lake using a portable pump and a series of fire hoses. The water is used to top up Dam 2 thus utilising the exiting pump shed and delivery system to the holding tank. It was noted at times of extreme low water supply potable water was used to top up the supply.

4.5 Site Investigation Summary

The information gained from the site investigation (based on AS4482.1-2005) provided a broad overview of the history of the site and possible sources of contamination during that time. Based on the information gathered, activities on the site prior to 1971 would have had minimal impact on the site with regards to contamination. After 1971, due to the nature of the CFA's fire fighting training activities, the compounds that may be found in the water from the dams and Fiskville Lake would most likely have originated from chemicals used in fire fighting training and fuel used for combustion. Based on this and EPA Victoria's *Industrial Waste Resources Guidelines – Soil Hazard Categorisation and Management* (2009), the parameters suggested in Table 1-1 is sufficient in identifying the possible contaminants.

Note that details of any other chemical use in the early 70's and late 80's are not available and further investigations of this period may be required to ensure all potential contaminants are identified.

5 Results

The results of the water quality analysis was compared with EPA Victoria's *Guidelines for Environmental Management – Use of Reclaimed Water* (2003) (Reuse Guidelines) and *Australian and New Zealand Guidelines for Fresh and Marine Water Quality Paper 4 National Water Quality Management Strategy* (ANZECC, ARMCANZ, 2000) (ANZECC Guidelines). The sediment test results were compared with *Industrial Waste Resources Guidelines: Soil Hazard Categorisation and Management* (EPA Victoria, 2009) and *Industrial Waste Resources Guidelines: Solid Industrial Waste Hazard Categorisation and Management* (EPA Victoria, 2009).

5.1 Dam 2 Data

The full results for Dam 2 are reported in Appendix 1 and the outliers are reported in Table 5-1.

Table 5-1 Outliers for reuse water

Analyses	Units	Result	Class A Recycled Water	ANZECC Recreational
E. coli	orgs/100mL	10	<10	
BOD 5 Day	mg/L	45	10	
Suspended solids	mg/L	79	5	
Turbidity	NTU	58	2	
Organics	µg/L	1,300		200

5.2 Support Water Supply Data

The results for the other dams and Fiskville Lake are reported in Appendix 1. Dam 1, which collects the treated water from the triple interceptor, had one outlier in regards to organics concentration. The ANZECC Guidelines specify for recreational waters for organics[5] a limit of 200 ug/L. The sum of individual petroleum hydrocarbons (TPH) for Dam 1 was found to be 1,600 ug/L.

The analyses carried out on Dam 3, 4 and Fiskville Lake did not produce any outliers based on the guidelines for recreational water quality and aesthetics in the ANZECC Guidelines.

5.3 Sediment Data – Dam 1

The results are reported in Appendix 1 and the outliers are reported in Table 5-2.

[5] Organics via carbon chloroform extract (CCE) and carbon alcohol extract (CAE) (ANZECC, ARMCANZ, 2000, p5-9).

Table 5-2 Outliers for sediments / sludge samples

Analyses	Dam 1 – inlet point	Dam 1 – outlet point	Categorisation
Zinc	390	670	Category C 200 - 35,000 (1)
Petroleum hydrocarbons (C10 – C36)	22,350	75,300	Category B 10,000 – 40,000 Category A > 40,000 (2)
Total PAH	52	110	Category C 20 – 100 Category B 100 – 400 (1)

Notes

1. *From* Industrial Waste Resources Guidelines: Soil Hazard Categorisation and Management *(EPA Victoria, 2009).*
2. *From* Industrial Waste Resources Guidelines: Solid Industrial Waste Hazard Categorisation and Management *(EPA Victoria, 2009).*

Based on the figures presented in Table 5-2 for petroleum hydrocarbons, the sludge from the pond is considered an Industrial Waste with a hazard Category A classification.

6 Discussion

6.1 Dam 2 Water

This report is based on one sampling event and may not be representative of the actual water quality of the reuse water. The water analysed from Dam 2, which is used for training purposes was found to be outside the Reuse Guidelines for several parameters and the organics were outside the ANZECC Guidelines of 200 ug/L (Table 1-1).

The reuse water requires further treatment before use. The whole treatment system will need to be improved to ensure that continuous good quality reuse water is supplied. The triple interceptor functionality needs to be accessed and upgraded. The residual contaminated sediment needs to be removed from Dam 1to ensure the incoming water is not contaminated from the pollutants in the sediment. The dam system may need to be improved to ensure the required contaminant reduction is carried out. The pump shed may need to be moved to either Dam 3 or 4 and a wetlands may need to be establish to ensure a reduction in BOD, suspended solids, turbidity and organics will occur.

Large holding tanks, sufficiently sized for the required daily training program may need to be considered to ensure the Dam 2 water can be adequately disinfected for reuse purposes.

6.2 Sediment Remediation

Sediment samples were collected from the entry point and exit point of Dam 1. As the sludge was a by-product of the runoff from the training site, it was considered an Industrial Waste. Based on the EPA Victoria's Industrial Waste Resources Guidelines, the waste was classified as Category A.

Remediation of the sediment needs to be carried out on site before it can be sent to an appropriately licensed landfill.

7 Recommendations

7.1 Monitoring Program

An ongoing monitoring program should be carried out to establish sufficient background information to understand the operation and functionality of the system. Weekly monitoring of *E. coli, Pseudomonas aeruginosa*, turbidity, BOD, suspended solids, pH, chlorine and TPH is recommended during fire fighting training times. Based on the Reuse Guidelines, ANZECC Guidelines and the guidelines for Canadian recreational water quality (CFA, 2008), a list of trigger values for a number of parameters have been suggested in Table 7-1.

Table 7-1 Proposed water quality trigger values for fire fighting

Analyte	Trigger Values
E. coli	<10 orgs per 100 mL
Pseudomonas aeruginosa	<10 orgs per 100 mL
BOD	< 10 mg/L
pH	6.0 – 9.0
Suspended solids	< 5 g/L
Turbidity	< 2 NTU
TPH	<200 µg/L
Chlorine	1 mg/L residual

Dam 2 water results that are outside the above values would trigger an action for further investigation, which will include treatment correction and further analyses.

An Environmental Improvement Plan should be established to combine business planning and everyday site management practices to ensure adequate quantity and quality reclaimed water is provided in a safe manner.

7.2 Implement Improved Treatment Facility

The overall treatment facility needs to be audited. The following points outline some areas which may need to be assessed:-

1. Functionality of the triple interceptor.
2. Management of the solids from the initial settling chamber.
3. Dam sizes and linkages.
4. Establishing wetland for treatment.
5. Investigate need for large storage tanks.
6. Investigate rainwater capture options.
7. Establish reliable disinfection options.

Further options may also need to be considered once the business strategy for the site has been established.

7.3 Investigate Onsite Treatment for Sludge in Dam 1

Removal of sludge from Dam 1 to a secure site on the property is recommended. Dewatering Dam 1 and removing the sediment by mechanical means or via a suction pump may need to be considered. The removal of the sediment from Dam 1 would ensure that the water entering Dam 1 is not contaminated by the sediment present. Once the sediment has been removed, some remediation is required. Treatment processes such as bioremediation, dilution using non contaminated fill and/or immobilisation are some of the options available for remediation.

Once the suitable process has been completed, further analyses will be required to check the level of the contaminant present. Based on the results the soil / sediment can be reclassified and options such as landfill disposal or land application can be considered.

The EPA web site http://www.epa.vic.gov.au/waste/iwdb/results.asp?cache=1 provides a list of local waste treaters and disposers and also waste transporters.

8 References

ALS WRG 2009, *McClelland Drive Transfer Station – Preliminary Site Assessment*, CV211654-2009-001, ALS Water Resources Group, Melbourne.

ANZECC, ARMCANZ 2000, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality Paper 4 National Water Quality Management Strategy*, Australian and New Zealand Environment and Conservation Council, Agriculture and Resource Management Council of Australia and New Zealand, Commonwealth of Australia, Canberra.

CFA 2008, *CFA Management Plan – Fire Fighting Water*, CFA Training College, Fiskville.

EPA Victoria 2003, *Guidelines for Environmental Management – Use of Reclaimed Water*, 464.2, Environmental Protection Authority Victoria, Melbourne.

EPA Victoria 2009, *Industrial Waste Resources Guidelines – Sampling and analysis of waters, wastewaters, soils and wastes*, IWRG701, Environmental Protection Authority Victoria, Melbourne.

EPA Victoria 2009, *Industrial Waste Resources Guidelines – Soil Hazard Categorisation and Management*, IWRG621, Environmental Protection Authority Victoria, Melbourne.

EPA Victoria 2009, *Industrial Waste Resources Guidelines – Solid Industrial Waste Hazard Categorisation and Management*, IWRG631, Environmental Protection Authority Victoria, Melbourne.

NHMRC, NRMMC 2011, *Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy*, National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra.

NRMMC/EPHC/AHMC 2009, *Australian Guidelines for Water Recycling: Managing Health and Environment Risks (Phase 2)*, National Resource Management Ministerial Council, Environmental Protection and Heritage Council, and National Health and Medical Research Council, Commonwealth of Australia, Canberra.

Standards Australia 2005, *Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil*, AS 4482.1-2005, Standards Australia, Sydney.

State Environmental Protection Policy (Groundwaters of Victoria) 1997 (Victoria), No. S160.

Wynsafe 2005, *Assessment of Fire Fighting Water at CFA Field Training Grounds Oct-Nov 2005*, Wynsafe Occupational Health Services, Werribee.

Appendix A - Analytical Reports

Environmental Division (Water Resources Group)

CERTIFICATE OF ANALYSIS

Batch No:	**12-06827**	*Page*	**Page 1 of 8**
Final Report	**282749**	*Laboratory*	Scoresby Laboratory
Client:	**ALS Laboratory Group (WRG)**	*Address*	Caribbean Business Park, 22 Dalmore Drive, Scoresby, VIC 3179
Contact:	**Peter te Hennepe**	*Phone*	03 8756 8000
Address:	Caribbean Business Park 22 Dalmore Drive SCORESBY VIC 3179	*Fax*	03 9763 1862
		Contact:	Brad Snibson Client Manager Brad.Snibson@alsglobal.com
PO No:	**Not Available**	Date Sampled:	**02-Feb-2012**
Sampler Name:	**Peter teHenneppe**	Date Samples Received:	**02-Feb-2012**
ALS Program Ref:	**ALSWRG**	*Date Issued:*	**09-Feb-2012**
Program Description:	**Miscellaneous Samples from ALS WRG**		
Client Ref:	**CV 212927**		

The sample(s) referred to in this report were analysed by the following method(s):
- NATA accreditation does not cover the performance of this service

Analysis	*Method*	*Laboratory*	*Analysis*	*Method*	*Laboratory*
AS(Ac)Phen(H)	VIC-CM056, VIC-CM082	Melbourne	AS(Ac)Phen(NH)	VIC-CM056, VIC-CM082	Melbourne
ASLP(Acetate) Prep	VIC-CM082 (AS4439.3)	Melbourne	ASLP(Ace) ZH	AS4439.2	Melbourne
ASLP(Acet.) CHC	VIC-CM045; VIC-CM082	Melbourne	ASLP (Acetate) CN	VIC-CM073; VIC-CM082	Melbourne
ASLP (Acet.) Cr	VIC-CM034; VIC-CM082	Melbourne	ASLP(Ace.)-F	VIC-CM066; VIC-CM082	Melbourne
ASLP(Acet.) Hvol.	VIC-CM047; VIC-CM082	Melbourne	ASLP(Acet.) MAH	VIC-CM051 & CM047; VIC-CM082	Melbourne
ASLP(Acet.) OCP	VIC-CM048; VIC-CM082	Melbourne	ASLP(Acet.) PAH	VIC-CM043; VIC-CM082	Melbourne
CHC	VIC-CM045	Melbourne	Cyanide	VIC-CM073	Melbourne
Total Fluoride	VIC-CM090	Melbourne	HVOL	VIC-CM047	Melbourne
MAH	VIC-CM051 & CM047	Melbourne	MS ASLP(Acet) Metals	VIC-CM050 C; VIC-CM082	Melbourne
MS Total Metals	VIC-CM050 C	Melbourne	OCP	VIC-CM048	Melbourne
PAH	VIC-CM043	Melbourne	PCB	VIC-CM048	Melbourne
Phenols(Halo)	VIC-CM056	Melbourne	Phenols(NonHalo)	VIC-CM056	Melbourne
Total Cr 6+	VIC-CM089	Melbourne	TPH	VIC-CM030	Melbourne

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Signatories

These results have been electronically signed by the authorised signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11

Name	*Title*	*Name*	*Title*
Brad Snibson	**Client Manager**	**Chatura Perera**	**Chemist / Analyst**
Hao Zhang	**Principal Organic Chemist**	**John Earl**	**Team Leader - Metals**
Kosta Christopoulos	**Chemist/Analyst**	**Michael Clahsen**	**Principal Inorganic Chemist**
Peter Bell	**Analyst**		

Samples tested as received.

Soil results expressed in mg/kg dry weight unless specified otherwise.
Microbiological testing was commenced within 24 hours of sampling unless otherwise stated.
VIC-MM524: Plate count results <10 per mL and >300 per mL are deemed as approximate.
VIC-MM526: Plate count results <2,500 per mL and >250,000 per mL are deemed as approximate.
Calculated results are based on raw data.

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Batch No:	**12-06827**
Report Number:	**282749**
Client:	**ALS Laboratory Group (WRG)**
ALS Program Ref:	**ALSWRG**
Program Description:	**Miscellaneous Samples from ALS WRG**

Batch No: **12-06827**
Report Number: **282749**
Client: **ALS Laboratory Group (WRG)**
ALS Program Ref: **ALSWRG**
Program Description: **Miscellaneous Samples from ALS WRG**

Sample No	Site Code	Site Description	Sample Type	Sampled Date/Time
2911377		Dam 1 Comp Sediment	SOIL	02/02/12 11:00
2911378		Dam 1 Comp Sediment Dup.	SOIL	02/02/12 11:15

Analysis - Analyte	*Sample No. Site Code Units*	2911377	2911378
Total Fluoride - Total Fluoride, as F	mg/kg	430	430
Cyanide - Cyanide, as CN	mg/kg	<5	<5
ASLP (Acetate) CN - ASLP Cyanide	mg/L	0.009	0.010
ASLP (Acet.) Cr - ASLP Chromium 6+	mg/L	<0.01	<0.01
ASLP(Ace.)-F - Leachate Fluoride	mg/L	<0.3	<0.25
Total Cr 6+ - Hexavalent Chromium (Total) Soil	mg/kg	<1	<1
MS Total Metals - Arsenic	mg/kg	10	6
MS Total Metals - Cadmium	mg/kg	0.4	0.8
MS Total Metals - Copper	mg/kg	32	57
MS Total Metals - Lead	mg/kg	65	69
MS Total Metals - Mercury	mg/kg	0.37	0.48
MS Total Metals - Molybdenum	mg/kg	<5	<5
MS Total Metals - Nickel	mg/kg	30	58
MS Total Metals - Selenium	mg/kg	<3	5
MS Total Metals - Silver	mg/kg	<5	<5
MS Total Metals - Tin	mg/kg	<5	<5
MS Total Metals - Zinc	mg/kg	390	670
MS ASLP(Acet) Metals - ASLP-Arsenic	mg/L	<0.01	<0.01
MS ASLP(Acet) Metals - ASLP-Cadmium	mg/L	<0.002	0.002
MS ASLP(Acet) Metals - ASLP-Copper	mg/L	<0.01	<0.01
MS ASLP(Acet) Metals - ASLP-Lead	mg/L	0.05	0.02
MS ASLP(Acet) Metals - ASLP-Mercury	mg/L	<0.001	<0.001
MS ASLP(Acet) Metals - ASLP-Molybdenum	mg/L	<0.01	<0.01
MS ASLP(Acet) Metals - ASLP-Nickel	mg/L	0.06	0.07
MS ASLP(Acet) Metals - ASLP-Selenium	mg/L	<0.01	<0.01
MS ASLP(Acet) Metals - ASLP-Silver	mg/L	<0.01	<0.01
MS ASLP(Acet) Metals - ASLP-Zinc	mg/L	2.5	4.8
MAH - Benzene	mg/kg	<1	<2
MAH - Toluene	mg/kg	<1	<2
MAH - Ethyl Benzene	mg/kg	<1	<2
MAH - Xylenes	mg/kg	1.3	<2
MAH - Styrene	mg/kg	<1	<2
MAH - Cumene	mg/kg	<1	<2
MAH - 1,2,4-Trimethylbenzene	mg/kg	1.6	<2
TPH - Petroleum Hydrocarbons (C6-C9)	mg/kg	85	180
TPH - Petroleum Hydrocarbons (C10-C14)	mg/kg	2400	7700
TPH - Petroleum Hydrocarbons (C15-C28)	mg/kg	19000	65000
TPH - Petroleum Hydrocarbons (C29-C36)	mg/kg	950	2600
PAH - Acenaphthene	mg/kg	<0.9	<3
PAH - Acenaphthylene	mg/kg	<2	<4
PAH - Anthracene	mg/kg	<2	<7
PAH - Benz(a)anthracene	mg/kg	2.1	3.3
PAH - Benzo(a)pyrene	mg/kg	1.6	2.4
PAH - Benzo(b)fluoranthene	mg/kg	1.7	2.6
PAH - Benzo(g,h,i)perylene	mg/kg	2.9	4.3
PAH - Benzo(k)fluoranthene	mg/kg	2.2	3.4
PAH - Chrysene	mg/kg	2.6	4.3
PAH - Dibenz(a,h)anthracene	mg/kg	<0.3	<0.4
PAH - Fluoranthene	mg/kg	6.6	12
PAH - Fluorene	mg/kg	5.1	18

A blank space indicates no test performed.

Batch No: **12-06827**
Report Number: **282749**
Client: **ALS Laboratory Group (WRG)**
ALS Program Ref: **ALSWRG**
Program Description: **Miscellaneous Samples from ALS WRG**

Sample No	Site Code	Site Description	Sample Type	Sampled Date/Time
2911377		Dam 1 Comp Sediment	SOIL	02/02/12 11:00
2911378		Dam 1 Comp Sediment Dup.	SOIL	02/02/12 11:15

		2911377	2911378
PAH - Indeno(1,2,3-cd)pyrene	mg/kg	2.3	3.5
PAH - Naphthalene	mg/kg	3.7	5.1
PAH - Phenanthrene	mg/kg	7.8	31
PAH - Pyrene	mg/kg	13	24
PAH - Total PAH	mg/kg	52	110
OCP - BHC (alpha isomer)	mg/kg	<0.3	<0.4
OCP - a-Endosulphan	mg/kg	<0.3	<0.4
OCP - Aldrin	mg/kg	<0.3	<0.4
OCP - BHC (beta isomer)	mg/kg	<0.3	<0.4
OCP - b-Endosulphan	mg/kg	<0.3	<0.4
OCP - cis-Chlordane	mg/kg	<0.3	<0.4
OCP - trans-Chlordane	mg/kg	<0.3	<0.4
OCP - BHC (delta isomer)	mg/kg	<0.3	<0.4
OCP - DDD	mg/kg	<0.3	<0.4
OCP - DDE	mg/kg	<0.3	<0.4
OCP - DDT	mg/kg	<0.3	<0.4
OCP - Dieldrin	mg/kg	<0.3	<0.4
OCP - Endosulfan Sulfate	mg/kg	<0.3	<0.4
OCP - Endrin	mg/kg	<0.3	<0.4
OCP - Endrin Aldehyde	mg/kg	<0.3	<0.4
OCP - Endrin Ketone	mg/kg	<0.3	<0.4
OCP - Hexachlorobenzene	mg/kg	<0.3	<0.4
OCP - Heptachlor Epoxide	mg/kg	<0.3	<0.4
OCP - Heptachlor	mg/kg	<0.3	<0.4
OCP - BHC (gamma isomer) [Lindane]	mg/kg	<0.3	<0.4
OCP - Methoxychlor	mg/kg	<0.3	<0.4
PCB - Aroclor 1016	mg/kg	<0.6	<0.9
PCB - Aroclor 1221	mg/kg	<0.6	<0.9
PCB - Aroclor 1232	mg/kg	<0.6	<0.9
PCB - Aroclor 1242	mg/kg	<0.6	<0.9
PCB - Aroclor 1248	mg/kg	<0.6	<0.9
PCB - Aroclor 1254	mg/kg	<0.6	<0.9
PCB - Aroclor 1260	mg/kg	<0.6	<0.9
PCB - Total PCB	mg/kg	<0.6	<0.9
CHC - 1,2,3,4-Tetrachlorobenzene	mg/kg	<0.3	<0.4
CHC - 1,2,3,5-Tetrachlorbenzene	mg/kg	<0.3	<0.4
CHC - 1,2,3-Trichlorobenzene	mg/kg	<0.3	<0.4
CHC - 1,2,4,5-Tetrachlorobenzene	mg/kg	<0.3	<0.4
CHC - 1,2,4-Trichlorobenzene	mg/kg	<0.3	<0.4
CHC - 1,2-Dichlorobenzene	mg/kg	<0.3	<0.4
CHC - 1,3,5-Trichlorobenzene	mg/kg	<0.3	<0.4
CHC - 1,3-Dichlorobenzene	mg/kg	<0.3	<0.4
CHC - 1,4-Dichlorobenzene	mg/kg	<0.3	<0.4
CHC - 2-Chloronaphthalene	mg/kg	<0.3	<0.4
CHC - Benzal Chloride	mg/kg	<0.3	<0.4
CHC - Benzotrichloride	mg/kg	<0.3	<0.4
CHC - Benzylchloride	mg/kg	<0.3	<0.4
CHC - Hexachloroethane	mg/kg	<0.3	<0.4
CHC - Hexachlorobutadiene	mg/kg	<0.3	<0.4
CHC - Hexachlorocyclopentadiene	mg/kg	<0.3	<0.4

Batch No: **12-06827**
Report Number: **282749**
Client: **ALS Laboratory Group (WRG)**
ALS Program Ref: **ALSWRG**
Program Description: **Miscellaneous Samples from ALS WRG**

Sample No	Site Code	Site Description	Sample Type	Sampled Date/Time
2911377		Dam 1 Comp Sediment	SOIL	02/02/12 11:00
2911378		Dam 1 Comp Sediment Dup.	SOIL	02/02/12 11:15

		2911377	2911378
CHC - Pentachlorobenzene	mg/kg	<0.3	<0.4
Phenols(Halo) - 4-Chloro-3-Methylphenol	mg/kg	<1	<1
Phenols(Halo) - 2-Chlorophenol	mg/kg	<1	<1
Phenols(Halo) - 2,4-Dichlorophenol	mg/kg	<1	<1
Phenols(Halo) - 2,6-Dichlorophenol	mg/kg	<1	<1
Phenols(Halo) - Pentachlorophenol	mg/kg	<1	<1
Phenols(Halo) - 2,3,4,5-Tetrachlorophenol	mg/kg	<1	<1
Phenols(Halo) - 2,3,4,6-Tetrachlorophenol	mg/kg	<1	<1
Phenols(Halo) - 2,3,5,6-Tetrachlorophenol	mg/kg	<1	<1
Phenols(Halo) - 2,4,5-Trichlorophenol	mg/kg	<1	<1
Phenols(Halo) - 2,4,6-Trichlorophenol	mg/kg	<1	<1
Phenols(Halo) - Total Phenols (Halogenated)	mg/kg	<1	<1
Phenols(NonHalo) - Phenol	mg/kg	<1	<1
Phenols(NonHalo) - Total Cresols	mg/kg	<2	<2
Phenols(NonHalo) - 2,4-Dimethylphenol	mg/kg	<1	<1
Phenols(NonHalo) - 2,4-Dinitrophenol	mg/kg	<60	<60
Phenols(NonHalo) - 2-Methyl-4,6-Dinitrophenol	mg/kg	<20	<20
Phenols(NonHalo) - 2-Nitrophenol	mg/kg	<1	<1
Phenols(NonHalo) - 4-Nitrophenol	mg/kg	<1	<1
Phenols(NonHalo) - 2-Cyclohexyl-4,6-Dinitrophenol	mg/kg	<60	<60
Phenols(NonHalo) - Dinoseb	mg/kg	<20	<20
Phenols(NonHalo) - Total Phenols (non Halogenated)	mg/kg	<60	<60
AS(Ac)Phen(H) - 4-Chloro-3-Methylphenol	mg/L	<0.01	<0.01
AS(Ac)Phen(H) - 2-Chlorophenol	mg/L	<0.01	<0.01
AS(Ac)Phen(H) - 2,4-Dichlorophenol	mg/L	<0.01	<0.01
AS(Ac)Phen(H) - 2,6-Dichlorophenol	mg/L	<0.01	<0.01
AS(Ac)Phen(H) - Pentachlorophenol	mg/L	<0.01	<0.01
AS(Ac)Phen(H) - 2,3,4,5-Tetrachlorophenol	mg/L	<0.01	<0.01
AS(Ac)Phen(H) - 2,3,4,6-Tetrachlorophenol	mg/L	<0.01	<0.01
AS(Ac)Phen(H) - 2,3,5,6-Tetrachlorophenol	mg/L	<0.01	<0.01
AS(Ac)Phen(H) - 2,4,5-Trichlorophenol	mg/L	<0.01	<0.01
AS(Ac)Phen(H) - 2,4,6-Trichlorophenol	mg/L	<0.01	<0.01
AS(Ac)Phen(H) - Total Phenols (Halogenated)	mg/L	<0.01	<0.01
AS(Ac)Phen(NH) - Phenol	mg/L	<0.01	<0.01
AS(Ac)Phen(NH) - 2-Methylphenol (O-Cresol)	mg/L	<0.01	<0.01
AS(Ac)Phen(NH) - 3-Methylphenol (M-Cresol)	mg/L	<0.01	<0.01
AS(Ac)Phen(NH) - 4-Methylphenol (P-Cresol)	mg/L	<0.01	<0.01
AS(Ac)Phen(NH) - 2,4-Dimethylphenol	mg/L	<0.01	<0.01
AS(Ac)Phen(NH) - 2,4-Dinitrophenol	mg/L	<2	<2
AS(Ac)Phen(NH) - 2-Methyl-4,6-Dinitrophenol	mg/L	<0.5	<0.5
AS(Ac)Phen(NH) - 2-Nitrophenol	mg/L	<0.01	<0.01
AS(Ac)Phen(NH) - 4-Nitrophenol	mg/L	<0.01	<0.01
AS(Ac)Phen(NH) - 2-Cyclohexyl-4,6-Dinitrophenol	mg/L	<2	<2
AS(Ac)Phen(NH) - Dinoseb	mg/L	<0.5	<0.5
AS(Ac)Phen(NH) - Total Phenols (non Halogenated)	mg/L	<2	<2
HVOL - 1,1,1,2-Tetrachloroethane	mg/kg	<1	<2
HVOL - 1,1,2,2-Tetrachloroethane	mg/kg	<1	<2
HVOL - 1,1- Dichloroethane	mg/kg	<1	<2
HVOL - 1,1-Dichloroethene	mg/kg	<1	<2
HVOL - 1,1-Dichloropropene	mg/kg	<1	<2

Sample No	Site Code	Site Description	Sample Type	Sampled Date/Time
2911377		Dam 1 Comp Sediment	SOIL	02/02/12 11:00
2911378		Dam 1 Comp Sediment Dup.	SOIL	02/02/12 11:15

		2911377	2911378
HVOL - 1,2,3-Trichloropropane	mg/kg	<1	<2
HVOL - 1,2-Dibromo-3-Chloropropane	mg/kg	<1	<2
HVOL - 1,2-Dichloroethene [cis]	mg/kg	<1	<2
HVOL - 1,2-Dichloroethene [trans]	mg/kg	<1	<2
HVOL - 1,2-Dichloroethane	mg/kg	<1	<2
HVOL - 1,2-Dichloropropane	mg/kg	<1	<2
HVOL - 1,3-Dichloropropane	mg/kg	<1	<2
HVOL - 1,3-Dichloropropene [cis]	mg/kg	<1	<2
HVOL - 1,3-Dichloropropene [trans]	mg/kg	<1	<2
HVOL - 2,2-Dichloropropane	mg/kg	<1	<2
HVOL - 2-Chlorotoluene	mg/kg	<1	<2
HVOL - 4-Chlorotoluene	mg/kg	<1	<2
HVOL - Bromochloromethane	mg/kg	<1	<2
HVOL - Bromodichloromethane	mg/kg	<1	<2
HVOL - Bromobenzene	mg/kg	<1	<2
HVOL - Bromoform (Tribromomethane)	mg/kg	<1	<2
HVOL - Carbon Tetrachloride	mg/kg	<1	<2
HVOL - Chloroform (Trichloromethane)	mg/kg	<1	<2
HVOL - Chlorobenzene	mg/kg	<1	<2
HVOL - Dibromochloromethane	mg/kg	<1	<2
HVOL - Dibromomethane	mg/kg	<1	<2
HVOL - 1,2-Dibromoethane	mg/kg	<1	<2
HVOL - Dichloromethane	mg/kg	<1	<2
HVOL - Trichlorofluoromethane (CFC11)	mg/kg	<1	<2
HVOL - Tetrachloroethene	mg/kg	<1	<2
HVOL - Vinyl Chloride (Monomer)	mg/kg	<1	<2
HVOL - 1,1,1-Trichloroethane	mg/kg	<1	<2
HVOL - 1,1,2-Trichloroethane	mg/kg	<1	<2
HVOL - Trichloroethene	mg/kg	<1	<2
ASLP(Acet.) MAH - Benzene	mg/L	<0.01	<0.01
ASLP(Acet.) MAH - Toluene	mg/L	<0.01	<0.01
ASLP(Acet.) MAH - Ethyl Benzene	mg/L	<0.01	<0.01
ASLP(Acet.) MAH - Xylenes	mg/L	<0.03	<0.03
ASLP(Acet.) MAH - Styrene	mg/L	<0.01	<0.01
ASLP(Acet.) MAH - Cumene/Isopropyl Benzene/EMB	mg/L	<0.01	<0.01
ASLP(Acet.) MAH - 1,2,4-Trimethylbenzene/TMB	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,1,1,2-Tetrachloroethane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,1,2,2-Tetrachloroethane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,1- Dichloroethane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,1-Dichloroethene	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,1-Dichloropropene	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,2,3-Trichloropropane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,2-Dibromo-3-chloropropane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,2-Dibromoethane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,2-Dichloroethene [cis]	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,2-Dichloroethene [trans]	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,2-Dichloroethane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,2-Dichloropropane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,3-Dichloropropane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,3-Dichloropropene [cis]	mg/L	<0.01	<0.01

Batch No: **12-06827**
Report Number: **282749**
Client: **ALS Laboratory Group (WRG)**
ALS Program Ref: **ALSWRG**
Program Description: **Miscellaneous Samples from ALS WRG**

Sample No	Site Code	Site Description	Sample Type	Sampled Date/Time
2911377		Dam 1 Comp Sediment	SOIL	02/02/12 11:00
2911378		Dam 1 Comp Sediment Dup.	SOIL	02/02/12 11:15

		2911377	2911378
ASLP(Acet.) Hvol. - 1,3-Dichloropropene [trans]	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 2,2-Dichloropropane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 2-Chlorotoluene	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 4-Chlorotoluene	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Bromochloromethane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Bromodichloromethane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Bromobenzene	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Bromoform (Tribromomethane)	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Carbon Tetrachloride	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Chloroform (Trichloromethane)	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Chlorobenzene	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Dibromochloromethane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Dibromomethane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Dichloromethane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Trichlorofluoromethane (CFC11)	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Tetrachloroethene	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Vinyl Chloride (Monomer)	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,1,1-Trichloroethane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - 1,1,2-Trichlorethane	mg/L	<0.01	<0.01
ASLP(Acet.) Hvol. - Trichloroethene	mg/L	<0.01	<0.01
ASLP(Acet.) PAH - Naphthalene	mg/L	0.011	0.005
ASLP(Acet.) PAH - Acenapthylene	mg/L	<0.001	<0.001
ASLP(Acet.) PAH - Acenaphthene	mg/L	<0.001	<0.001
ASLP(Acet.) PAH - Fluorene	mg/L	0.002	0.002
ASLP(Acet.) PAH - Phenanthrene	mg/L	0.002	0.002
ASLP(Acet.) PAH - Anthracene	mg/L	<0.001	<0.001
ASLP(Acet.) PAH - Fluoranthene	mg/L	<0.001	<0.001
ASLP(Acet.) PAH - Pyrene	mg/L	<0.001	<0.001
ASLP(Acet.) PAH - Benz(a)anthracene	mg/L	<0.001	<0.001
ASLP(Acet.) PAH - Chrysene	mg/L	<0.001	<0.001
ASLP(Acet.) PAH - Benzo(b)fluoranthene	mg/L	<0.001	<0.001
ASLP(Acet.) PAH - Benzo(k)fluoroanthene	mg/L	<0.001	<0.001
ASLP(Acet.) PAH - Benzo(a)pyrene	mg/L	<0.001	<0.001
ASLP(Acet.) PAH - Dibenz(a,h)anthracene	mg/L	<0.001	<0.001
ASLP(Acet.) PAH - Benzo(g,h,i)perylene	mg/L	<0.001	<0.001
ASLP(Acet.) PAH - Indeno(1,2,3-cd)pyrene	mg/L	<0.001	<0.001
ASLP(Acet.) PAH - Total PAH	mg/L	0.015	0.009
ASLP(Acet.) OCP - BHC (alpha Isomer)	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - Aldrin	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - BHC (beta Isomer)	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - cis-Chlordane	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - trans-Chlordane	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - BHC (delta Isomer)	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - 4,4'-DDD	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - 4,4'-DDE	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - 4,4'-DDT	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - Dieldrin	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - Endosulfan I	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - Endosulfan II	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - Endosulphan Sulfate	mg/L	<0.001	<0.001

Batch No: **12-06827**
Report Number: **282749**
Client: **ALS Laboratory Group (WRG)**
ALS Program Ref: **ALSWRG**
Program Description: **Miscellaneous Samples from ALS WRG**

Sample No	Site Code	Site Description	Sample Type	Sampled Date/Time
2911377		Dam 1 Comp Sediment	SOIL	02/02/12 11:00
2911378		Dam 1 Comp Sediment Dup.	SOIL	02/02/12 11:15

		2911377	2911378
ASLP(Acet.) OCP - Endrin Aldehyde	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - Endrin	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - Hexachlorobenzene	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - Heptachlor Epoxide	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - Heptachlor	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - Lindane (BHC gamma Isomer)	mg/L	<0.001	<0.001
ASLP(Acet.) OCP - Methoxychlor	mg/L	<0.001	<0.001
ASLP(Acet.) CHC - 1,2,4,5-Tetrachlorobenzene	mg/L	<0.001	<0.001
ASLP(Acet.) CHC - 1,2,4-Trichlorobenzene	mg/L	<0.001	<0.001
ASLP(Acet.) CHC - 1,2-Dichlorobenzene	mg/L	<0.001	<0.001
ASLP(Acet.) CHC - 1,3-Dichlorobenzene	mg/L	<0.001	<0.001
ASLP(Acet.) CHC - 1,4-Dichlorobenzene	mg/L	<0.001	<0.001
ASLP(Acet.) CHC - 2-Chloronaphthalene	mg/L	<0.001	<0.001
ASLP(Acet.) CHC - Benzal Chloride	mg/L	<0.001	<0.001
ASLP(Acet.) CHC - Benzotrichloride	mg/L	<0.001	<0.001
ASLP(Acet.) CHC - Benzylchloride	mg/L	<0.001	<0.001
ASLP(Acet.) CHC - Hexachloroethane	mg/L	<0.001	<0.001
ASLP(Acet.) CHC - Hexachlorobutadiene	mg/L	<0.001	<0.001
ASLP(Acet.) CHC - Hexachlorocyclopentadiene	mg/L	<0.001	<0.001
ASLP(Acet.) CHC - Pentachlorobenzene	mg/L	<0.001	<0.001
ASLP(Acetate) Prep - Leach Fluid pH	pH units	4.9	4.9
ASLP(Acetate) Prep - Solids Leachate pH (post rolling)	pH units	4.9	4.8
ASLP(Ace) ZH - Leach Fluid pH	pH units	4.9	4.9
ASLP(Ace) ZH - Solids Leachate pH (post rolling)	pH units	4.9	4.8

Environmental Division (Water Resources Group)

CERTIFICATE OF ANALYSIS

Batch No:	**12-06797**	*Page*	**Page 1 of 8**
Final Report	**282759**	*Laboratory*	Scoresby Laboratory
Client:	**ALS Laboratory Group (WRG)**	*Address*	Caribbean Business Park, 22 Dalmore Drive, Scoresby, VIC 3179
Contact:	**Peter te Hennepe**	*Phone*	03 8756 8000
Address:	Caribbean Business Park 22 Dalmore Drive SCORESBY VIC 3179	*Fax*	03 9763 1862
		Contact:	Brad Snibson Client Manager Brad.Snibson@alsglobal.com
PO No:	**Not Available**	Date Sampled:	**02-Feb-2012**
Sampler Name:	**Peter TeHennepe**	Date Samples Received:	**02-Feb-2012**
ALS Program Ref:	**ALSWRG**	*Date Issued:*	**09-Feb-2012**
Program Description:	**Miscellaneous Samples from ALS WRG**		
Client Ref:	**Storage Water Samples**		

The sample(s) referred to in this report were analysed by the following method(s):
- NATA accreditation does not cover the performance of this service

Analysis	*Method*	*Laboratory*	*Analysis*	*Method*	*Laboratory*
Field Cl2	VIC-OP001	Melbourne	BOD5	VIC-CM028	Melbourne
CHC	VIC-CM045	Melbourne	Cyanide	VIC-CM073	Melbourne
Colilert (2000)	VIC-MM514	Melbourne	Cr 6+	VIC-CM034	Melbourne
Fluoride	VIC-CM066	Melbourne	HVOL	VIC-CM047	Melbourne
MAH	VIC-CM051 & CM047	Melbourne	MS Total Metals	VIC-CM050 C	Melbourne
OCP	VIC-CM048	Melbourne	PAH	VIC-CM043	Melbourne
PCBs	VIC-CM048	Melbourne	pH	VIC-CM060 B	Melbourne
Phenols(Halo)	VIC-CM056	Melbourne	Phenols(NonHalo)	VIC-CM056	Melbourne
Ps aeruginosa	VIC-MM528	Melbourne	SS	APHA 2540 D	Melbourne
TPH	VIC-CM030	Melbourne	Turbidity	VIC-CM013	Melbourne

Result for pH in water tested in the laboratory may be indicative only as holding time is generally not achievable. (6 hrs from time of sampling, AS5667.1)

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Signatories

These results have been electronically signed by the authorised signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11

Name	*Title*	*Name*	*Title*
Barbara Powell	**Analyst**	**Brad Snibson**	**Client Manager**
Chatura Perera	**Chemist / Analyst**	**Hao Zhang**	**Principal Organic Chemist**
John Earl	**Team Leader - Metals**	**Kosta Christopoulos**	**Chemist/Analyst**
Michael Clahsen	**Principal Inorganic Chemist**	**Peter Bell**	**Analyst**
Tanya Dukhno	**Analyst**		

Samples tested as received.

Soil results expressed in mg/kg dry weight unless specified otherwise.
Microbiological testing was commenced within 24 hours of sampling unless otherwise stated.
VIC-MM524: Plate count results <10 per mL and >300 per mL are deemed as approximate.
VIC-MM526: Plate count results <2,500 per mL and >250,000 per mL are deemed as approximate.
Calculated results are based on raw data.

Batch No: **12-06797**
Report Number: **282759**
Client: **ALS Laboratory Group (WRG)**
ALS Program Ref: **ALSWRG**
Program Description: **Miscellaneous Samples from ALS WRG**

Sample No	Site Code	Site Description	Sample Type	Sampled Date/Time
2911130		Dam 1 - Initial storage water sample	WATER	02/02/12
2911131		Dam 2 - Reuse storage water sample	WATER	02/02/12 11:30
2911132		Dam 3 - Intermediate storage water sample	WATER	02/02/12 12:00
2911133		Dam 4 - Intermediate storage water sample	WATER	02/02/12 13:30

Analysis - Analyte	*Sample No. Site Code Units*	2911130	2911131	2911132	2911133
Field Cl2 - Free Chlorine (Field)	mg/L		NR		
Field Cl2 - Total Chlorine (Field)	mg/L		NR		
pH - pH, units	Units		8.5		
BOD5 - Biochemical Oxygen Demand, 5 Day	mg/L		45		
SS - Suspended Solids	mg/L		79		
Turbidity - Turbidity, NTU	NTU		58		
Fluoride - Fluoride, as F	mg/L	0.58	0.67	0.76	0.86
Cyanide - Total Cyanide, as CN	mg/L	<0.005	<0.005	<0.005	<0.005
Cr 6+ - Chromium 6+, as Cr	mg/L	<0.01	<0.01	<0.01	<0.01
MS Total Metals - Arsenic	mg/L	<0.001	0.002	0.002	0.001
MS Total Metals - Cadmium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
MS Total Metals - Copper	mg/L	0.002	<0.001	<0.001	<0.001
MS Total Metals - Lead	mg/L	0.001	<0.001	<0.001	<0.001
MS Total Metals - Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
MS Total Metals - Molybdenum	mg/L	<0.001	0.001	<0.001	<0.001
MS Total Metals - Nickel	mg/L	0.004	0.004	0.002	0.002
MS Total Metals - Selenium	mg/L	<0.001	<0.001	<0.001	<0.001
MS Total Metals - Silver	mg/L	<0.001	<0.001	<0.001	<0.001
MS Total Metals - Tin	mg/L	<0.001	<0.001	<0.001	<0.001
MS Total Metals - Zinc	mg/L	0.038	0.020	0.011	0.008
MAH - Benzene	mg/L	<0.001	<0.001	<0.001	<0.001
MAH - Toluene	mg/L	<0.001	<0.001	<0.001	<0.001
MAH - Ethyl Benzene	mg/L	<0.001	<0.001	<0.001	<0.001
MAH - Xylenes	mg/L	<0.003	<0.003	<0.003	<0.003
MAH - Styrene	mg/L	<0.001	<0.001	<0.001	<0.001
MAH - Cumene	mg/L	<0.001	<0.001	<0.001	<0.001
MAH - 1,2,4-Trimethylbenzene	mg/L	<0.001	<0.001	<0.001	<0.001
TPH - Petroleum Hydrocarbons, C6-C9	mg/L	<0.1	<0.1	<0.1	<0.1
TPH - Petroleum Hydrocarbons, C10-C14	mg/L	0.1	<0.1	<0.1	<0.1
TPH - Petroleum Hydrocarbons, C15-C28	mg/L	1.4	1.0	0.1	<0.1
TPH - Petroleum Hydrocarbons, C29-C36	mg/L	0.1	0.3	<0.1	<0.1
PAH - Naphthalene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Acenapthylene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Acenaphthene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Fluorene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Phenanthrene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Anthracene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Fluoranthene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Pyrene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Benz(a)anthracene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Chrysene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Benzo(b)fluoranthene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Benzo(k)fluoroanthene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Benzo(a)pyrene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Dibenz(a,h)anthracene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Benzo(g,h,i)perylene	mg/L	<0.001	<0.001	<0.001	<0.001

A blank space indicates no test performed.

Batch No: **12-06797**
Report Number: **282759**
Client: **ALS Laboratory Group (WRG)**
ALS Program Ref: **ALSWRG**
Program Description: **Miscellaneous Samples from ALS WRG**

Sample No	Site Code	Site Description	Sample Type	Sampled Date/Time
2911130		Dam 1 - Initial storage water sample	WATER	02/02/12
2911131		Dam 2 - Reuse storage water sample	WATER	02/02/12 11:30
2911132		Dam 3 - Intermediate storage water sample	WATER	02/02/12 12:00
2911133		Dam 4 - Intermediate storage water sample	WATER	02/02/12 13:30

		2911130	2911131	2911132	2911133
PAH - Indeno(1,2,3-cd)pyrene	mg/L	<0.001	<0.001	<0.001	<0.001
PAH - Total PAH	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - BHC (alpha Isomer)	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - Aldrin	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - BHC (beta Isomer)	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - cis-Chlordane	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - trans-Chlordane	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - BHC (delta Isomer)	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - 4,4-DDD	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - 4,4-DDE	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - 4,4-DDT	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - Dieldrin	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - Endosulfan I	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - Endosulfan Sulfate	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - Endrin Aldehyde	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - Endrin	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - Endrin Ketone	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - Endosulfan II	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - Hexachlorobenzene	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - Heptachlor Epoxide	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - Heptachlor	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - Lindane (BHC gamma Isomer)	mg/L	<0.001	<0.001	<0.001	<0.001
OCP - Methoxychlor	mg/L	<0.001	<0.001	<0.001	<0.001
PCBs - Aroclor 1016	mg/L	<0.001	<0.001	<0.001	<0.001
PCBs - Aroclor 1221	mg/L	<0.001	<0.001	<0.001	<0.001
PCBs - Aroclor 1232	mg/L	<0.001	<0.001	<0.001	<0.001
PCBs - Aroclor 1242	mg/L	<0.001	<0.001	<0.001	<0.001
PCBs - Aroclor 1248	mg/L	<0.001	<0.001	<0.001	<0.001
PCBs - Aroclor 1254	mg/L	<0.001	<0.001	<0.001	<0.001
PCBs - Aroclor 1260	mg/L	<0.001	<0.001	<0.001	<0.001
PCBs - Total PCB	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - 1,2,3,4-Tetrachlorobenzene	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - 1,2,3,5-Tetrachlorobenzene	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - 1,2,3-Trichlorobenzene	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - 1,2,4,5-Tetrachlorobenzene	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - 1,2,4-Trichlorobenzene	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - 1,2-Dichlorobenzene	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - 1,3,5-Trichlorobenzene	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - 1,3-Dichlorobenzene	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - 1,4-Dichlorobenzene	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - 2-Chloronaphthalene	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - Benzal Chloride	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - Benzotrichloride	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - Benzylchloride	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - Hexachloroethane	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - Hexachlorobutadiene	mg/L	<0.001	<0.001	<0.001	<0.001

Batch No: **12-06797**
Report Number: **282759**
Client: **ALS Laboratory Group (WRG)**
ALS Program Ref: **ALSWRG**
Program Description: **Miscellaneous Samples from ALS WRG**

Sample No	Site Code	Site Description	Sample Type	Sampled Date/Time
2911130		Dam 1 - Initial storage water sample	WATER	02/02/12
2911131		Dam 2 - Reuse storage water sample	WATER	02/02/12 11:30
2911132		Dam 3 - Intermediate storage water sample	WATER	02/02/12 12:00
2911133		Dam 4 - Intermediate storage water sample	WATER	02/02/12 13:30

		2911130	2911131	2911132	2911133
CHC - Hexachlorocyclopentadiene	mg/L	<0.001	<0.001	<0.001	<0.001
CHC - Pentachlorobenzene	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,1,1,2-Tetrachloroethane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,1,2,2-Tetrachloroethane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,1- Dichloroethane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,1-Dichloroethene	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,1-Dichloropropene	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,2,3-Trichloropropane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,2-Dibromo-3-chloropropane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,2-Dibromoethane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,2-Dichloroethene [cis]	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,2-Dichloroethene [trans]	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,2-Dichloroethane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,2-Dichloropropane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,3-Dichloropropane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,3-Dichloropropene [cis]	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,3-Dichloropropene [trans]	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 2,2-Dichloropropane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 2-Chlorotoluene	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 4-Chlorotoluene	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - Bromochloromethane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - Bromodichloromethane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - Bromobenzene	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - Bromoform (Tribromomethane)	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - Carbon Tetrachloride	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - Chloroform (Trichloromethane)	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - Chlorobenzene	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - Dibromochloromethane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - Dibromomethane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - Dichloromethane	mg/L	<0.002	<0.002	<0.002	<0.002
HVOL - Trichlorofluoromethane (CFC11)	mg/L	<0.002	<0.002	<0.002	<0.002
HVOL - Tetrachloroethene	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - Vinyl Chloride (Monomer)	mg/L	<0.002	<0.002	<0.002	<0.002
HVOL - 1,1,1-Trichloroethane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - 1,1,2-Trichlorethane	mg/L	<0.001	<0.001	<0.001	<0.001
HVOL - Trichloroethene	mg/L	<0.001	<0.001	<0.001	<0.001
Phenols(Halo) - 4-Chloro-3-Methylphenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(Halo) - 2-Chlorophenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(Halo) - 2,4-Dichlorophenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(Halo) - 2,6-Dichlorophenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(Halo) - Pentachlorophenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(Halo) - 2,3,4,5-Tetrachlorophenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(Halo) - 2,3,4,6-Tetrachlorophenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(Halo) - 2,3,5,6-Tetrachlorophenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(Halo) - 2,4,5-Trichlorophenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(Halo) - 2,4,6-Trichlorophenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001

Sample No	Site Code	Site Description	Sample Type	Sampled Date/Time
2911130		Dam 1 - Initial storage water sample	WATER	02/02/12
2911131		Dam 2 - Reuse storage water sample	WATER	02/02/12 11:30
2911132		Dam 3 - Intermediate storage water sample	WATER	02/02/12 12:00
2911133		Dam 4 - Intermediate storage water sample	WATER	02/02/12 13:30

		2911130	2911131	2911132	2911133
Phenols(Halo) - Total Phenols (Halogenated)	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(NonHalo) - Phenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(NonHalo) - 2-Methylphenol (O-Cresol)	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(NonHalo) - 3-Methylphenol (M-Cresol)	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(NonHalo) - 4-Methylphenol (P-Cresol)	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(NonHalo) - 2,4-Dimethylphenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(NonHalo) - 2-Nitrophenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(NonHalo) - 4-Nitrophenol	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Phenols(NonHalo) - Total Phenols (non Halogenated)	mg/L	<0.001	<0.01 LORR	<0.001	<0.001
Colilert (2000) - E.coli MPN Colilert	orgs/100mL		10		
Ps aeruginosa - Pseudomonas aeruginosa	orgs/100mL		<10		

LORR Limit of Reporting has been raised due to high moisture content, insufficient sample or matrix interference.

Batch No: **12-06797**
Report Number: **282759**
Client: **ALS Laboratory Group (WRG)**
ALS Program Ref: **ALSWRG**
Program Description: **Miscellaneous Samples from ALS WRG**

Sample No	Site Code	Site Description	Sample Type	Sampled Date/Time
2911134		Dam 5 - Fiskville Lake	WATER	02/02/12 13:30

Analysis - Analyte	*Sample No. Site Code Units*	2911134
Fluoride - Fluoride, as F	mg/L	0.36
Cyanide - Total Cyanide, as CN	mg/L	<0.005
Cr 6+ - Chromium 6+, as Cr	mg/L	<0.01
MS Total Metals - Arsenic	mg/L	0.002
MS Total Metals - Cadmium	mg/L	<0.0002
MS Total Metals - Copper	mg/L	<0.001
MS Total Metals - Lead	mg/L	0.001
MS Total Metals - Mercury	mg/L	<0.0001
MS Total Metals - Molybdenum	mg/L	<0.001
MS Total Metals - Nickel	mg/L	0.004
MS Total Metals - Selenium	mg/L	<0.001
MS Total Metals - Silver	mg/L	<0.001
MS Total Metals - Tin	mg/L	<0.001
MS Total Metals - Zinc	mg/L	0.008
MAH - Benzene	mg/L	<0.001
MAH - Toluene	mg/L	<0.001
MAH - Ethyl Benzene	mg/L	<0.001
MAH - Xylenes	mg/L	<0.003
MAH - Styrene	mg/L	<0.001
MAH - Cumene	mg/L	<0.001
MAH - 1,2,4-Trimethylbenzene	mg/L	<0.001
TPH - Petroleum Hydrocarbons, C6-C9	mg/L	<0.1
TPH - Petroleum Hydrocarbons, C10-C14	mg/L	<0.1
TPH - Petroleum Hydrocarbons, C15-C28	mg/L	<0.1
TPH - Petroleum Hydrocarbons, C29-C36	mg/L	<0.1
PAH - Naphthalene	mg/L	<0.001
PAH - Acenapthylene	mg/L	<0.001
PAH - Acenaphthene	mg/L	<0.001
PAH - Fluorene	mg/L	<0.001
PAH - Phenanthrene	mg/L	<0.001
PAH - Anthracene	mg/L	<0.001
PAH - Fluoranthene	mg/L	<0.001
PAH - Pyrene	mg/L	<0.001
PAH - Benz(a)anthracene	mg/L	<0.001
PAH - Chrysene	mg/L	<0.001
PAH - Benzo(b)fluoranthene	mg/L	<0.001
PAH - Benzo(k)fluoroanthene	mg/L	<0.001
PAH - Benzo(a)pyrene	mg/L	<0.001
PAH - Dibenz(a,h)anthracene	mg/L	<0.001
PAH - Benzo(g,h,i)perylene	mg/L	<0.001
PAH - Indeno(1,2,3-cd)pyrene	mg/L	<0.001
PAH - Total PAH	mg/L	<0.001
OCP - BHC (alpha Isomer)	mg/L	<0.001
OCP - Aldrin	mg/L	<0.001
OCP - BHC (beta Isomer)	mg/L	<0.001
OCP - cis-Chlordane	mg/L	<0.001
OCP - trans-Chlordane	mg/L	<0.001
OCP - BHC (delta Isomer)	mg/L	<0.001
OCP - 4,4-DDD	mg/L	<0.001
OCP - 4,4-DDE	mg/L	<0.001
OCP - 4,4-DDT	mg/L	<0.001
OCP - Dieldrin	mg/L	<0.001

Sample No	Site Code	Site Description	Sample Type	Sampled Date/Time
2911134		Dam 5 - Fiskville Lake	WATER	02/02/12 13:30

		2911134
OCP - Endosulfan I	mg/L	<0.001
OCP - Endosulfan Sulfate	mg/L	<0.001
OCP - Endrin Aldehyde	mg/L	<0.001
OCP - Endrin	mg/L	<0.001
OCP - Endrin Ketone	mg/L	<0.001
OCP - Endosulfan II	mg/L	<0.001
OCP - Hexachlorobenzene	mg/L	<0.001
OCP - Heptachlor Epoxide	mg/L	<0.001
OCP - Heptachlor	mg/L	<0.001
OCP - Lindane (BHC gamma Isomer)	mg/L	<0.001
OCP - Methoxychlor	mg/L	<0.001
PCBs - Aroclor 1016	mg/L	<0.001
PCBs - Aroclor 1221	mg/L	<0.001
PCBs - Aroclor 1232	mg/L	<0.001
PCBs - Aroclor 1242	mg/L	<0.001
PCBs - Aroclor 1248	mg/L	<0.001
PCBs - Aroclor 1254	mg/L	<0.001
PCBs - Aroclor 1260	mg/L	<0.001
PCBs - Total PCB	mg/L	<0.001
CHC - 1,2,3,4-Tetrachlorobenzene	mg/L	<0.001
CHC - 1,2,3,5-Tetrachlorobenzene	mg/L	<0.001
CHC - 1,2,3-Trichlorobenzene	mg/L	<0.001
CHC - 1,2,4,5-Tetrachlorobenzene	mg/L	<0.001
CHC - 1,2,4-Trichlorobenzene	mg/L	<0.001
CHC - 1,2-Dichlorobenzene	mg/L	<0.001
CHC - 1,3,5-Trichlorobenzene	mg/L	<0.001
CHC - 1,3-Dichlorobenzene	mg/L	<0.001
CHC - 1,4-Dichlorobenzene	mg/L	<0.001
CHC - 2-Chloronaphthalene	mg/L	<0.001
CHC - Benzal Chloride	mg/L	<0.001
CHC - Benzotrichloride	mg/L	<0.001
CHC - Benzylchloride	mg/L	<0.001
CHC - Hexachloroethane	mg/L	<0.001
CHC - Hexachlorobutadiene	mg/L	<0.001
CHC - Hexachlorocyclopentadiene	mg/L	<0.001
CHC - Pentachlorobenzene	mg/L	<0.001
HVOL - 1,1,1,2-Tetrachloroethane	mg/L	<0.001
HVOL - 1,1,2,2-Tetrachloroethane	mg/L	<0.001
HVOL - 1,1- Dichloroethane	mg/L	<0.001
HVOL - 1,1-Dichloroethene	mg/L	<0.001
HVOL - 1,1-Dichloropropene	mg/L	<0.001
HVOL - 1,2,3-Trichloropropane	mg/L	<0.001
HVOL - 1,2-Dibromo-3-chloropropane	mg/L	<0.001
HVOL - 1,2-Dibromoethane	mg/L	<0.001
HVOL - 1,2-Dichloroethene [cis]	mg/L	<0.001
HVOL - 1,2-Dichloroethene [trans]	mg/L	<0.001
HVOL - 1,2-Dichloroethane	mg/L	<0.001
HVOL - 1,2-Dichloropropane	mg/L	<0.001
HVOL - 1,3-Dichloropropane	mg/L	<0.001
HVOL - 1,3-Dichloropropene [cis]	mg/L	<0.001
HVOL - 1,3-Dichloropropene [trans]	mg/L	<0.001
HVOL - 2,2-Dichloropropane	mg/L	<0.001

Batch No: **12-06797**
Report Number: **282759**
Client: **ALS Laboratory Group (WRG)**
ALS Program Ref: **ALSWRG**
Program Description: **Miscellaneous Samples from ALS WRG**

Sample No	Site Code	Site Description	Sample Type	Sampled Date/Time
2911134		Dam 5 - Fiskville Lake	WATER	02/02/12 13:30

		2911134
HVOL - 2-Chlorotoluene	mg/L	<0.001
HVOL - 4-Chlorotoluene	mg/L	<0.001
HVOL - Bromochloromethane	mg/L	<0.001
HVOL - Bromodichloromethane	mg/L	<0.001
HVOL - Bromobenzene	mg/L	<0.001
HVOL - Bromoform (Tribromomethane)	mg/L	<0.001
HVOL - Carbon Tetrachloride	mg/L	<0.001
HVOL - Chloroform (Trichloromethane)	mg/L	<0.001
HVOL - Chlorobenzene	mg/L	<0.001
HVOL - Dibromochloromethane	mg/L	<0.001
HVOL - Dibromomethane	mg/L	<0.001
HVOL - Dichloromethane	mg/L	<0.002
HVOL - Trichlorofluoromethane (CFC11)	mg/L	<0.002
HVOL - Tetrachloroethene	mg/L	<0.001
HVOL - Vinyl Chloride (Monomer)	mg/L	<0.002
HVOL - 1,1,1-Trichloroethane	mg/L	<0.001
HVOL - 1,1,2-Trichlorethane	mg/L	<0.001
HVOL - Trichloroethene	mg/L	<0.001
Phenols(Halo) - 4-Chloro-3-Methylphenol	mg/L	<0.001
Phenols(Halo) - 2-Chlorophenol	mg/L	<0.001
Phenols(Halo) - 2,4-Dichlorophenol	mg/L	<0.001
Phenols(Halo) - 2,6-Dichlorophenol	mg/L	<0.001
Phenols(Halo) - Pentachlorophenol	mg/L	<0.001
Phenols(Halo) - 2,3,4,5-Tetrachlorophenol	mg/L	<0.001
Phenols(Halo) - 2,3,4,6-Tetrachlorophenol	mg/L	<0.001
Phenols(Halo) - 2,3,5,6-Tetrachlorophenol	mg/L	<0.001
Phenols(Halo) - 2,4,5-Trichlorophenol	mg/L	<0.001
Phenols(Halo) - 2,4,6-Trichlorophenol	mg/L	<0.001
Phenols(Halo) - Total Phenols (Halogenated)	mg/L	<0.001
Phenols(NonHalo) - Phenol	mg/L	<0.001
Phenols(NonHalo) - 2-Methylphenol (O-Cresol)	mg/L	<0.001
Phenols(NonHalo) - 3-Methylphenol (M-Cresol)	mg/L	<0.001
Phenols(NonHalo) - 4-Methylphenol (P-Cresol)	mg/L	<0.001
Phenols(NonHalo) - 2,4-Dimethylphenol	mg/L	<0.001
Phenols(NonHalo) - 2-Nitrophenol	mg/L	<0.001
Phenols(NonHalo) - 4-Nitrophenol	mg/L	<0.001
Phenols(NonHalo) - Total Phenols (non Halogenated)	mg/L	<0.001