



ENVIRONMENTAL PROTECTION DIVISION
WATER STEWARDSHIP DIVISION
MINISTRY OF ENVIRONMENT

**Water Quality Assessment and Objectives
for the Tsulquate River Community Watershed**

TECHNICAL REPORT

Prepared pursuant to Section 5(e) of the *Environmental Management Act* (2003),
Section 150 (1)(a)(ii) of the *Forest and Range Practices Act* (2002) and
Section 8 (1) of the Government Actions Regulation (2004)

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1.0 INTRODUCTION

The Ministry of Environment is conducting a program to assess water quality in designated community watersheds. Community watersheds are defined under the *Forest Practices Code Act of BC* as “the drainage area above the downstream point of diversion and which are licensed under the *Water Act* for waterworks purposes”. These watersheds are generally small (<500 km²) and the stream response times are short and opportunities for dilution or settling are minimal. The purpose of this program is to accumulate the baseline data necessary to assess water quality and to establish ambient water quality objectives on an individual community watershed basis. Water quality objectives provide policy direction for resource managers, serve as a guide for issuing permits, licences, and orders by the Ministry of Environment, and establish benchmarks for assessing the Ministry’s performance in protecting water quality.

There are over 60 community watersheds within the Vancouver Island Region of the Ministry of Environment. Rather than developing water quality objectives for each of the watersheds on an individual basis, an ecoregion approach has been implemented. The ecoregion areas are based on the ecosections developed by Demarchi (1996). However, for ease of communication with a wide range of stakeholders the term ecoregion has been adopted by Vancouver Island MOE regional staff. Thus, Vancouver Island Region has been split into eleven terrestrial ecoregions, based on similar climate, geology, soils, hydrology etc. (see Figure 1).

Due to accessibility and holding times of samples only six ecoregions on Vancouver Island are being considered at this time. Fundamental baseline water quality should be similar in all streams and all lakes throughout each ecoregion. However, the underlying physical, chemical and biological differences between streams and lakes must be recognized. Representative lake and stream watersheds within each ecoregion are selected (initially stream focused) and a three year monitoring program is implemented to collect water quality and quantity data, as well as biological data. Standard base monitoring programs have been established for use in streams and lakes, to maximize data comparability between watersheds and among ecoregions, regardless of location.

Watershed objectives will be developed for each of the representative lake and stream watersheds based on this data, and these objectives will also be applied on an interim basis to the remaining lake and stream watersheds within that ecoregion. Over time, other priority watersheds within each ecoregion will be monitored for one year to verify the validity of the objectives developed for each ecoregion and to determine whether the objectives are being met for individual watersheds.

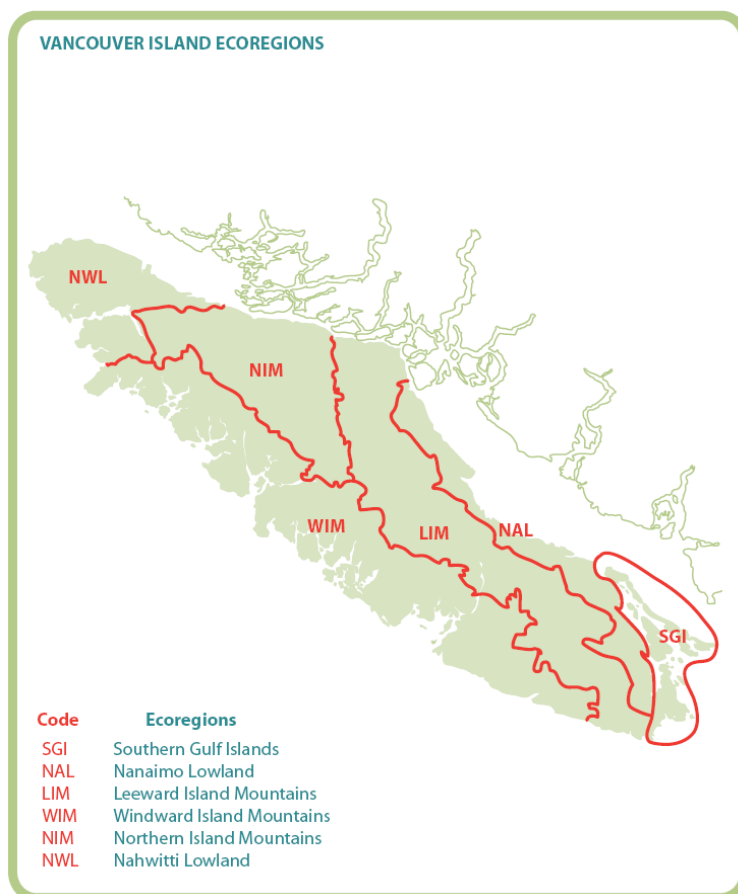


Figure 1. Overview of Vancouver Island terrestrial Ecoregions (based on ecosection divisions in Demarchi (1996)).

Partnerships formed between the Ministry of Environment and local municipalities and stewardship groups are another key component of the water quality network. Water quality sampling conducted by the public works departments of local municipalities and stewardship groups has enabled the Ministry to significantly increase the number of

watersheds studied, as well as increase the sampling regime within these watersheds. These partnerships have not only allowed the Ministry to study watersheds over a greater geographic range and in more eco-sections across Vancouver Island, but have also resulted in a strong relationship with local government and interest groups, provided valuable input and local support and, ultimately, have resulted in a more effective monitoring program.

This report examines the existing water quality of the Tsulquate River and recommends water quality objectives for this watershed based on potential impacts and water quality parameters of concern. The Tsulquate River is a fourth-order stream 19.77 km in length, draining into Johnstone Strait near the community of Port Hardy, BC. The portion of the watershed designated as a community watershed is 4,475 ha in area, and includes the upper reaches of the Tsulquate River above the Port Hardy water intake (**Figure 2**). The intake is located approximately 2.5 km upstream from its confluence with Hardy Bay. Anthropogenic land uses within the watershed include timber harvesting, and recreation which, in addition to natural erosion and wildlife, can potentially affect water quality in the Tsulquate River.

One water quality monitoring location was selected within the Tsulquate River watershed: Site E229565, located upstream from the main water intake (see **Figure 2**). Water samples were collected at this site a few times in 1998 and 1999 and then on approximately a monthly basis between June 2002 and May 2005. The sampling frequency usually increased to weekly during summer low-flows and during fall peak-flows. Water samples were then sent to a laboratory for analyses of fecal coliforms, *E. coli*, turbidity, non-filterable residue, temperature, true colour, specific conductivity, pH, nitrate and nitrite, total phosphorus, and metals concentrations.

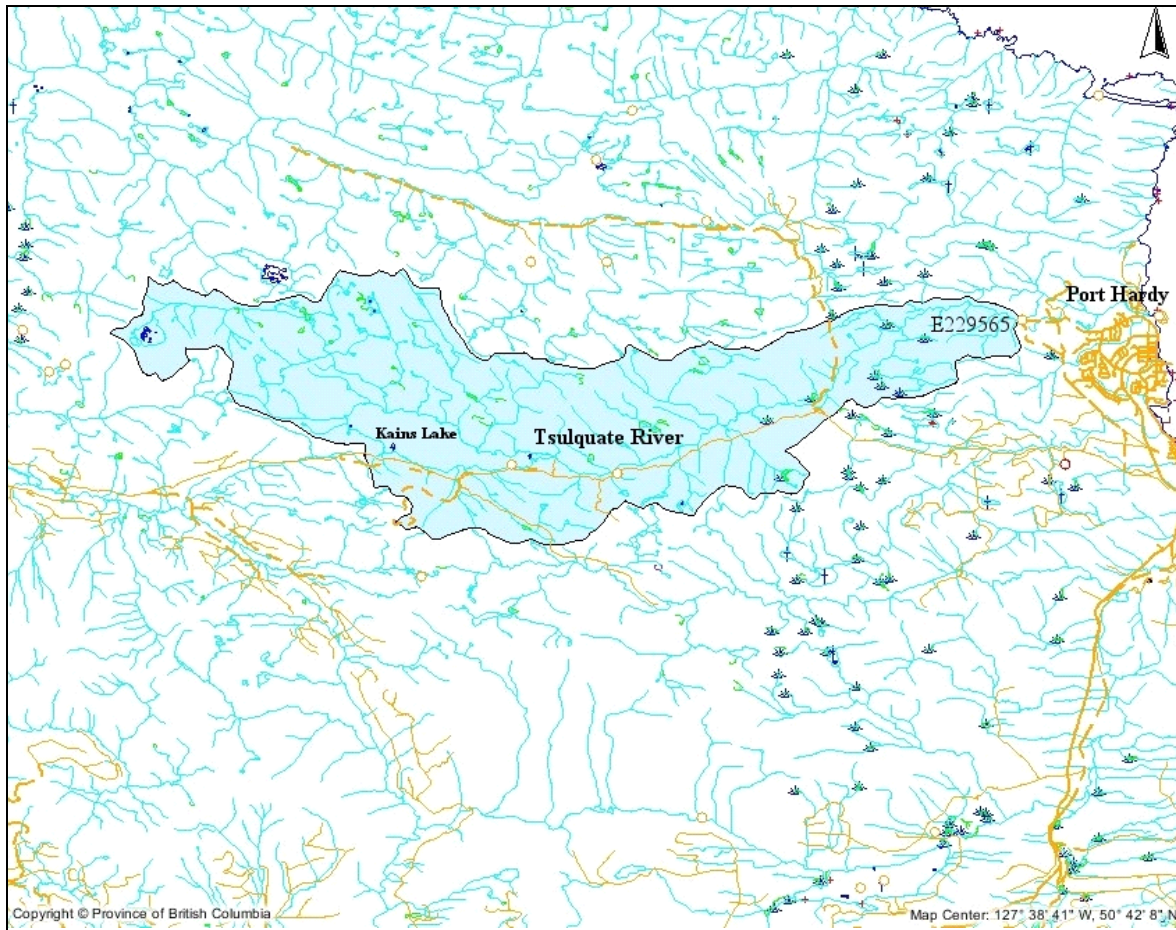


Figure 2. Tsulquate River Community Watershed.

2.0 WATERSHED PROFILE AND HYDROLOGY

2.1 BASIN PROFILE

The community watershed portion of the Tsulquate River is approximately 4,475 ha in area and ranges from approximately 100 m elevation at the Port Hardy water intake to about 610 m in the upper watershed. The river is approximately 19.8 km long in total, and about 18 km long from its headwaters to the Port Hardy intake. There is one large lake in the watershed, Kains Lake, located at an elevation of 307 m, with a maximum depth of 25 m and a surface area of 218 ha. This lake is man-made and water levels are controlled with a dam. The upper portion of the watershed, above Kains Lake, has large areas of organic terrain that likely contributes significant amounts of organics to the water and increases overall retention times (Rollerson, 1999).

The watershed falls completely within the Coastal Western Hemlock (southern very wet hypermaritime, CWHvh1) biogeoclimatic zone. The Tsulquate River falls within the Nahwitti Lowland (NWM) eco-region established for Vancouver Island by MoE staff (see Figure 1).

2.2 HYDROLOGY AND PRECIPITATION

The nearest climate station to the watershed for which climate normal data is available is at Port Hardy (elevation 21.6 m, Environment Canada Climate Station 1026270).

Average daily temperatures in Port Hardy ranged from 3.3°C in January to 14.1°C in July and August for the 30-year period between 1971 and 2000. Average total annual precipitation is 1,869 mm, with only 56 mm (water equivalent) (3%) of this falling as snow (**Figure 3**).

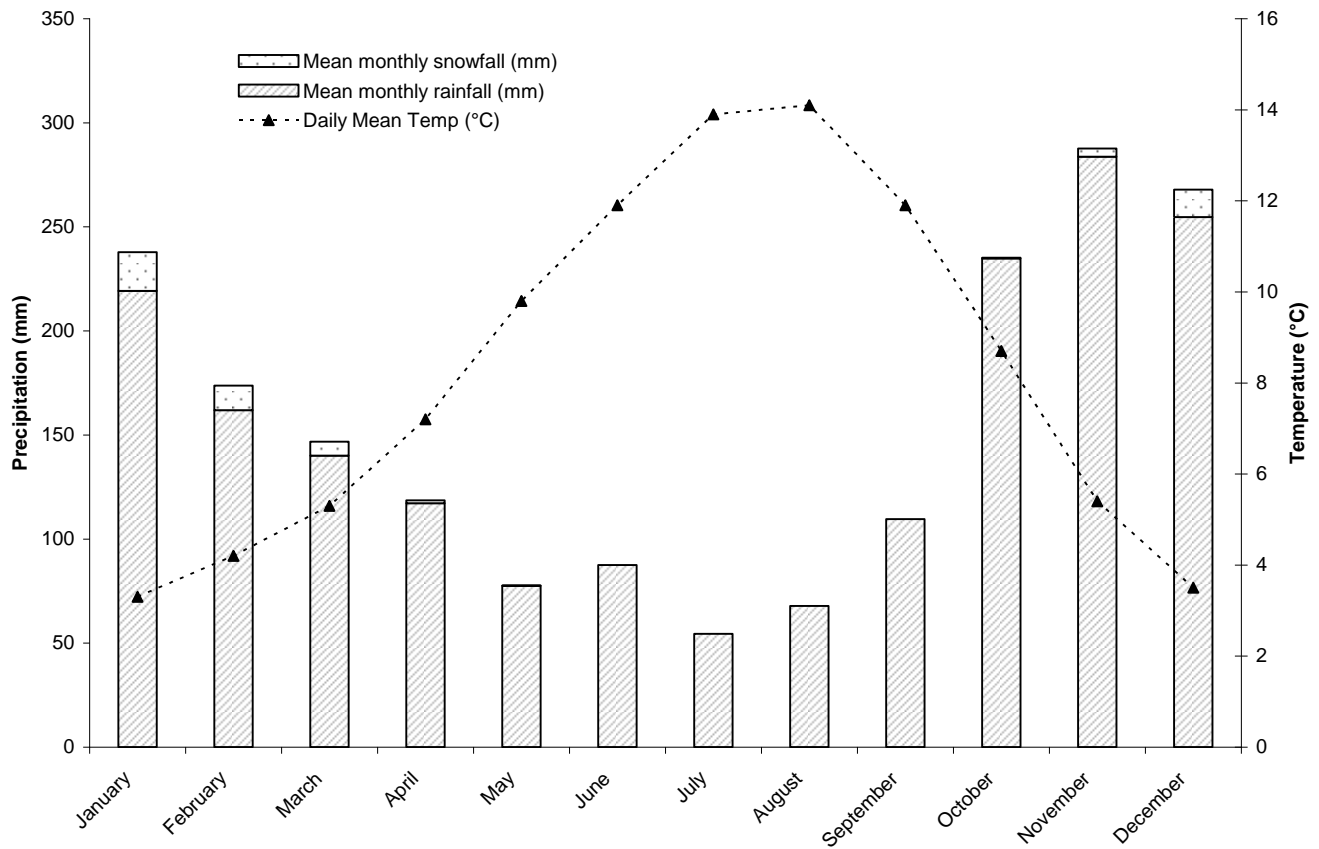


Figure 3. Climate normal data for Port Hardy (Environment Canada Climate Station 1026270) for the period 1971 to 2000.

Water Survey Canada (WSC) has not operated a hydrometric station on the Tsulquate River. However, hydrometric data was collected as part of the automated monitoring program between 2003 and 2005, and shows peak water levels occurring between September and January (**Figure 4**).

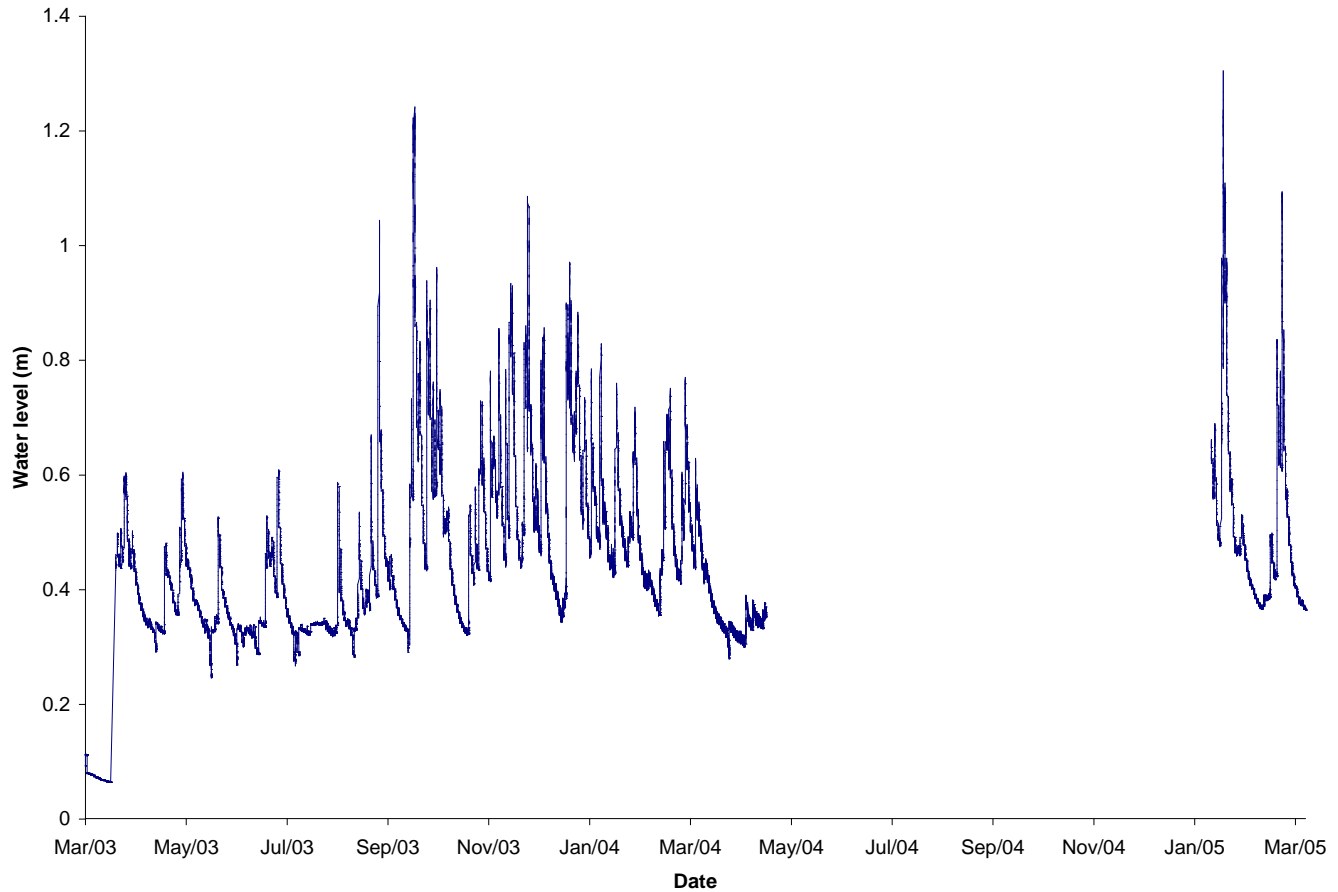


Figure 4. Water level data collected by the Ministry of Environment at EMS Site E229565, Tsulquate River near the Port Hardy intake, 2003 – 2005. Note due to equipment malfunction data was not collected from June to December 2004.

3.0 WATER USES

3.1 WATER LICENSES

Two water licenses have been issued for the Tsulquate River within the community watershed boundaries. The District of Port Hardy has a license to withdraw 2,323 dam³/year for domestic use. A second license, also issued to the District of Port Hardy, permits the storage of 1,234 dam³/year in Kains Lake.

3.2 FISHERIES

The Tsulquate River has high fisheries values and is utilized by pink (*Oncorhynchus gorbuscha*), coho (*O. kisutch*) and chum (*O. keta*) salmon, as well as cutthroat trout (*O. clarkii*), Dolly Varden (*Salvelinus malma*), rainbow trout (*O. mykiss*), and steelhead (*O. mykiss*) (FISS, 2005). The river was also stocked with 4,298 Steelhead fry in 2001 (FISS 2005). Kains Lake has cutthroat trout, Dolly Varden, and rainbow trout (FISS 2005).

3.3 RECREATION

There are no BC Forest Service recreation sites located in the Tsulquate River watershed. No specific studies have been conducted to determine the recreational use of the Tsulquate River watershed. However, the presence of logging roads throughout the watershed allows limited recreational access. The main road is gated and the remaining roads have been overgrown by vegetation.

3.4 WILDLIFE

The Tsulquate River watershed provides habitat to a variety of species typical of west coast Vancouver Island, including blacktail deer, black bear, cougar, and numerous other small mammals and birds. The BC Conservation Data Centre (CDC) lists one Species of Special Concern, the *anguinae* subspecies of ermine (*Mustela erminea anguina*), that has been observed within the watershed boundaries (CDC, 2005).

3.5 DESIGNATED WATER USES

Designated water uses are those water uses that are designated for protection in a watershed or waterbody. Water quality objectives are designed for the substances or conditions of concern in a watershed so that attainment of the objectives will protect the designated uses.

As discussed in Section 3.1, two water licenses have been issued for the Tsulquate River community watershed, for waterworks purposes. In addition to drinking water, the presence of salmonid species in the river as well as the normal fauna of the area suggests that water should also be protected for aquatic life and wildlife.

4.0 INFLUENCES ON WATER QUALITY

The Tsulquate River community watershed is located primarily on Crown Land, and is part of Timber Supply Area (TSA) 3. There are no licensed discharges within the watershed. Recreational use is generally limited to seasonal activities such as hunting, and there are no sanctioned camping areas within the watershed. Therefore, the primary concerns with regards to potential anthropogenic impacts on water quality in the Tsulquate River are associated with forestry activities.

4.1 LAND OWNERSHIP

The community watershed portion of the Tsulquate River consists primarily of Crown lands, as well as two small privately owned parcels. There are no private households located within the community watershed boundaries, and so potential sources of contamination associated with households (such as septic fields) will not impact water quality in the upper Tsulquate River.

4.2 LICENSED WATER WITHDRAWALS

Water licenses can impact aquatic habitat downstream from the withdrawal, especially during low-flow periods. As mentioned in Section 3.1, there are two licensed water withdrawals from the Tsulquate River community watershed, with an overall maximum volume of 2,323 dam³/year. Assuming water was withdrawn from the Tsulquate River at a constant rate throughout the year (an unlikely scenario), this would result in an average withdrawal rate of 0.074 m³/s. As no flow data is available for the Tsulquate River, it is uncertain whether this volume of water is likely to impact flows downstream from the intake.

4.3 FOREST HARVESTING AND FOREST ROADS

Forestry activities can impact water quality both directly and indirectly in several ways. The removal of trees can decrease water retention times within the watershed and result in a more rapid response to precipitation events and earlier and higher spring freshets. The improper construction of roads can change drainage patterns, destabilize slopes and introduce high concentrations of sediment to streams.

The Tsulquate River watershed consists primarily of Crown lands located within TSA 3 and is designated a community watershed under the *Forest and Range Protection Act*. The most recent watershed assessment overview was completed in April, 1999 (Rollerson, 1999). The report divides the community watershed into two equal-sized sub-basins: Kains Lake, which includes the upper watershed to the outlet of Kains Lake (2,245 ha), and the Lower Tsulquate River, which includes the area below the Kains Lake outlet and above the Port Hardy intake (2,230 ha).

Limited harvesting has taken place in the Tsulquate River watershed, primarily in the Kains Lake sub-basin, during the late 1980's. At that time, the Equivalent Clearcut Area (ECA) above 300 m was 6% in the Kains Lake sub-basin and 2% in the Lower Tsulquate sub-basin. This was forecast to increase slightly to between 6-8% by 2005 as some small portions of private land were still being logged. By 1999 all cutblocks on public land were well regenerated. The total road density in the Kains Lake sub-basin was 0.7 km/km², while the density in the Lower Tsulquate sub-basin was 0.4 km/km². One short section of road (50 - 100 m in length) was given a high rating as a sediment source in the Kains Lake sub-basin, and none of the roads in the Lower Tsulquate sub-basin were given a high rating. There was a 100 m section of road in the upper watershed that was considered to be potentially unstable. There were no landslides in either the upper or lower portion of the watershed, and none of the stream channel in either the upper or lower portion of the watershed was considered to be unstable. There were 13 stream crossings in the Kains Lake sub-basin and three crossings in the Lower Tsulquate sub-basin.

Overall, the rate of harvesting within the Tsulquate River watershed has been low, and it appears that there is relatively low risk of landslides or sedimentation from roadways due to logging and/or road-building activities within the watershed.

4.4 RECREATION

Recreational activities can affect water quality in a number of ways. Erosion associated with 4-wheel drive and ATV vehicles, direct contamination of water from vehicle fuel,

and fecal contamination from human and domestic animal wastes (*e.g.*, dogs or horses) are typical examples of potential effects. As no specific studies have been conducted on recreation within the Tsulquate River watershed, the relative impacts of recreational activities cannot be discussed, but they are likely to be minimal due to the lack of camping areas within the watershed.

4.5 WILDLIFE

Wildlife can influence water quality because warm-blooded animals can carry pathogens such as *Giardia lamblia*, which causes giardiasis or “beaver fever”, and *Cryptosporidium* oocysts which cause the gastrointestinal disease, cryptosporidiosis. Virtually every mammal ever tested can carry *Giardia*, while aquatic mammals and domestic livestock carry *Cryptosporidium*. In addition, warm-blooded animals excrete fecal coliforms in their feces, and can cause elevated levels of this indicator in water. Fecal contamination of water by animals is generally considered to be less of a concern to human health than contamination by humans because there is less risk of inter-species transfer of pathogens. However, without specific source tracking methods, it is impossible to determine the origins of coliforms.

As discussed in Section 3.4, the Tsulquate River provides habitat for a wide variety of wildlife. Therefore, a risk of fecal contamination from natural wildlife populations within the watershed does exist.

4.6 MINING AND PERMITTED DISCHARGES

Mining activities can impact water quality by introducing high concentrations of metals to the watershed, depending on the location, and can also contribute to acidification of the water. Mining activities generally also result in road construction and land-clearing, which can change water movement patterns and result in increased turbidity levels.

MINFILE reports that the local geology consists of Karmutsen Formation andesites and minor limestone in contact to the southwest with Quatsino Formation limestone, both of the Upper Triassic Vancouver Group (MINFILE, 2005). A number of mineral showings (copper and zinc) are reported within the watershed (MINFILE, 2005). As such, there is

a possibility of future mining activities that might impact water quality. However, before such explorations were allowed to occur environmental impact assessments would be required to ensure that impacts to water quality did not occur.

Discharges from commercial operations can affect water quality and timing of flow, however, there are no licensed discharges within the Tsulquate River watershed.

5.0 DESCRIPTION OF WATER QUALITY MONITORING DATA

This report provides an assessment of water quality data collected from 1998 to 2005 in the Tsulquate River watershed. Key drinking water characteristics such as fecal coliforms, turbidity, colour, pH, phosphorus, nitrate, nitrite and specific conductivity are considered to protect raw drinking water supplies. Drinking water is the most sensitive water use in the Tsulquate River for these characteristics. In addition, based on current knowledge of potential anthropogenic impacts to the watersheds (generally associated with forestry), and the lack of permitted waste discharges, these are the water quality parameters most likely to change should impacts occur. Nutrient (nitrate, nitrite and phosphorus) concentrations are also considered as these parameters may be influenced by forestry-related activities.

5.1 WATER SAMPLING PROCEDURES

One water quality monitoring site was selected within the Tsulquate River watershed: EMS Site #E229565, Tsulquate River at the water intake (**Figure 2**).

Water samples were collected at this site a few times in 1998 and 1999 and then on a monthly basis between June 2002 and May 2005. The sampling frequency was increased to weekly during summer low-flows and during fall peak-flows. Samples were collected according to Resource Inventory Committee (RIC) standards (RIC, 1994). Data are summarized in Appendix 1.

An automated water quality/quantity monitoring station was also installed at the water quality monitoring site, and programmed to log water temperature, turbidity, specific conductivity and water levels at 15-minute intervals. The station operated from April 2003 to March 2005.

Benthic invertebrates were collected in the fall of 2004 and 2005 to provide a picture of the overall ecosystem health of the watershed.

5.2 QUALITY ASSURANCE / QUALITY CONTROL

Water samples were collected in strict accordance with RISC standards, by trained personnel. Quality assurance and quality control was also verified by collecting duplicate samples. Duplicate co-located samples are collected by filling two sample bottles in as close to the same time period as possible (one right after the other) at a monitoring location, and then calculating the percent difference between the laboratory results reported for the various samples. The maximum acceptable percentage difference between duplicate samples is 25%.

Three sets of duplicate samples were collected during the sampling program (See Appendix I). In 84% of the instances, relative percent mean differences and relative percent standard deviations were found to be within acceptable limits as discussed above. For the remaining samples, concentrations were almost invariably less than five times the detection limits, and therefore the guidelines for interpreting acceptability do not apply. Based on these samples, the data can be considered to be within acceptable limits for data quality.

6.0 WATER QUALITY ASSESSMENT AND OBJECTIVES

There are two sets of guidelines that are commonly used to determine the suitability of drinking water. The British Columbia water quality guidelines (B.C. Ministry of Environment, 2006) are used to assess water at the point of diversion of the natural stream into a waterworks system. These BC guidelines are also used to protect other designated water uses such as habitat for aquatic life. The Guidelines for Canadian Drinking Water Quality (Health Canada, 2006) are national guidelines that apply to drinking water at the point of consumption after treatment processes that may include particle removal and bacterial disinfection. The Ministry of Health requires water purveyors to disinfect all surface water as a minimum prior to drinking (*Drinking Water Protection Act – Drinking Water Protection Regulation* 2005). In addition, the Vancouver Island Health Authority requires all new water systems to provide *Cryptosporidium* control.

6.1 COLIFORM BACTERIA

Coliform bacteria are present in large numbers in the feces of warm-blooded animals, and although rarely pathogenic themselves, they are used as indicators of fecal contamination in water. Fecal coliforms are quite specific to the feces of warm-blooded animals and *E. coli* are even more specific, whereas total coliforms have many non-fecal sources (e.g. soils, plants), and thus are less indicative of fecal contamination. Coliforms generally do not survive long in cold, fresh water (Brettar and Höfle, 1992), but can survive for prolonged periods in stream sediment, soils or fecal material, when associated with particulate matter, or in warmer water (Howell *et al.*, 1996; Tiedemann *et al.*, 1987). Disturbance of these sediments can therefore result in coliforms appearing in overlying water for extended periods (Jawson *et al.*, 1982; Stephenson and Rychert, 1982). The inclusion of a small piece of fecal matter in a sample can result in extremely high concentrations (>1,000 CFU/100 mL), which can skew the overall results for a particular site. It is therefore important to consider the range of values, as well as the standard deviation, to determine if numbers are consistently high or if one value “artificially” inflated the mean. For this reason, the 90th percentile is generally used to determine if the

water quality guideline is exceeded, as extreme values would have less effect on the data. Water from the Tsulquate River is chlorinated prior to consumption. The drinking water guideline for raw waters receiving disinfection only is that the 90th percentile of at least five samples collected in a 30-day period should not exceed 10 CFU/100 mL (B.C. Ministry of Environment). To represent the worst case scenario, bacteriological samples were only collected during summer low flow (August/September) and fall flush (October/November) periods.

Fecal coliform concentrations were measured 39 times in the Tsulquate River, with values ranging from below detectable limits (<1 CFU/100 mL) to a maximum of 283 CFU/100 mL. Samples were collected with sufficient frequency (a minimum of five weekly samples within 30 days) on four occasions, and the 90th percentile for these groups of samples ranged from 1.4 CFU/100 mL to 174.6 CFU/100 mL. The average for all four 90th percentiles is approximately 52 CFU/100mL; only one sampling period exceeds this value, likely due to one high result (283 CFU/100mL) measured on August 26, 2003.

E. coli concentrations ranged from below detectable limits (< 1 CFU/100 mL) to 264 CFU/100 mL for the 30 samples collected. In the three instances when the requisite sampling frequency was met (at least five weekly samples in 30 days), 90th percentiles ranged from 6.6 CFU/100mL to 162.4 CFU/100mL. Similar to fecal coliforms, the average 90th percentile value for all three sample periods was 60 CFU/100mL; only one sampling period exceeds this value, again, due to one high result measured on August 26, 2003.

The drinking water guideline for raw water receiving disinfection only (10 CFU/100mL) was exceeded in two of the four instances for fecal coliforms and in two of three instances for *E. coli*. Occasionally, individual water samples have quite high concentrations of bacteriological indicators. As there is limited road access to the upper watershed and no cattle grazing permitted within the watershed, it is likely that the source of these coliforms is the endemic wildlife.

In consideration of the above information and given the lack of anthropogenic influences in the watershed, the values collected during this three year sampling program are reflective of natural or background concentrations. ***Therefore, it is recommended that the 90th percentile of a minimum of 5 weekly samples collected within a 30-day period must not exceed 60 CFU/100 mL for fecal coliforms and/or E. coli.*** While this proposed objective is higher than the provincial guideline it does represent the natural variability within the watershed with respect to bacteriological values. This highlights the need for water purveyors to provide adequate treatment prior to consumption. Meeting these objectives will provide protection from most pathogens but not from parasites such as *Cryptosporidium* or *Giardia*. Sampling for these pathogens falls under the auspices of the water purveyor, in this case the District of Port Hardy.

6.2 pH

pH is a measure of the concentration of hydrogen ions (H^+) in water and can range over 14 orders of magnitude, therefore, pH is defined on a logarithmic scale between 0 and 14. A pH between 0 and 7 is acidic (the lower the number, the more acidic the water) and a pH between 7 and 14 is alkaline (the higher the number, the more basic the water). The aesthetic objective for drinking water is a pH between 6.5 and 8.5 (B.C. Ministry of Environment, 2006). Corrosion of metal plumbing may occur at both low and high pH outside of this range, while scaling or encrustation of metal pipes may occur at high pH. The effectiveness of chlorine as a disinfectant is also reduced outside of this range. However, natural source water outside the guidelines may be safe to drink from a public health perspective.

pH in the Tsulquate River watershed was slightly acidic, with values ranging from 6.1 to 7.9 pH units and a mean of 6.7 pH units. pH values were occasionally below the drinking water guideline, with 10 of 46 values less than 6.5 pH units. This is likely due to the highly organic boggy areas located in the upper portion of the watershed and high rainfall in the area (rainwater typically has a low pH) rather than any anthropogenic activities. Given there is little or no activity within the watershed these values are reflective of

background pH concentrations. The pH guideline for the protection of aquatic life states no statistically significant decrease in pH from background levels. ***Therefore, we recommend an objective for pH in the Tsulquate River where pH should remain within the range of 6.0 and 8.5 pH units.*** While this range is slightly lower than the drinking water guideline for pH, the risk to human health is negligible. The issues arise in the distribution system with corrosion of pipes due to the acid water. In the case of Port Hardy, the treatment process (addition of soda ash) likely elevates the pH back to within the acceptable drinking water guideline prior to leaving the water treatment plant.

6.3 TEMPERATURE

Temperature is considered in drinking water for aesthetic reasons. The aesthetic guideline is 15°C – temperatures above this level are considered to be too warm to be aesthetically pleasing (B.C. Ministry of Environment, 2006). For the protection of aquatic life, the allowable change in temperature is 1°C from naturally occurring levels. This guideline is established in situations where wastewater is discharged into a body of water, and therefore does not apply to this watershed. For salmonids and other cold water species, there are a number of guidelines set depending on the species and life stage of the fish. For steelhead, present in the Tsulquate River, the optimum temperature ranges are: 9 – 13°C for incubation; 15 – 19°C for rearing; and 9 – 16.5°C for spawning (B. C. Ministry of Environment, Lands and Parks, 2001).

Water temperatures in the Tsulquate River varied seasonally, with maximum temperatures occurring in late July. Water temperatures measured by the automated station ranged from near 0°C in the winter months to a maximum of 18.2°C in July 2003 (**Figure 5**).

Water temperatures occasionally exceeded the guideline of 15°C, although since temperature data was collected over only one summer, it is not certain that these exceedences occur annually. It is likely that elevated water temperatures are due to longer retention times in the upper portion of the watershed, rather than anthropogenic activities such as forestry activities that might decrease canopy cover or alter retention

patterns. *However, the elevated summer temperatures are an aesthetic concern, and for this reason, a water quality objective is proposed for temperature in the Tsulquate River. The objective is that maximum instantaneous water temperatures should not exceed 15°C during the summer months, and the maximum hourly temperature change should not exceed +/- 1°C.*

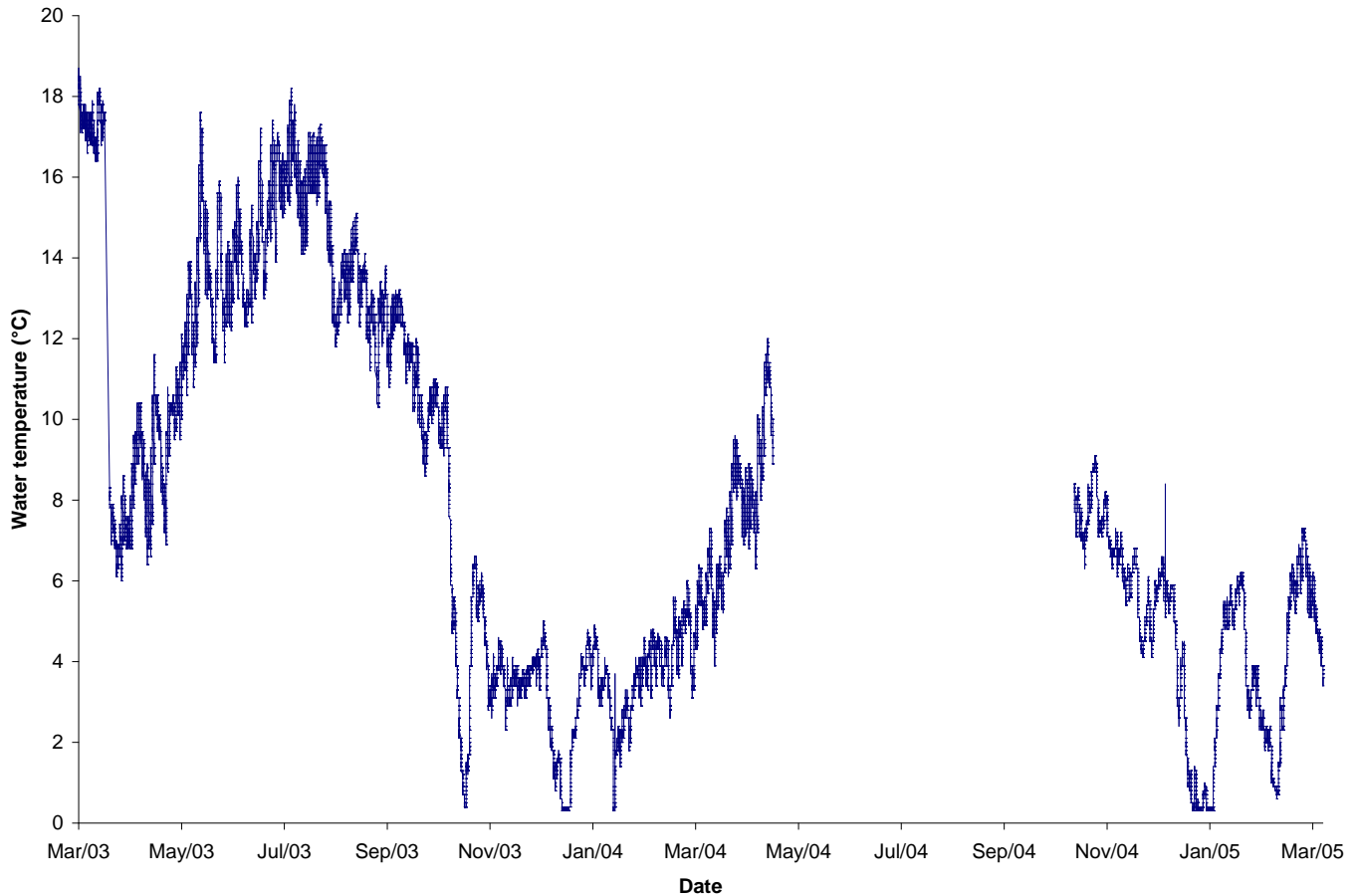


Figure 5. Automated water temperature data collected from the Tsulquate River above the intake between March 2003 and March 2005. Note due to equipment malfunction data was not collected from June to November 2004.

6.4 TRUE COLOUR

Colour in water is caused by dissolved and particulate organic and inorganic matter. True colour is a measure of the dissolved colour in water after the particulate matter has been removed, while apparent colour is a measure of the dissolved and particulate matter in water. Colour can affect the aesthetic acceptability of drinking water, and the aesthetic guideline is a maximum of 15 true colour units (TCU) (B.C. Ministry of Environment, 2006). However, this drinking water guideline only applies to systems in which background color levels are less than or equal to 15 TCU. Colour is also an indicator of the amount of organic matter in water. When organic matter is chlorinated it produces disinfection by-products such as trihalomethanes (THMs).

Colour in the Tsulquate River ranged from 40 TCU to 125 TCU, with an average of 66 TCU for 13 samples collected. All samples had colour values exceeding the aesthetic guideline of 15 TCU. It is likely that colour in the watershed is a result of natural processes (high concentrations of organics in the boggy portions of the upper watershed) rather than anthropogenic activities, but it is possible that human activities may cause further increases in true colour. During the monitoring period there has been little or no activity in the watershed and, as such, color values are relatively constant but are subject to some fluctuations during rain storm events. This suggests that the data collected actually reflects background levels. Based on the 90th percentile of the data set the true color background levels are 90 TCU, which indicates that the drinking water supply guideline for raw water based on aesthetics considerations does not apply to Tsulquate River.

High color values are usually associated with higher levels of organic matter (see Section 6.5 Total Organic Carbon) which can increase the level of disinfection by-products being produced after chlorination. These disinfection by-products can be a risk to human health. Therefore the water purveyor, in this case, the District of Port Hardy, needs to consider additional water treatment methods, prior to chlorination, to remove the excess organics and reduce disinfection by-product formation.

To protect aquatic life it is recommended that the average of 5 weekly samples in 30 days should not exceed the background level by more than 5 TCU in clear water systems (background levels less than or equal to 20 TCU) or by more than 20% in colored systems (background levels greater than 20 TCU) (B.C. Ministry of Environment, 2006). Given that background levels exceed 20 TCU, an objective has been developed based on the 90th percentile of the data set (background) plus 20% of background to reflect natural variability. ***Thus, an objective of 108 TCU is proposed based on the mean of 5 weekly samples in 30 days to reflect no further increases to true color concentrations from any future activities in the watershed.***

It should be noted that the District of Port Hardy were aware of these issues around high organics and color values in the source water, and the associated links with disinfection by-products. In 2000 a new water treatment plant was constructed. This plant, operated by EPCOR, provides pretreatment in the form of flocculation and filtration, to remove organics prior to disinfection, ultimately reducing the overall potential for disinfection by-product formation.

6.5 TOTAL ORGANIC CARBON

Most waters contain organic matter that can be measured as total organic carbon (TOC). Sources of organic carbon in fresh waters include living material (plants and animals), waste materials and effluents. Total organic carbon consists of dissolved (DOC) and particulate organic carbon (POC) and is therefore affected by pronounced fluctuations in suspended solids in riverine systems. Elevated total organic carbon (TOC) levels (above 4.0 mg/L) can result in higher levels of THMs in finished drinking water if chlorination is used to disinfect the water (B.C. Ministry of Environment, 2006). As Port Hardy uses chlorine to disinfect their drinking water, TOC concentrations were monitored.

Concentrations of TOC ranged from 5.9 mg/L to 16.1 mg/L for 16 samples collected, suggesting that TOC is likely a concern in the Tsulquate River. As with true colour, it may be that anthropogenic activities are not impacting TOC levels in the Tsulquate River and the higher concentrations found in the river are due to natural conditions within the

watershed. During the monitoring period there has been little or no activity in the watershed and as such TOC values have been maintained at a relatively constant level with some fluctuations during rain storm events. This suggests that the data collected actually reflects background levels and as such the objective for TOC was developed based on the 90th percentile of the data set. ***Therefore, a water quality objective is proposed for the Tsulquate River community watershed, such that TOC concentrations at the District of Port Hardy intake should not exceed 12.0 mg/L based on the average of five weekly samples collected over a 30-day period. It is recognized that this objective exceeds the provincial drinking water guideline of 4.0 mg/L, however, it reflects natural background levels. This value is meant to ensure no further increase to total organic carbon concentrations from future activities in the watershed.*** If there are concerns over the naturally high TOC values (and corresponding high true color values), and the subsequent higher potential for formation of disinfection by-products, the raw water should be treated to remove organics prior to chlorination. It should be noted that the District of Port Hardy currently pre-treats (removal of organics) the water prior to disinfection.

It should be noted that while drinking water supply is the most sensitive use for this parameter (guideline value of 4.0 mg/L), there is also a water quality guideline for TOC for the protection of aquatic life, which is based on the 30-day median \pm 20% of the median background concentration. Assuming that the data collected reflects background levels as mentioned above, TOC data in this equation would produce an objective of 13.5 mg/L. Therefore the proposed TOC objective of 12.0 mg/L will protect all uses in the watershed.

6.6 CONDUCTIVITY

Conductivity refers to the ability of a substance to conduct an electric current. The conductivity of a water sample gives an indication of the amount of dissolved ions in the water. The more ions dissolved in a solution, the greater the electrical conductivity. Because temperature affects the conductivity of water (a 1°C increase in temperature results in approximately a 2% increase in conductivity), specific conductivity is used

(rather than simply conductivity) to compensate for temperature. For drinking water a maximum specific conductivity of 700 $\mu\text{S}/\text{cm}$ is allowed (B.C. Ministry of Environment, 2006). Coastal systems, with high annual rainfall values and typically short water retention times, generally have low specific conductivity ($<80 \mu\text{S}/\text{cm}$), while interior watersheds generally have higher values. Increased flows resulting from precipitation events or snowmelt tends to dilute the ions, resulting in decreased specific conductivity levels with increased flow levels. Therefore, water level and specific conductivity tend to be inversely related. However, in situations such as landslides where high levels of dissolved and suspended solids are introduced to the stream, specific conductivity levels tend to increase. As such, significant changes in specific conductivity can be used as an indicator of potential impacts.

In the Tsulquate River, specific conductivity values ranged from 13.6 $\mu\text{S}/\text{cm}$ to 27 $\mu\text{S}/\text{cm}$, with an average of 18 $\mu\text{S}/\text{cm}$ for 39 samples. At the automated station, specific conductivity values ranged from 2 $\mu\text{S}/\text{cm}$ to 82 $\mu\text{S}/\text{cm}$, with an average of 12 $\mu\text{S}/\text{cm}$. Values were closely correlated with flows, with the highest conductivity occurring during low flows (when dilution was lowest) and conductivity values dropping during the winter (when dilution from rainfall was highest) (**Figure 6**). All values were well below the drinking water guideline of 700 $\mu\text{S}/\text{cm}$, and no objective is proposed for specific conductivity in the Tsulquate River.

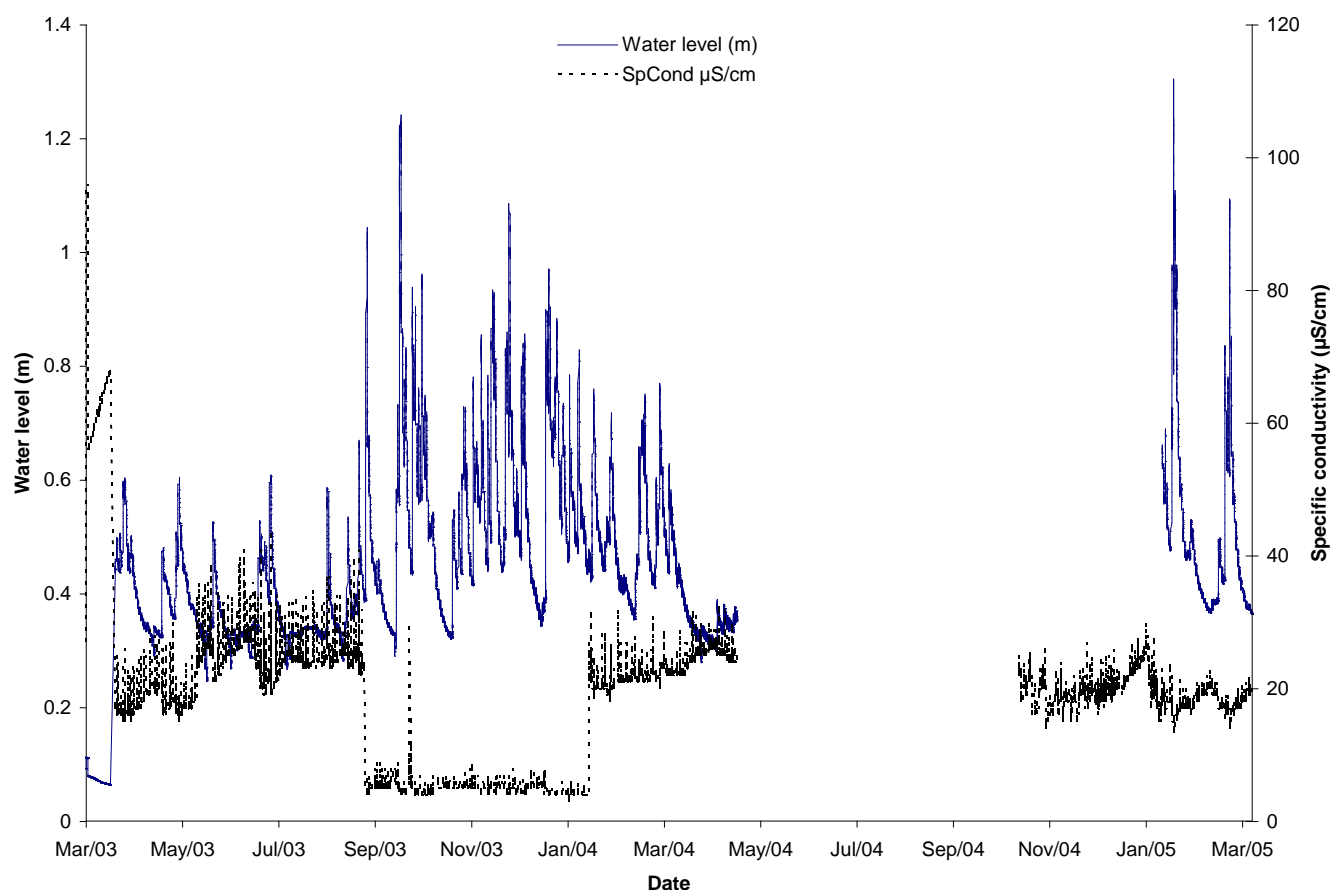


Figure 6. Specific conductivity and water level measured at the Ministry of Environment automated monitoring station between March 2003 and March 2005. Note due to equipment malfunction data was not collected from June to November 2004.

6.7 TURBIDITY

Turbidity is a measure of the clarity or cloudiness of water, and is measured by the amount of light scattered by the particles in the water as nephelometric turbidity units (NTU). Elevated turbidity levels can decrease the efficiency of disinfection, allowing coliforms to enter the water system. As well, there are aesthetic concerns with cloudy water, and particulate matter can clog water filters and leave a film on plumbing fixtures. The guideline for drinking water that does not receive treatment to remove turbidity is an induced turbidity over background of 1.0 NTU (B.C. Ministry of Environment, Lands and Parks, 1997). An aesthetic guideline allowing a maximum of 5.0 NTU exists, but this is

primarily related to turbidity sources within the distribution system (after disinfection has occurred) (B.C. Ministry of Environment, 2006). In general, it is considered that turbidity values greater than 2.0 NTU will compromise disinfection efficiency (VIHA pers. comm., 2006).

At the intake site, turbidity values ranged from 0.3 NTU to 4.4 NTU, with an average of 1.0 NTU for the 46 samples collected between 1998 and 2005. While the less-stringent drinking water guideline of 5 NTU was not exceeded, the more stringent guideline of 1.0 NTU was exceeded in 12 of the 46 samples collected.

Turbidity values were also measured by the automated water quality monitoring station situated at the Port Hardy intake dam. Here, a McVan analyte turbidity sensor was installed within the stream flow and polled every 15 minutes by a FWS-12 datalogger. A summary of turbidity data collected between March, 2003 and March, 2005 is given in **Table 1**. The distribution of data shows that about 83% of values were below the drinking water guideline of 5 NTU, and that about 17% of the time, or about 2,283 of the 13,087 hours when turbidity was measured over the course of the study, turbidity values exceeded the drinking water criterion of 5 NTU.

Table 1. Summary of automated turbidity data measured at Tsulquate River at District of Port Hardy intake station between March 2003 and March 2005.

| | Number | Percentage | Cumulative % |
|-------------------------------------|---------------|------------|--------------|
| Number Turbidity ≤ 1 NTU | 41,179 | 78.7% | 78.7% |
| Number Turbidity $> 1, \leq 5$ NTU | 2,035 | 3.9% | 82.6% |
| Number Turbidity $> 5, \leq 10$ NTU | 1,119 | 2.1% | 84.7% |
| Number Turbidity $> 10, \leq 50$ | 1,732 | 3.3% | 88.0% |
| Number Turbidity > 50 | 6,281 | 12.0% | 100.0% |
| Totals | 52,346 | 100 | |

It is important to consider not only the total amount of time the criterion was exceeded, but also how long each exceedence lasted. For example, high turbidity levels for five consecutive hours are more likely to impact drinking water quality than five one-hour events separated by a few hours of low-turbidity water. Figure 7 shows a summary of the intensity and duration of turbidity events occurring at the automated station between 2003

and 2005. A turbidity event, for the sake of this summary, is defined as a number of consecutive turbidity values measured at 15-minute intervals exceeding the 5 NTU threshold. The recovery time is the length of time that has passed since the previous turbidity event (*i.e.*, since the turbidity last exceeded 5 NTU). For the sake of brevity and ease of reading, Appendix III, Table 1 includes only the longest-duration events (*i.e.*, events over 10 hours in length) – the remainder of the summary is included as Appendix III, Table 2, arranged in chronological order. The longest turbidity event was over 350 hours in length, with maximum values of over 100 NTU.

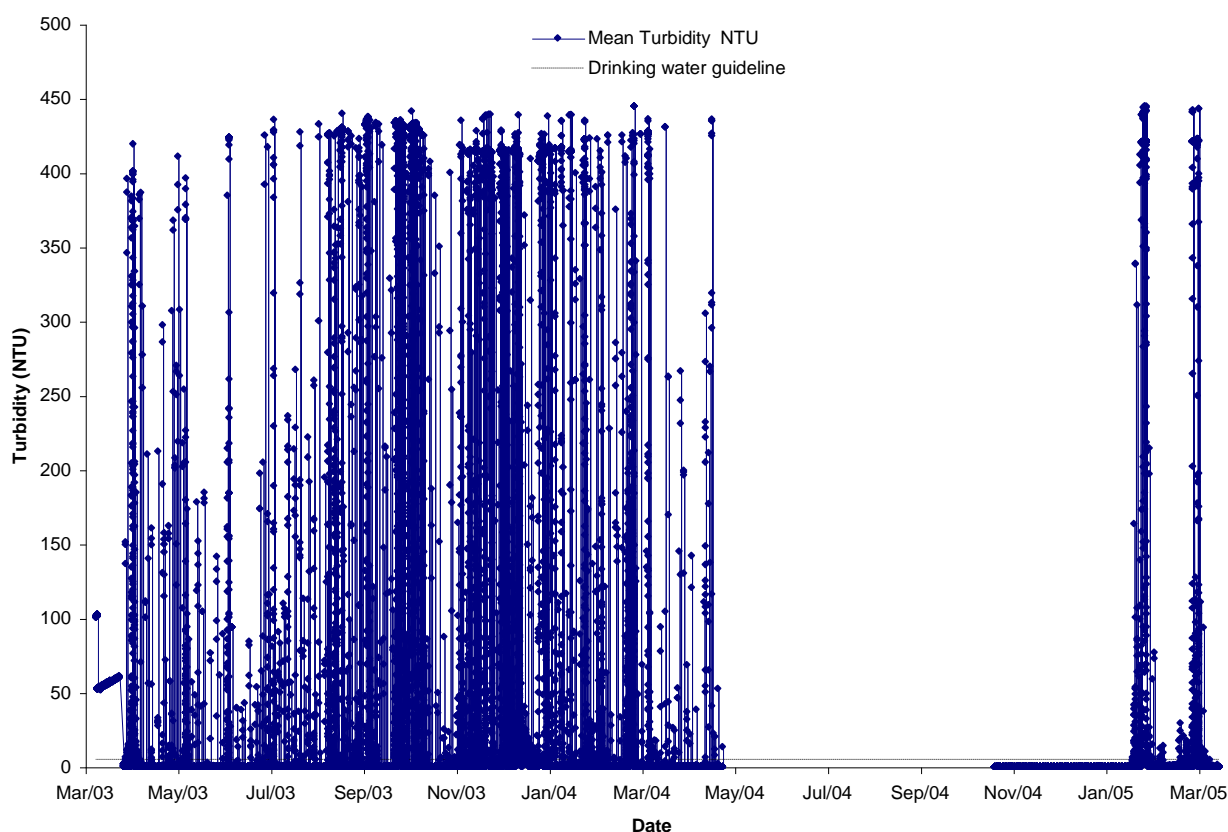


Figure 7. Turbidity levels in the Tsulquate River between March 2003 and March 2005 as measured on 15-minute intervals by the automated water quality monitoring station near the Port Hardy intake.

Turbidity is notoriously difficult to measure accurately with automated equipment due to the wide variety of factors that can affect measurements, including fish and other aquatic organisms, algae and air bubbles. Appendix III, Table 3 shows a comparison of laboratory results compared with the automated data collected at the same time. This data shows that automated and laboratory turbidity values occasionally varied significantly, with differences as high as 421 NTU. This indicates that there were significant problems with the turbidity probe, because maintenance visits to the automated station should be made at the same time as discrete samples are collected, and the probes should be recalibrated at that time. Extended periods of high readings by the automated equipment that is not corroborated by discrete samples collected at the same time suggest that the probe is dirty or contaminated with biological growth. As well, it is thought that backwash created by the treatment plant may have resulted in elevated turbidity values at least some of the time (Epps, 2005 pers. comm.).

During the monitoring period there has been little or no activity in the watershed suggesting that the data collected actually reflects background levels. The turbidity levels during this period have remained at a constant level with only minor fluctuations during rain storm events. The 90th percentile of the grab sample data reflects a background turbidity level at approximately 1NTU. ***Therefore the recommended objective for turbidity measured at the intake is a mean of ≤ 2 NTU, based on five weekly samples collected within a 30-day period, and no results exceeding 5 NTU at any time.*** It should be noted that turbidity values above 2.0 NTU may affect disinfection in a chlorine-only system. An alternative to the average objective of 2.0 NTU would be to treat the raw water prior to chlorination to remove some of the turbidity and increase chlorine efficiency. The District of Port Hardy is aware of these concerns and pre-treatment does occur at the water treatment plant.

Future monitoring should focus on collecting discrete water samples following significant rain events, in order to try and capture these occasional elevated turbidity levels. In the event of a significant turbidity event (*i.e.*, turbidity values exceeding 5 NTU for a period

of at least 24 hours), grab-samples should be collected at other sites within the system to determine the origin of the problem.

6.8 TOTAL SUSPENDED SOLIDS

Total suspended solids (TSS, also referred to as non-filterable residue or NFR) include all of the undissolved particulate matter in a sample. This value should be closely correlated with the turbidity value, however, unlike turbidity it is not measured by optics. Instead, a quantity of the sample is filtered, and the residue is dried and weighed so that a weight of residue per volume is determined. No guideline has been established for drinking water at this time, however for the protection of aquatic life the induced TSS concentrations should not exceed background levels by more than 25 mg/L during any 24 hour period, when background is less than or equal to 25 mg/L and the average TSS concentrations (five weekly samples in 30 days) should not exceed background by more than 5 mg/L (B.C. Ministry of Environment, 2006).

Concentrations of total suspended solids were generally below detectable limits (46 of 56 measurements were < 1 mg/L) with a maximum value of 5 mg/L. No samples exceeded 25 mg/L. Based on the samples that have been collected, it does not appear that suspended solids are a concern in the Tsulquate River at this time. However, suspended solids can be related to turbidity and color values, for which objectives have been recommended. During the monitoring period there has been little or no activity in the watershed, and as such the total suspended solids have remained at a constant level suggesting that the data collected actually reflects background levels. Based on the 90th percentile of the data collected background TSS levels for both the maximum and 30 day average for Tsulquate River is 1 mg/L. ***Therefore, it is recommended that maximum total suspended solids measured at the intake should not exceed 26.0 mg/L at any time and the mean of five weekly samples in a 30 day period should not exceed 6.0 mg/L.*** This reflects an induced level above background as recommended from the guidelines. The objective is meant to apply to situations which result from human activities within the watershed.

6.9 NUTRIENTS (NITRATE, NITRITE AND PHOSPHORUS)

The concentrations of nitrogen (including nitrate and nitrite) and phosphorus are important parameters, since they tend to be the limiting nutrients in biological systems. Productivity is therefore directly proportional to the availability of these parameters. Nitrogen is usually the limiting nutrient in terrestrial systems, while phosphorus tends to be the limiting factor in freshwater aquatic systems. In watersheds where drinking water is a priority, it is desirable that nutrient levels remain low to avoid algal blooms and foul tasting water. Similarly, to protect aquatic life, nutrient levels should not be too high or the resulting plant and algal growth can deplete oxygen levels when it dies and begins to decompose, as well as during periods of low productivity when plants consume oxygen (*i.e.*, at night and during the winter under ice cover). The guideline for the maximum concentration for nitrate in drinking water is 10 mg/L as N and the guideline for nitrite is a maximum of 1 mg/L as N (B.C. Ministry of Environment, 2006). When both nitrate and nitrite are present, their combined concentration must not exceed 10 mg/L as N. For the protection of aquatic life the maximum concentration of nitrate is 13 mg/L and the maximum concentration of nitrite is 0.06 mg/L (CCME, 2002). There are no proposed guidelines for phosphorus in streams.

Nitrogen concentrations were measured in terms of dissolved nitrite (NO₂) and dissolved nitrate (NO₃). Dissolved nitrate concentrations ranged from below detectable limits (< 0.001 mg/L as nitrogen) to a maximum of 0.018 mg/L as nitrogen for 35 samples, while dissolved nitrite concentrations ranged from below detectable limits (< 0.002 mg/L as N) to a maximum of 0.006 mg/L as N. All values of both nitrate and nitrite species were well below the aquatic life guidelines.

Total phosphorus concentrations ranged from below detectable limits (< 0.002 mg/L) to a maximum of 0.009 mg/L for 40 samples collected during the program. There is no guideline for P concentrations in streams, but P concentrations in the Tsulquate River are not likely to be a concern.

As concentrations of both nitrogen and phosphorus are generally low in the Tsulquate River, no objectives are proposed for these parameters.

6.10 METALS

Total metals concentrations were measured on 20 occasions in the Tsulquate River. The concentrations of most metals were below detectable limits, and well below guidelines for drinking water and aquatic life. However, the concentration of dissolved aluminum exceeded the drinking water guideline of 0.2 mg/L on one occasion, with a maximum concentration of 0.211 mg/L, and frequently exceeded the aquatic life guideline of 0.1 mg/L. It is likely that the elevated dissolved aluminum is due to the natural geography of the area and not anthropogenic impacts, and unlikely to cause significant problems for drinking water quality. Therefore, no water quality objectives are proposed for metals concentrations in the Tsulquate River.

Metal speciation determines the biologically available portion of the total metal concentration. Only a portion of the total metals level is in a form which can be toxic to aquatic life. Naturally occurring organics in the watershed can bind substantial proportions of the metals which are present, forming metal complexes which are not biologically available. The relationship will vary both seasonally and depending upon the metal (e.g. copper has the highest affinity for binding sites in humic materials). Levels of organics, as measured by DOC vary from ecoregion to ecoregion. To aid in the future development of metals objectives, DOC has been included in the Tsulquate River monitoring program.

7.0 MONITORING RECOMMENDATIONS

In order to capture the periods where water quality concerns are most likely to occur (*i.e.*, freshet and summer low-flow) we recommend that a minimum of five weekly samples be collected within a 30-day period between August and September, as well as between November and February. Samples collected during the winter months should coincide with rain events whenever possible. In this way, the two critical periods (minimum dilution and maximum turbidity), will be monitored. Samples should be analyzed for

general water chemistry (including TSS, turbidity, true colour, TOC/DOC, nutrients and pH) as well as bacteriology (including fecal coliforms and *E. coli*). One of the samples collected during both the high-flow and the low-flow period should also be analyzed for total and dissolved metals concentrations.

7.1 BENTHIC INVERTEBRATES

Objectives development has traditionally focused on physical, chemical and bacteriological parameters. Biological data have been underutilized due to the highly specialized interpretation required and the difficulty in applying the data quantitatively. Notwithstanding this problem, with few exceptions, the most sensitive use of our water bodies is aquatic life. Therefore biological objectives need to be incorporated into the overall objectives development program.

In streams, benthic invertebrates have been accepted as a very important assessment tool. Considerable progress has been made in the development of benthic invertebrate indices, which can be incorporated into impact assessments and water quality objectives. On Vancouver Island, benthic sampling has been conducted at a limited number of sites over the past three years. The dataset at present is too limited to be able to make a sound judgment as to the state of the ecosystem health. To be able to apply and test the benthic invertebrate approach, Vancouver Island regional staff will be collecting more data at a broad range of both reference and test sites. Once all the data has been compiled and analyzed, biological objectives and/or indices will be developed for those watersheds where water quality objectives have already been developed.

8.0 SUMMARY OF PROPOSED WATER QUALITY OBJECTIVES

Table 2. Summary of proposed water quality objectives for the Tsulquate River Community Watershed (Site E229565).

| Parameter | Objective Value |
|--------------------------------|--|
| Fecal Coliform Bacteria | ≤60 CFU/100 mL (90 th percentile based on a minimum of 5 weekly samples collected over a 30-day period) |
| <i>Escherichia coli</i> | ≤60 CFU/100 mL (90 th percentile based on a minimum 5 weekly samples collected over a 30-day period) |
| Turbidity | 2 NTU average (based on a minimum 5 weekly samples collected over a 30-day period) 5 NTU maximum |
| pH | 6.0 – 8.5 pH units |
| Temperature | ≤15°C (long-term) with hourly rate of change not exceeding 1°C |
| True Colour | ≤ 108 TCU (90 th percentile based on a minimum of five weekly samples collected over a 30-day period) |
| Total Suspended Solids | 26 mg/L maximum in a 24-hour period 6 mg/L average (based on a minimum of five weekly samples collected over a 30-day period) |
| Total Organic Carbon | ≤ 12 mg/L (90 th percentile based on a minimum of five weekly samples collected over a 30-day period) |

Designated water uses: drinking water, aquatic life, and wildlife

Table 3. Proposed schedule for future water quality and benthic invertebrate monitoring in the Tsulquate River.

| Frequency and timing | Parameters to be measured |
|--|---|
| August – September (low-flow season): five weekly samples in a 30-day period | TSS, turbidity, true colour, pH, DOC/TOC, fecal coliforms and <i>E. coli</i> |
| November – February (high-flow season): five weekly samples in a 30-day period | TSS, turbidity, true colour, pH, DOC/TOC, fecal coliforms and <i>E. coli</i> |
| Once each during low-flow and high-flow season | Total and dissolved metals and nutrients (total phosphorus, nitrate, nitrite) |
| Once every five years | Benthic invertebrate sampling |

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APPENDIX I.

Summary of duplicate samples collected from Tsulquate River*.

| Date: | 10/10/2001 | | |
|-----------------------------|------------|----------|-----------------------|
| Parameter | Sample 1 | Sample 2 | Relative % Difference |
| Fecal coliforms (CFU/100mL) | 30 | 27 | 10.5% |
| E Coli (CFU/100mL) | 30 | 27 | 10.5% |
| Enterococci (CFU/100mL) | <1 | <1 | 0.0% |
| Carbon Total Organic (mg/L) | 16.1 | 16.1 | 0.0% |
| Color True (Col.unit) | 125 | 125 | 0.0% |
| Turbidity (NTU) | 1.27 | 1.3 | 2.3% |
| pH (pH units) | 6.76 | 6.4 | 5.5% |

*Bold numbers denote exceedences of acceptable limits of % relative differences (duplicates: 25%)

| Date: | 11/02/2004 | | |
|----------------------------------|------------|----------|-----------------------|
| Parameter | Sample 1 | Sample 2 | Relative % Difference |
| Fecal coliforms (CFU/100mL) | 9 | 6 | 40.0% |
| E Coli (CFU/100mL) | 5 | 5 | 0.0% |
| Carbon Dissolved Organic (mg/L) | 9.5 | 9.4 | 1.1% |
| Nitrate (NO3) Dissolved (mg/L) | 0.006 | 0.007 | 15.4% |
| Nitrate + Nitrite Diss. (mg/L) | 0.009 | 0.009 | 0.0% |
| Nitrogen - Nitrite Diss. (mg/L) | 0.003 | 0.002 | 40.0% |
| Ortho-Phosphate Dissolved (mg/L) | <0.001 | <0.001 | 0.0% |
| P--T (mg/L) | 0.003 | 0.004 | 28.6% |
| Phosphorus Tot. Dissolved (mg/L) | <0.002 | <0.002 | 0.0% |
| Residue Non-filterable (mg/L) | <4 | <4 | 0.0% |
| Specific Conductance (µS/cm) | 18 | 19 | 5.4% |
| Turbidity (NTU) | 0.9 | 0.89 | 1.1% |
| UV Absorbance 250nm (AU/cm) | 0.4 | 0.35 | 13.3% |
| UV Absorbance 254nm (AU/cm) | 0.39 | 0.34 | 13.7% |
| UV Absorbance 310nm (AU/cm) | 0.2 | 0.17 | 16.2% |
| UV Absorbance 340nm (AU/cm) | 0.13 | 0.11 | 16.7% |
| UV Absorbance 360nm (AU/cm) | 0.09 | 0.08 | 11.8% |
| UV Absorbance 365nm (AU/cm) | 0.09 | 0.07 | 25.0% |
| pH (pH units) | 6.6 | 6.5 | 1.5% |

*Bold numbers denote exceedences of acceptable limits of % relative differences (duplicates: 25%)

| Date: | 14/12/2004 | | |
|---|------------|----------|-----------------------|
| Parameter | Sample 1 | Sample 2 | Relative % Difference |
| Carbon Dissolved Organic (mg/L) | 6.3 | 6.4 | 1.6% |
| Nitrate (NO ₃) Dissolved (mg/L) | <0.003 | <0.002 | 40.0% |
| Nitrate + Nitrite Diss. (mg/L) | 0.005 | 0.003 | 50.0% |
| Nitrogen - Nitrite Diss. (mg/L) | <0.002 | <0.002 | 0.0% |
| Ortho-Phosphate Dissolved (mg/L) | 0.003 | 0.002 | 40.0% |
| P--T (mg/L) | <0.002 | <0.002 | 0.0% |
| Phosphorus Tot. Dissolved (mg/L) | 0.002 | <0.002 | 0.0% |
| Residue Non-filterable (mg/L) | <4 | <4 | 0.0% |
| Specific Conductance (µS/cm) | 15 | 15 | 0.0% |
| Turbidity (NTU) | 0.97 | 1.02 | 5.0% |
| UV Absorbance 250nm (AU/cm) | 0.34 | 0.29 | 15.9% |
| UV Absorbance 254nm (AU/cm) | 0.33 | 0.28 | 16.4% |
| UV Absorbance 310nm (AU/cm) | 0.17 | 0.14 | 19.4% |
| UV Absorbance 340nm (AU/cm) | 0.11 | 0.09 | 20.0% |
| UV Absorbance 360nm (AU/cm) | 0.08 | 0.06 | 28.6% |
| UV Absorbance 365nm (AU/cm) | 0.07 | 0.06 | 15.4% |
| pH (pH units) | 6.4 | 6.3 | 1.6% |

*Bold numbers denote exceedences of acceptable limits of % relative differences (duplicates: 25%)

APPENDIX II. SUMMARY OF WATER QUALITY DATA

Summary of general water chemistry at Site E229565, Tsulquate River at Intake.

| Variable | Minimum | Maximum | Average | Std Dev | No. of samples |
|---|----------|----------|----------|---------|----------------|
| Carbon Diss. Inorganic (mg/L) | 0.5 | 0.7 | 0.6 | 0.1 | 8 |
| Carbon Dissolved Organic (mg/L) | 3.9 | 11.4 | 6.4 | 1.7 | 39 |
| Carbon Total Dissolved (mg/L) | 6.5 | 8.7 | 6.9 | 0.7 | 8 |
| Carbon Total Inorganic (mg/L) | 0.5 | 0.7 | 0.6 | 0.1 | 9 |
| Carbon Total Organic (mg/L) | 5.9 | 16.1 | 8.7 | 3.0 | 16 |
| C--T (mg/L) | 6.5 | 11.1 | 7.2 | 1.5 | 9 |
| Ca-D (mg/L) | 1 | 1.43 | 1.27 | 0.14 | 9 |
| Ca-T (mg/L) | 1 | 1.6 | 1.3 | 0.2 | 9 |
| Color True (Col.unit) | 40 | 125 | 65.6 | 27.4 | 13 |
| Hardness Total (D) (mg/L) | 3.7 | 5.5 | 4.5 | 0.5 | 16 |
| Hardness Total (T) (mg/L) | 4.1 | 6.1 | 4.7 | 0.6 | 9 |
| Nitrate (NO ₃) Dissolved (mg/L) | < 0.001 | 0.018 | 0.004 | 0.005 | 35 |
| Nitrate + Nitrite Diss. (mg/L) | < 0.002 | 0.043 | 0.009 | 0.008 | 40 |
| Nitrogen - Nitrite Diss. (mg/L) | < 0.002 | 0.006 | 0.003 | 0.001 | 36 |
| pH (pH units) | 6.08 | 7.9 | 6.74 | 0.37 | 46 |
| Ortho-Phosphate Dissolved (mg/L) | < 0.001 | 0.005 | 0.002 | 0.001 | 33 |
| Phosphorus Tot. Dissolved (mg/L) | < 0.002 | 0.01 | 0.003 | 0.002 | 31 |
| P--T (mg/L) | < 0.002 | 0.009 | 0.004 | 0.002 | 40 |
| Residue Non-filterable (mg/L) | < 1 | < 5 | 2.4 | 1.7 | 56 |
| Specific Conductance (µS/cm) | 13.6 | 27 | 18.4 | 3.2 | 39 |
| Turbidity (NTU) | 0.3 | 4.37 | 0.96 | 0.78 | 46 |
| Fecal coliforms (CFU/100mL) | < 1 | 283 | 16.6 | 46.2 | 39 |
| <i>E. coli</i> (CFU/100mL) | < 1 | 264 | 16.1 | 47.7 | 30 |
| Enterococci (CFU/100mL) | < 1 | < 1 | < 1 | 0 | 6 |
| UV Absorbance 250nm (AU/cm) | 0.16 | 0.83 | 0.32 | 0.16 | 18 |
| UV Absorbance 254nm (AU/cm) | 0.16 | 0.81 | 0.31 | 0.15 | 18 |
| UV Absorbance 310nm (AU/cm) | 0.05 | 0.35 | 0.15 | 0.07 | 18 |
| UV Absorbance 340nm (AU/cm) | 0.02 | 0.21 | 0.09 | 0.05 | 18 |
| UV Absorbance 360nm (AU/cm) | < 0.01 | 0.14 | 0.06 | 0.03 | 18 |
| UV Absorbance 365nm (AU/cm) | < 0.01 | 0.13 | 0.06 | 0.03 | 18 |
| Ag-D (mg/L) | < 0.0001 | < 0.0001 | < 0.0001 | 0 | 20 |
| Ag-T (mg/L) | < 0.0001 | < 0.0001 | < 0.0001 | 0 | 20 |
| Al-D (mg/L) | 0.07 | 0.211 | 0.137 | 0.039 | 27 |
| Al-T (mg/L) | 0.06 | 0.34 | 0.15 | 0.06 | 27 |
| As-D (mg/L) | < 0.0001 | 0.0001 | < 0.0001 | 0 | 20 |
| As-T (mg/L) | < 0.0001 | 0.0002 | 0.0001 | 0.00002 | 20 |
| Ba-D (mg/L) | 0.0006 | 0.0012 | 0.0008 | 0.0002 | 20 |
| Ba-T (mg/L) | 0.0006 | 0.0018 | 0.0008 | 0.0003 | 20 |
| Be-D (mg/L) | < 0.0005 | < 0.0005 | < 0.0005 | 0 | 20 |
| Be-T (mg/L) | < 0.0005 | < 0.0005 | < 0.0005 | 0 | 20 |
| Bi-D (mg/L) | < 0.0005 | 0.0005 | 0.0005 | 0 | 20 |
| Bi-T (mg/L) | < 0.0005 | 0.0005 | 0.0005 | 0.0002 | 20 |
| Cd-D (mg/L) | < 0.0001 | 0.0001 | 0.0001 | 0 | 20 |

| Variable | Minimum | Maximum | Average | Std Dev | No. of samples |
|-------------|------------|----------|----------|---------|----------------|
| Cd-T (mg/L) | < 0.0001 | 0.0001 | 0.0001 | 0 | 20 |
| Co-D (mg/L) | < 0.0001 | 0.0001 | 0.0001 | 0 | 20 |
| Co-T (mg/L) | < 0.0001 | 0.0004 | 0.0001 | 0.0001 | 20 |
| Cr-D (mg/L) | < 0.0002 | 0.0005 | 0.0002 | 0.0001 | 20 |
| Cr-T (mg/L) | < 0.0002 | 0.0005 | 0.0002 | 0.0001 | 20 |
| Cu-D (mg/L) | 0.0004 | 0.0065 | 0.0019 | 0.0017 | 20 |
| Cu-T (mg/L) | 0.0005 | 0.0046 | 0.0014 | 0.0012 | 20 |
| Fe-D (mg/L) | 0.097 | 0.19 | 0.118 | 0.029 | 9 |
| Fe-T (mg/L) | 0.133 | 0.271 | 0.172 | 0.046 | 9 |
| K--D (mg/L) | < 0.1 | 0.3 | 0.2 | 0.1 | 7 |
| K--T (mg/L) | < 0.1 | 1.2 | 0.5 | 0.5 | 7 |
| Li-D (mg/L) | < 0.0001 | 0.0012 | 0.0002 | 0.0003 | 18 |
| Li-T (mg/L) | < 0.0001 | 0.0013 | 0.0002 | 0.0003 | 18 |
| Mg-D (mg/L) | 0.2 | 0.4 | 0.3 | 0.1 | 9 |
| Mg-T (mg/L) | 0.3 | 0.5 | 0.4 | 0.1 | 9 |
| Mn-D (mg/L) | < 0.001 | 0.0104 | 0.0035 | 0.0022 | 27 |
| Mn-T (mg/L) | 0.002 | 0.0171 | 0.0054 | 0.0038 | 27 |
| Mo-D (mg/L) | < 0.0001 | < 0.0001 | < 0.0001 | 0 | 20 |
| Mo-T (mg/L) | < 0.0001 | < 0.0001 | < 0.0001 | 0 | 20 |
| Na-D (mg/L) | 0.1 | 2 | 1.3 | 0.6 | 9 |
| Na-T (mg/L) | 1.2 | 2 | 1.5 | 0.3 | 9 |
| Ni-D (mg/L) | 0.0001 | 0.0006 | 0.0003 | 0.0001 | 20 |
| Ni-T (mg/L) | 0.0001 | 0.0006 | 0.0003 | 0.0001 | 20 |
| Pb-D (mg/L) | < 0.0001 | 0.0012 | 0.0003 | 0.0003 | 20 |
| Pb-T (mg/L) | < 0.0001 | 0.0011 | 0.0003 | 0.0003 | 20 |
| Sb-D (mg/L) | < 0.0001 | 0.0001 | 0.0001 | 0 | 20 |
| Sb-T (mg/L) | < 0.0001 | 0.0002 | 0.0001 | 0.00002 | 20 |
| S--D (mg/L) | 0.13 | 0.2 | 0.2 | 0.0 | 7 |
| S--T (mg/L) | 0.16 | 0.4 | 0.26 | 0.09 | 7 |
| Se-D (mg/L) | < 0.0002 | 0.0004 | 0.0002 | 0.00005 | 18 |
| Se-T (mg/L) | < 0.0002 | 0.0002 | 0.0002 | 0 | 18 |
| Si-D (mg/L) | 0.05 | 1.01 | 0.61 | 0.36 | 9 |
| Si-T (mg/L) | 0.06 | 1.01 | 0.75 | 0.39 | 9 |
| Sn-D (mg/L) | < 0.0001 | 0.0001 | 0.0001 | 0 | 20 |
| Sn-T (mg/L) | < 0.0001 | 0.0001 | 0.0001 | 0 | 20 |
| Sr-D (mg/L) | 0.002 | 0.0084 | 0.005 | 0.002 | 27 |
| Sr-T (mg/L) | 0.0037 | 0.0076 | 0.005 | 0.001 | 27 |
| Ti-D (mg/L) | < 0.002 | < 0.002 | < 0.002 | 0 | 7 |
| Ti-T (mg/L) | < 0.002 | 0.01 | 0.006 | 0.003 | 7 |
| TI-D (mg/L) | < 0.0001 | 0.0001 | 0.0001 | 0 | 20 |
| TI-T (mg/L) | < 0.0001 | 0.0001 | 0.0001 | 0 | 20 |
| U--D (mg/L) | < 0.000001 | 0.000001 | 0.000001 | 0 | 20 |
| U--T (mg/L) | < 0.000001 | 0.000001 | 0.000001 | 0 | 20 |
| V--D (mg/L) | < 0.0001 | 0.0005 | 0.0003 | 0.0001 | 20 |
| V--T (mg/L) | < 0.0001 | 0.0009 | 0.0003 | 0.0002 | 20 |
| Zn-D (mg/L) | < 0.0001 | 0.0107 | 0.0030 | 0.0024 | 27 |
| Zn-T (mg/L) | < 0.0001 | 0.084 | 0.0079 | 0.0194 | 27 |

APPENDIX III.

Table 1. Summary of turbidity events exceeding 10 hours in duration reported by automated turbidity meter at Ministry of Environment station between 2003 and 2005.

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 02/12/2003 | 14:24 | 35.25 | 0.619 | 0.019 | 10.25 | 436.6 | 0.6 | 349.6 | 140.5 |
| 06/03/2005 | 23:45 | 2.25 | 0.639 | 0.07 | 10.25 | 127.6 | 3.8 | 40.0 | 27.4 |
| 28/08/2003 | 23:15 | 0.25 | 0.346 | -0.005 | 10.75 | 342.3 | 3.7 | 107.2 | 65.5 |
| 08/03/2004 | 21:39 | 0.25 | 0.673 | 0.022 | 10.75 | 444.7 | 0.2 | 226.1 | 150.2 |
| 05/03/2004 | 07:09 | 0.25 | 0.64 | -0.03 | 11.5 | 247.6 | 2.1 | 93.5 | 61.1 |
| 23/11/2003 | 11:39 | 7.5 | 0.488 | 0.168 | 11.75 | 414.7 | 0.6 | 291.6 | 148.1 |
| 07/10/2003 | 13:09 | 0.75 | 0.617 | -0.024 | 13 | 434.9 | 0 | 143.7 | 161.9 |
| 22/01/2004 | 07:54 | 0.25 | 0.72 | -0.045 | 13 | 435.1 | 0.1 | 327.0 | 139.6 |
| 27/01/2004 | 21:24 | 0.25 | 0.691 | -0.025 | 14.5 | 439.1 | 0.7 | 371.4 | 106.1 |
| 23/12/2003 | 07:54 | 14.75 | 0.539 | 0.14 | 14.75 | 425.9 | 3 | 298.8 | 161.1 |
| 01/09/2003 | 19:00 | 0.25 | 0.326 | -0.013 | 15 | 439.9 | 4.7 | 354.6 | 115.1 |
| 05/03/2005 | 10:45 | 44.25 | 0.591 | 0.105 | 15.5 | 442.3 | 5 | 182.4 | 181.0 |
| 18/03/2004 | 08:24 | 0.25 | 0.688 | 0 | 16 | 426.6 | 1.5 | 297.7 | 155.1 |
| 22/10/2003 | 09:24 | 9.5 | 0.682 | 0.028 | 17.75 | 429.5 | 0 | 332.0 | 140.1 |
| 20/10/2003 | 07:09 | 0.5 | 0.667 | -0.001 | 19.5 | 433.7 | 2.2 | 320.8 | 151.2 |
| 17/09/2003 | 21:54 | 29.5 | 0.656 | 0.023 | 20 | 436.2 | 1.2 | 337.6 | 126.5 |
| 28/11/2003 | 02:54 | 1.75 | 0.652 | 0.016 | 24.5 | 428.2 | 0 | 372.2 | 110.3 |
| 06/02/2004 | 01:09 | 0.25 | 0.692 | -0.025 | 26 | 435.2 | 1.1 | 279.2 | 150.9 |
| 11/10/2003 | 18:39 | 0.25 | 0.686 | -0.003 | 27.75 | 432.3 | 4.2 | 246.6 | 149.8 |
| 15/12/2003 | 17:09 | 0.25 | 0.673 | 0.046 | 28.25 | 415.6 | 2.6 | 351.2 | 123.8 |
| 08/03/2005 | 07:15 | 0.25 | 0.68 | 0.03 | 28.75 | 443.2 | 4.4 | 255.4 | 176.8 |
| 13/12/2003 | 20:24 | 0.25 | 0.726 | -0.03 | 31 | 428.5 | 2.3 | 371.2 | 110.4 |
| 24/12/2003 | 13:39 | 0.25 | 0.698 | -0.086 | 38.5 | 439 | 3.8 | 271.4 | 177.2 |
| 13/01/2004 | 12:39 | 0.25 | 0.739 | -0.002 | 40 | 438.1 | 0.6 | 390.5 | 84.3 |
| 06/03/2004 | 16:24 | 1.25 | 0.505 | 0.139 | 42.5 | 426.9 | 0.4 | 138.3 | 102.9 |
| 08/10/2003 | 13:24 | 0.25 | 0.692 | 0.086 | 49 | 434.1 | 1.4 | 253.0 | 135.9 |
| 16/10/2003 | 11:39 | 4.25 | 0.648 | 0.028 | 63 | 441.5 | 0.1 | 324.6 | 135.0 |
| 04/12/2003 | 19:24 | 0.25 | 0.711 | -0.006 | 64 | 439.2 | 0.7 | 398.0 | 67.6 |
| 31/01/2005 | 19:30 | 1 | 0.678 | 0.064 | 76.25 | 444.8 | 2.6 | 355.3 | 132.9 |
| 07/01/2004 | 20:39 | 0.25 | 0.789 | -0.108 | 77 | 426.3 | 2.3 | 381.1 | 90.1 |
| 07/09/2003 | 05:45 | 9.75 | 0.433 | 0.001 | 357.25 | 102.7 | 0 | 59.8 | 12.4 |

Table 2. Summary of turbidity events >0.5 hours in duration measured by automated station.

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 15/04/2003 | 07:30 | 16.25 | 0.496 | 0.002 | 0.75 | 6.6 | 0.5 | 4.1 | 3.2 |
| 15/04/2003 | 12:30 | 4.5 | 0.483 | 0.001 | 1 | 151.4 | 0.6 | 109.7 | 73.0 |
| 16/04/2003 | 06:15 | 1 | 0.457 | -0.002 | 0.5 | 11.5 | 0.1 | 5.8 | 8.1 |
| 16/04/2003 | 14:45 | 1.5 | 0.454 | 0.001 | 0.5 | 9.7 | 0.1 | 4.9 | 6.8 |
| 16/04/2003 | 04:45 | 15.5 | 0.456 | 0.005 | 0.75 | 11.4 | 0 | 5.6 | 5.7 |
| 16/04/2003 | 12:30 | 6 | 0.455 | 0.001 | 1 | 396.1 | 0.2 | 282.3 | 189.3 |
| 17/04/2003 | 10:00 | 19 | 0.48 | 0.019 | 5.5 | 15.4 | 4.1 | 9.6 | 3.6 |
| 18/04/2003 | 07:15 | 16 | 0.461 | 0 | 1.25 | 38 | 0 | 24.1 | 14.7 |
| 19/04/2003 | 07:45 | 0.5 | 0.592 | 0 | 0.5 | 10.8 | 1.9 | 6.4 | 6.3 |
| 19/04/2003 | 09:15 | 1.25 | 0.596 | 0.001 | 0.5 | 8.9 | 1.8 | 5.4 | 5.0 |
| 19/04/2003 | 09:45 | 0.25 | 0.597 | -0.006 | 0.75 | 88.3 | 1 | 50.2 | 44.7 |
| 19/04/2003 | 23:45 | 0.25 | 0.577 | 0.006 | 0.75 | 361.5 | 2.9 | 203.4 | 183.0 |
| 19/04/2003 | 06:30 | 22.25 | 0.583 | 0.008 | 1 | 18.4 | 2.5 | 9.7 | 6.9 |
| 19/04/2003 | 10:30 | 0.25 | 0.591 | -0.01 | 2 | 369.8 | 4.9 | 138.2 | 168.9 |
| 19/04/2003 | 12:30 | 0.25 | 0.581 | -0.004 | 2 | 87.8 | 2.1 | 47.5 | 30.5 |
| 19/04/2003 | 14:30 | 0.25 | 0.577 | -0.007 | 2 | 175.5 | 4.5 | 75.3 | 69.5 |
| 19/04/2003 | 16:30 | 0.25 | 0.57 | 0.007 | 7.25 | 384.1 | 1.8 | 154.6 | 136.5 |
| 20/04/2003 | 06:45 | 0.5 | 0.592 | 0 | 0.75 | 419.3 | 2.4 | 171.6 | 219.3 |
| 20/04/2003 | 11:45 | 0.5 | 0.599 | -0.002 | 0.75 | 140.4 | 1.8 | 63.1 | 70.7 |
| 20/04/2003 | 04:30 | 0.25 | 0.592 | 0.002 | 2 | 285.9 | 0.8 | 148.9 | 92.8 |
| 20/04/2003 | 16:30 | 0.25 | 0.577 | -0.006 | 3 | 401 | 0.8 | 187.0 | 164.3 |
| 20/04/2003 | 00:30 | 0.25 | 0.583 | 0.009 | 4 | 399.9 | 1.5 | 221.0 | 156.9 |
| 20/04/2003 | 07:30 | 0.25 | 0.592 | 0.006 | 4 | 398.9 | 1.9 | 171.5 | 140.8 |
| 20/04/2003 | 12:30 | 0.25 | 0.597 | -0.02 | 4 | 400.7 | 1.4 | 229.5 | 144.2 |
| 20/04/2003 | 19:30 | 0.25 | 0.571 | -0.03 | 9 | 364.1 | 4.2 | 146.0 | 83.5 |
| 21/04/2003 | 10:00 | 2.25 | 0.525 | 0.005 | 0.5 | 6.6 | 0.5 | 3.6 | 4.3 |
| 21/04/2003 | 11:00 | 0.75 | 0.528 | 0 | 0.5 | 59.6 | 0.7 | 30.2 | 41.6 |
| 21/04/2003 | 15:45 | 0.75 | 0.51 | -0.001 | 0.5 | 10.1 | 0.3 | 5.2 | 6.9 |
| 21/04/2003 | 16:30 | 0.5 | 0.512 | -0.005 | 0.5 | 5.5 | 0.1 | 2.8 | 3.8 |
| 21/04/2003 | 17:00 | 0.25 | 0.507 | 0.002 | 0.5 | 10.8 | 3.2 | 7.0 | 5.4 |
| 21/04/2003 | 22:00 | 1.75 | 0.495 | -0.001 | 0.5 | 5.3 | 0.1 | 2.7 | 3.7 |
| 21/04/2003 | 07:15 | 0.75 | 0.534 | -0.002 | 0.75 | 12 | 0.1 | 6.7 | 6.0 |
| 21/04/2003 | 11:45 | 0.5 | 0.521 | 0 | 0.75 | 22.3 | 0.6 | 15.1 | 12.5 |
| 21/04/2003 | 12:45 | 0.5 | 0.522 | -0.005 | 0.75 | 80.9 | 2.1 | 30.7 | 43.6 |
| 21/04/2003 | 18:00 | 0.75 | 0.504 | 0.002 | 0.75 | 25 | 3.8 | 12.4 | 11.1 |
| 21/04/2003 | 19:45 | 1.25 | 0.499 | 0.001 | 0.75 | 8.4 | 2.3 | 6.4 | 3.5 |
| 21/04/2003 | 14:00 | 0.75 | 0.519 | -0.002 | 1.25 | 53.6 | 0.8 | 18.5 | 20.8 |
| 21/04/2003 | 04:30 | 0.25 | 0.541 | -0.003 | 2.25 | 333.7 | 0.9 | 107.3 | 113.4 |
| 22/04/2003 | 03:45 | 5.5 | 0.476 | 0.001 | 0.5 | 14.5 | 4.1 | 9.3 | 7.4 |
| 22/04/2003 | 08:00 | 4 | 0.47 | -0.005 | 1.5 | 184.7 | 0.9 | 55.6 | 66.0 |
| 23/04/2003 | 12:00 | 26.75 | 0.442 | -0.003 | 1.5 | 7.1 | 0.2 | 6.0 | 2.8 |
| 23/04/2003 | 20:00 | 6.75 | 0.455 | 0.015 | 3.75 | 10.8 | 3.4 | 8.2 | 2.0 |
| 24/04/2003 | 18:45 | 7.5 | 0.463 | 0.007 | 0.5 | 5.6 | 4 | 4.8 | 1.1 |
| 24/04/2003 | 10:30 | 0 | 0.489 | -0.002 | 1 | 385.2 | 324.6 | 365.2 | 27.9 |
| 25/04/2003 | 08:45 | 41 | 0.458 | -0.004 | 0.75 | 386.6 | 0 | 152.4 | 205.9 |
| 26/04/2003 | 11:30 | 26.25 | 0.419 | 0.002 | 1 | 310.1 | 0 | 210.7 | 142.3 |
| 28/04/2003 | 09:30 | 45.25 | 0.385 | 0.003 | 1 | 111.6 | 0 | 80.7 | 54.0 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 29/04/2003 | 10:00 | 23.75 | 0.37 | 0.004 | 0.5 | 210.5 | 0.3 | 105.4 | 148.6 |
| 30/04/2003 | 10:30 | 22.5 | 0.361 | 0.001 | 0.75 | 140.4 | 0 | 65.5 | 70.7 |
| 02/05/2003 | 06:45 | 43.75 | 0.343 | 0 | 0.5 | 10.7 | 0 | 5.4 | 7.6 |
| 02/05/2003 | 09:45 | 2.75 | 0.346 | -0.001 | 1 | 11.8 | 0 | 6.9 | 5.2 |
| 02/05/2003 | 12:00 | 1.5 | 0.345 | 0 | 1.25 | 160.8 | 0 | 103.9 | 72.3 |
| 06/05/2003 | 09:15 | 92.25 | 0.327 | 0.001 | 1 | 30.3 | 0 | 22.0 | 14.7 |
| 06/05/2003 | 12:15 | 2.25 | 0.331 | -0.003 | 1 | 212.4 | 0 | 69.2 | 96.7 |
| 09/05/2003 | 13:00 | 56.25 | 0.34 | -0.001 | 2.25 | 297.6 | 1.2 | 106.8 | 123.5 |
| 10/05/2003 | 11:15 | 20.25 | 0.334 | -0.003 | 1 | 129.3 | 0 | 71.8 | 61.0 |
| 10/05/2003 | 16:00 | 4 | 0.333 | -0.003 | 1.25 | 157.5 | 0 | 121.0 | 67.8 |
| 11/05/2003 | 10:45 | 17.75 | 0.328 | 0.002 | 0.5 | 72.1 | 0 | 36.1 | 51.0 |
| 13/05/2003 | 12:15 | 37.75 | 0.331 | 0.002 | 1 | 14.3 | 0 | 10.0 | 6.7 |
| 13/05/2003 | 13:15 | 0.25 | 0.333 | 0 | 1 | 162.3 | 0.3 | 118.3 | 78.7 |
| 13/05/2003 | 23:00 | 9 | 0.469 | 0.005 | 2.5 | 8.2 | 3.5 | 6.2 | 1.2 |
| 14/05/2003 | 09:45 | 8.5 | 0.456 | 0 | 0.75 | 57.9 | 0 | 38.5 | 33.3 |
| 15/05/2003 | 09:45 | 23.5 | 0.429 | 0.007 | 1.25 | 307.1 | 0 | 78.6 | 128.6 |
| 16/05/2003 | 01:30 | 14.75 | 0.421 | -0.001 | 1 | 31.1 | 0 | 13.4 | 13.0 |
| 16/05/2003 | 10:30 | 8.25 | 0.413 | -0.001 | 1 | 368 | 0 | 245.5 | 172.0 |
| 17/05/2003 | 06:15 | 19 | 0.408 | 0 | 1.25 | 208 | 0 | 162.8 | 91.0 |
| 18/05/2003 | 08:00 | 24.75 | 0.391 | -0.004 | 0.5 | 7.4 | 0 | 3.7 | 5.2 |
| 18/05/2003 | 13:00 | 4.75 | 0.385 | 0 | 1.5 | 270.2 | 0.1 | 176.6 | 106.8 |
| 19/05/2003 | 07:15 | 17 | 0.375 | -0.005 | 1.25 | 411 | 0 | 279.4 | 173.8 |
| 20/05/2003 | 12:45 | 28.5 | 0.358 | 0 | 0.75 | 307.8 | 0 | 190.4 | 166.4 |
| 22/05/2003 | 08:00 | 42.75 | 0.444 | 0.004 | 1.5 | 218.2 | 0 | 90.6 | 100.8 |
| 23/05/2003 | 08:30 | 23.25 | 0.463 | -0.004 | 1 | 254.3 | 0 | 128.9 | 120.2 |
| 24/05/2003 | 03:30 | 2.5 | 0.596 | 0 | 0.5 | 6.6 | 0 | 3.3 | 4.7 |
| 24/05/2003 | 07:30 | 2.25 | 0.577 | -0.003 | 0.5 | 21.7 | 0.7 | 11.2 | 14.8 |
| 24/05/2003 | 17:30 | 0.25 | 0.538 | 0.003 | 0.5 | 10 | 0 | 5.0 | 7.1 |
| 24/05/2003 | 19:00 | 1.25 | 0.534 | 0.005 | 0.5 | 13.6 | 0 | 6.8 | 9.6 |
| 24/05/2003 | 00:30 | 15.25 | 0.595 | 0.002 | 0.75 | 9.7 | 0.1 | 5.5 | 4.9 |
| 24/05/2003 | 04:45 | 1 | 0.583 | 0 | 0.75 | 81.5 | 0.6 | 49.4 | 42.9 |
| 24/05/2003 | 08:00 | 0.25 | 0.574 | -0.01 | 1.5 | 73.2 | 0.8 | 32.2 | 31.0 |
| 24/05/2003 | 19:45 | 0.5 | 0.528 | 0.003 | 2 | 49.3 | 0.3 | 31.0 | 20.5 |
| 24/05/2003 | 21:45 | 0.25 | 0.531 | -0.011 | 3.25 | 173.6 | 0.9 | 47.7 | 45.3 |
| 24/05/2003 | 09:30 | 0.25 | 0.564 | -0.026 | 8 | 396.3 | 1.4 | 168.8 | 144.0 |
| 25/05/2003 | 01:00 | 0.25 | 0.52 | 0 | 0.5 | 17.3 | 2.8 | 10.1 | 10.3 |
| 25/05/2003 | 06:30 | 0.25 | 0.506 | -0.003 | 0.5 | 17.8 | 0 | 8.9 | 12.6 |
| 25/05/2003 | 07:00 | 0.25 | 0.503 | -0.001 | 0.5 | 12.8 | 0.1 | 6.5 | 9.0 |
| 25/05/2003 | 09:30 | 2.25 | 0.498 | 0.003 | 0.5 | 8.4 | 0 | 4.2 | 5.9 |
| 25/05/2003 | 10:00 | 0.25 | 0.501 | -0.001 | 0.5 | 13.9 | 0 | 7.0 | 9.8 |
| 25/05/2003 | 11:00 | 0.75 | 0.498 | 0 | 0.5 | 14.2 | 0.2 | 7.2 | 9.9 |
| 25/05/2003 | 11:45 | 0.5 | 0.498 | 0 | 0.5 | 5.1 | 0 | 2.6 | 3.6 |
| 25/05/2003 | 15:30 | 3.5 | 0.494 | 0.001 | 0.5 | 7.3 | 0 | 3.7 | 5.2 |
| 25/05/2003 | 17:15 | 1.5 | 0.492 | 0.002 | 0.5 | 6.5 | 0 | 3.3 | 4.6 |
| 25/05/2003 | 21:15 | 2.5 | 0.487 | -0.004 | 0.5 | 29.8 | 0.3 | 15.1 | 20.9 |
| 25/05/2003 | 02:45 | 0.25 | 0.512 | 0.001 | 0.75 | 23.8 | 0 | 10.2 | 12.3 |
| 25/05/2003 | 03:45 | 0.5 | 0.512 | -0.002 | 0.75 | 67 | 2.6 | 30.1 | 33.2 |
| 25/05/2003 | 05:45 | 0.5 | 0.507 | -0.001 | 0.75 | 17.5 | 0 | 8.4 | 8.8 |
| 25/05/2003 | 18:15 | 0.75 | 0.491 | -0.003 | 0.75 | 94.3 | 3.8 | 36.3 | 50.4 |
| 25/05/2003 | 04:30 | 0.25 | 0.51 | -0.005 | 1 | 37.5 | 0 | 19.2 | 15.3 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 25/05/2003 | 01:30 | 0.25 | 0.52 | -0.008 | 1.25 | 79.7 | 0 | 45.8 | 36.1 |
| 26/05/2003 | 02:45 | 5.25 | 0.471 | -0.002 | 0.5 | 7.9 | 0 | 4.0 | 5.6 |
| 26/05/2003 | 12:00 | 9 | 0.457 | -0.002 | 0.5 | 85.8 | 0 | 42.9 | 60.7 |
| 27/05/2003 | 13:30 | 25.25 | 0.443 | 0.003 | 0.5 | 13.6 | 0.6 | 7.1 | 9.2 |
| 28/05/2003 | 08:30 | 18.75 | 0.434 | 0 | 1 | 57.2 | 0.1 | 29.0 | 24.5 |
| 30/05/2003 | 09:30 | 48.25 | 0.394 | -0.002 | 1 | 48.4 | 0 | 24.5 | 21.4 |
| 31/05/2003 | 12:45 | 26.5 | 0.378 | -0.003 | 0.75 | 178.2 | 0 | 99.0 | 90.7 |
| 01/06/2003 | 02:00 | 12.75 | 0.378 | 0.003 | 0.5 | 16.3 | 0 | 8.2 | 11.5 |
| 01/06/2003 | 05:30 | 3.25 | 0.38 | -0.001 | 1 | 63.5 | 0 | 33.6 | 26.5 |
| 01/06/2003 | 12:00 | 5.75 | 0.379 | 0.001 | 1.5 | 151.9 | 0 | 110.3 | 56.2 |
| 03/06/2003 | 12:00 | 46.75 | 0.357 | 0.001 | 0.5 | 40.8 | 0 | 20.4 | 28.8 |
| 04/06/2003 | 10:00 | 20.75 | 0.347 | -0.001 | 0.75 | 104.6 | 0 | 69.7 | 60.4 |
| 05/06/2003 | 10:30 | 24 | 0.338 | 0.003 | 1.25 | 184.8 | 0 | 117.1 | 88.9 |
| 09/06/2003 | 07:45 | 92.25 | 0.308 | -0.013 | 1 | 76.8 | 0 | 41.9 | 38.2 |
| 13/06/2003 | 09:00 | 96.5 | 0.347 | 0.004 | 1.75 | 141.7 | 0 | 88.3 | 53.3 |
| 15/06/2003 | 07:15 | 44.75 | 0.466 | 0.001 | 0.5 | 62 | 0 | 31.0 | 43.8 |
| 17/06/2003 | 10:15 | 50.75 | 0.391 | -0.001 | 0.5 | 5.5 | 0 | 2.8 | 3.9 |
| 17/06/2003 | 11:00 | 0.5 | 0.392 | -0.002 | 0.75 | 89.6 | 0 | 35.3 | 47.7 |
| 19/06/2003 | 13:15 | 49.75 | 0.368 | -0.001 | 0.5 | 5.5 | 0 | 2.8 | 3.9 |
| 20/06/2003 | 12:15 | 3.75 | 0.355 | -0.002 | 0.5 | 8.6 | 0 | 4.3 | 6.1 |
| 20/06/2003 | 14:15 | 0.75 | 0.351 | 0.003 | 0.5 | 17.7 | 0 | 8.9 | 12.5 |
| 20/06/2003 | 08:00 | 18.5 | 0.358 | -0.006 | 0.75 | 25 | 0 | 12.4 | 12.5 |
| 20/06/2003 | 20:00 | 0.5 | 0.353 | 0.003 | 0.75 | 52.2 | 0 | 22.1 | 27.0 |
| 20/06/2003 | 12:45 | 0.25 | 0.353 | 0.001 | 1 | 59.2 | 0 | 41.5 | 27.8 |
| 20/06/2003 | 14:45 | 0.25 | 0.354 | 0 | 1 | 384.7 | 1 | 166.5 | 163.0 |
| 20/06/2003 | 15:45 | 0.25 | 0.354 | 0.002 | 1 | 86.1 | 0 | 59.1 | 40.0 |
| 20/06/2003 | 16:45 | 0.25 | 0.356 | -0.001 | 1 | 81 | 0 | 37.4 | 33.3 |
| 20/06/2003 | 17:45 | 0.25 | 0.355 | -0.001 | 2 | 161.5 | 0 | 86.1 | 66.4 |
| 20/06/2003 | 20:45 | 0.25 | 0.356 | -0.008 | 3 | 214.4 | 0 | 79.7 | 74.3 |
| 20/06/2003 | 23:45 | 0.25 | 0.348 | 0 | 7 | 305.9 | 0 | 132.4 | 84.6 |
| 21/06/2003 | 06:45 | 0.25 | 0.348 | -0.006 | 5 | 423.9 | 0 | 293.0 | 176.1 |
| 22/06/2003 | 05:15 | 17.75 | 0.333 | 0.003 | 0.5 | 27.2 | 0 | 13.6 | 19.2 |
| 23/06/2003 | 12:30 | 31 | 0.327 | 0.001 | 1.5 | 94.1 | 0 | 78.4 | 38.4 |
| 26/06/2003 | 06:15 | 64.5 | 0.332 | 0.003 | 0.5 | 18.3 | 0 | 9.2 | 12.9 |
| 26/06/2003 | 10:15 | 3.75 | 0.337 | -0.004 | 0.75 | 39.9 | 0 | 26.6 | 23.0 |
| 27/06/2003 | 09:15 | 22.5 | 0.331 | 0.001 | 0.5 | 13.6 | 0.4 | 7.0 | 9.3 |
| 29/06/2003 | 10:30 | 49 | 0.312 | 0.004 | 0.5 | 38.5 | 0 | 19.3 | 27.2 |
| 30/06/2003 | 10:00 | 23.25 | 0.324 | 0.001 | 1 | 31.1 | 0 | 18.9 | 13.4 |
| 01/07/2003 | 09:30 | 22.75 | 0.33 | 0.004 | 0.5 | 43 | 0.2 | 21.6 | 30.3 |
| 04/07/2003 | 09:45 | 72 | 0.322 | -0.006 | 1.25 | 84.4 | 0 | 56.5 | 34.1 |
| 05/07/2003 | 08:30 | 21.75 | 0.339 | -0.013 | 0.5 | 17.7 | 0 | 8.9 | 12.5 |
| 05/07/2003 | 09:30 | 0.75 | 0.324 | 0.001 | 0.5 | 13.4 | 0 | 6.7 | 9.5 |
| 05/07/2003 | 11:00 | 1.25 | 0.322 | 0 | 1 | 25.4 | 0 | 11.5 | 11.0 |
| 08/07/2003 | 10:15 | 70.5 | 0.293 | -0.002 | 0.75 | 41.7 | 0 | 23.4 | 21.3 |
| 09/07/2003 | 12:15 | 25.5 | 0.347 | 0.003 | 0.75 | 54 | 4.4 | 24.9 | 25.9 |
| 10/07/2003 | 14:15 | 24.75 | 0.341 | -0.001 | 1.25 | 41.6 | 0 | 24.9 | 19.5 |
| 11/07/2003 | 09:30 | 18.25 | 0.338 | 0.001 | 1 | 197.6 | 0 | 136.4 | 91.6 |
| 12/07/2003 | 11:45 | 25.5 | 0.34 | 0.001 | 0.75 | 64.7 | 0 | 30.7 | 32.5 |
| 12/07/2003 | 23:45 | 11.5 | 0.463 | -0.005 | 1 | 205 | 2.6 | 75.4 | 95.1 |
| 13/07/2003 | 06:00 | 5.5 | 0.438 | -0.001 | 0.5 | 48.6 | 0 | 24.3 | 34.4 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 14/07/2003 | 07:45 | 25.5 | 0.479 | 0.008 | 0.75 | 425.2 | 0 | 272.5 | 236.5 |
| 14/07/2003 | 09:45 | 1.5 | 0.495 | -0.003 | 0.75 | 30.1 | 0 | 14.8 | 15.1 |
| 15/07/2003 | 21:00 | 34.75 | 0.441 | 0 | 0.5 | 11.7 | 0 | 5.9 | 8.3 |
| 16/07/2003 | 11:00 | 1.75 | 0.467 | -0.004 | 0.5 | 417.3 | 0 | 208.7 | 295.1 |
| 16/07/2003 | 00:45 | 3.5 | 0.459 | 0.005 | 0.75 | 42 | 0.1 | 16.5 | 22.4 |
| 16/07/2003 | 03:45 | 2.5 | 0.473 | 0 | 0.75 | 25.6 | 0 | 12.4 | 12.8 |
| 16/07/2003 | 05:45 | 0.5 | 0.472 | -0.004 | 0.75 | 110.1 | 2 | 71.2 | 60.1 |
| 16/07/2003 | 15:45 | 1.5 | 0.461 | -0.001 | 0.75 | 103.1 | 0.3 | 56.9 | 52.2 |
| 16/07/2003 | 04:30 | 0.25 | 0.473 | -0.002 | 1 | 51.9 | 0 | 22.0 | 22.6 |
| 16/07/2003 | 06:30 | 0.25 | 0.468 | 0.004 | 1 | 115.7 | 0.6 | 60.7 | 47.8 |
| 16/07/2003 | 08:30 | 1.25 | 0.47 | -0.003 | 1 | 170.4 | 0.1 | 105.3 | 80.1 |
| 16/07/2003 | 13:30 | 2.25 | 0.461 | -0.002 | 1 | 32 | 0 | 20.3 | 14.0 |
| 17/07/2003 | 09:45 | 17.5 | 0.452 | -0.002 | 0.75 | 116.2 | 0 | 67.3 | 60.2 |
| 19/07/2003 | 09:30 | 47.25 | 0.387 | 0 | 1 | 81.3 | 0 | 47.0 | 34.2 |
| 20/07/2003 | 03:00 | 1 | 0.606 | 0.001 | 0.5 | 28.9 | 0 | 14.5 | 20.4 |
| 20/07/2003 | 03:30 | 0.25 | 0.607 | -0.001 | 0.5 | 9 | 4.4 | 6.7 | 3.3 |
| 20/07/2003 | 04:00 | 0.25 | 0.606 | -0.003 | 0.5 | 8.1 | 3.5 | 5.8 | 3.3 |
| 20/07/2003 | 17:00 | 0.25 | 0.55 | -0.003 | 0.5 | 21.2 | 1.2 | 11.2 | 14.1 |
| 20/07/2003 | 21:15 | 0.5 | 0.52 | -0.003 | 0.5 | 14.9 | 0.1 | 7.5 | 10.5 |
| 20/07/2003 | 20:15 | 0.75 | 0.525 | -0.003 | 0.75 | 26.4 | 0 | 17.5 | 15.1 |
| 20/07/2003 | 01:15 | 15 | 0.598 | 0 | 1 | 43.9 | 0.4 | 15.9 | 19.3 |
| 20/07/2003 | 07:30 | 3.25 | 0.6 | -0.002 | 1 | 56.7 | 0 | 29.8 | 28.3 |
| 20/07/2003 | 10:30 | 0.25 | 0.581 | -0.008 | 1 | 383.4 | 0.5 | 168.0 | 163.0 |
| 20/07/2003 | 11:30 | 0.25 | 0.573 | -0.003 | 1 | 405.3 | 0.6 | 269.8 | 190.8 |
| 20/07/2003 | 18:30 | 1.25 | 0.538 | -0.01 | 1.25 | 55.4 | 1.4 | 23.0 | 20.4 |
| 20/07/2003 | 08:30 | 0.25 | 0.598 | -0.017 | 2 | 435.8 | 1.4 | 231.1 | 168.1 |
| 20/07/2003 | 12:30 | 0.25 | 0.57 | -0.007 | 2 | 428.7 | 0 | 219.7 | 175.8 |
| 20/07/2003 | 14:30 | 0.25 | 0.563 | -0.013 | 2.5 | 319 | 0 | 88.7 | 118.3 |
| 21/07/2003 | 00:30 | 3 | 0.507 | -0.004 | 0.75 | 51.6 | 3.1 | 30.1 | 24.7 |
| 23/07/2003 | 08:00 | 55 | 0.399 | 0 | 0.75 | 61.8 | 0 | 33.7 | 31.3 |
| 23/07/2003 | 08:45 | 0.25 | 0.399 | 0.001 | 1 | 60.6 | 0 | 30.7 | 24.9 |
| 23/07/2003 | 09:45 | 0.25 | 0.4 | -0.002 | 1 | 90.9 | 0.1 | 44.5 | 40.6 |
| 24/07/2003 | 10:15 | 23.75 | 0.378 | 0 | 1.5 | 83.4 | 0 | 53.2 | 28.5 |
| 26/07/2003 | 11:00 | 47.5 | 0.347 | 0 | 0.75 | 54.6 | 0 | 30.6 | 27.9 |
| 26/07/2003 | 11:45 | 0.25 | 0.347 | 0 | 1 | 109.9 | 0 | 59.2 | 45.6 |
| 27/07/2003 | 08:30 | 20 | 0.338 | 0 | 1.25 | 106.5 | 0 | 65.5 | 52.4 |
| 29/07/2003 | 03:45 | 42.25 | 0.323 | -0.001 | 0.75 | 21.2 | 0.2 | 11.3 | 10.5 |
| 29/07/2003 | 04:45 | 0.5 | 0.323 | -0.021 | 5 | 236.3 | 0 | 122.7 | 75.9 |
| 31/07/2003 | 13:00 | 51.5 | 0.313 | 0.001 | 0.75 | 57 | 0 | 35.2 | 30.8 |
| 02/08/2003 | 08:45 | 3.25 | 0.331 | 0.002 | 1 | 214.1 | 0 | 145.1 | 98.2 |
| 02/08/2003 | 09:45 | 0.25 | 0.333 | -0.002 | 1 | 17.3 | 1.3 | 10.9 | 6.9 |
| 02/08/2003 | 04:30 | 39 | 0.338 | -0.008 | 1.25 | 35.7 | 0 | 18.1 | 13.6 |
| 03/08/2003 | 00:15 | 13.75 | 0.329 | 0 | 0.5 | 10.8 | 0 | 5.4 | 7.6 |
| 03/08/2003 | 08:15 | 0.75 | 0.329 | 0.003 | 0.5 | 61.7 | 0 | 30.9 | 43.6 |
| 03/08/2003 | 06:45 | 6.25 | 0.327 | 0.003 | 1 | 267.5 | 0 | 169.2 | 118.2 |
| 03/08/2003 | 08:45 | 0.25 | 0.332 | -0.002 | 1 | 189.7 | 4.1 | 129.5 | 84.8 |
| 05/08/2003 | 13:00 | 51.5 | 0.329 | 0 | 0.75 | 37.3 | 0 | 20.4 | 18.9 |
| 06/08/2003 | 07:45 | 18.25 | 0.325 | 0 | 0.5 | 7.8 | 0.1 | 4.0 | 5.4 |
| 06/08/2003 | 15:15 | 0.75 | 0.336 | -0.007 | 0.5 | 193.2 | 0 | 96.6 | 136.6 |
| 06/08/2003 | 15:45 | 0.25 | 0.329 | -0.001 | 0.5 | 8.5 | 0 | 4.3 | 6.0 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|------------------------|--------------------|------------------------------|--------------------------|-------------------|-------------------|--------------------|---------|
| 06/08/2003 | 14:00 | 3.5 | 0.324 | 0.012 | 0.75 | 427.3 | 0 | 281.8 | 244.1 |
| 06/08/2003 | 09:45 | 0.25 | 0.326 | -0.002 | 1 | 325.9 | 0 | 198.8 | 155.2 |
| 06/08/2003 | 08:15 | 0.25 | 0.325 | 0.001 | 1.5 | 189.4 | 0.4 | 116.3 | 67.0 |
| 07/08/2003 | 15:45 | 23.75 | 0.328 | -0.002 | 0.5 | 6.2 | 4.3 | 5.3 | 1.3 |
| 08/08/2003 | 18:45 | 26.75 | 0.339 | 0.001 | 1.25 | 113.4 | 0.1 | 70.2 | 42.1 |
| 09/08/2003 | 16:45 | 21 | 0.339 | 0 | 1.25 | 53.6 | 0 | 25.6 | 21.9 |
| 11/08/2003 | 11:15 | 41.5 | 0.34 | 0 | 0.75 | 21.2 | 0 | 10.3 | 10.6 |
| 11/08/2003 | 20:45 | 4 | 0.339 | 0.003 | 1.25 | 222.1 | 0 | 112.3 | 103.5 |
| 11/08/2003 | 14:45 | 3 | 0.341 | 0 | 2.25 | 83.4 | 0 | 32.4 | 27.0 |
| 12/08/2003 | 15:15 | 17.5 | 0.342 | -0.001 | 0.75 | 192 | 0 | 107.8 | 98.2 |
| 15/08/2003 | 21:45 | 1 | 0.343 | 0.001 | 2.25 | 34.9 | 0 | 12.5 | 9.8 |
| 15/08/2003 | 17:00 | 73.25 | 0.341 | 0 | 4 | 260.3 | 0.3 | 91.8 | 90.0 |
| 16/08/2003 | 15:30 | 15.75 | 0.341 | 0.003 | 0.5 | 5.1 | 0 | 2.6 | 3.6 |
| 16/08/2003 | 16:00 | 0.25 | 0.344 | -0.003 | 1 | 48.6 | 0 | 29.6 | 20.8 |
| 18/08/2003 | 19:15 | 50.5 | 0.332 | 0.004 | 0.75 | 83.8 | 0 | 42.3 | 41.9 |
| 18/08/2003 | 20:45 | 1 | 0.331 | -0.004 | 1.25 | 432.8 | 0 | 243.6 | 202.7 |
| 19/08/2003 | 16:15 | 18.5 | 0.328 | -0.001 | 0.5 | 9.4 | 0 | 4.7 | 6.6 |
| 22/08/2003 | 14:30 | 70 | 0.333 | -0.01 | 0.5 | 30.5 | 0 | 15.3 | 21.6 |
| 22/08/2003 | 18:30 | 3.75 | 0.324 | 0.001 | 1.5 | 194.8 | 0 | 76.9 | 63.7 |
| 23/08/2003 | 13:45 | 18 | 0.334 | -0.009 | 0.5 | 10.8 | 0 | 5.4 | 7.6 |
| 23/08/2003 | 20:30 | 6.5 | 0.333 | -0.001 | 0.5 | 124.5 | 0 | 62.3 | 88.0 |
| 24/08/2003 | 15:00 | 18.25 | 0.531 | 0.016 | 1 | 425.9 | 0 | 265.9 | 203.8 |
| 24/08/2003 | 16:00 | 0.25 | 0.547 | 0.013 | 1 | 42.2 | 0 | 18.5 | 17.8 |
| 24/08/2003 | 22:00 | 0.25 | 0.584 | 0 | 1 | 279 | 0.6 | 91.5 | 126.7 |
| 24/08/2003 | 17:00 | 0.25 | 0.56 | 0.024 | 5 | 425.8 | 1.9 | 287.5 | 168.6 |
| 24/08/2003 | 23:00 | 0.25 | 0.584 | -0.069 | 5.25 | 426.6 | 4.5 | 248.6 | 167.6 |
| 25/08/2003 | 12:45 | 0.25 | 0.435 | -0.002 | 0.5 | 31 | 0 | 15.5 | 21.9 |
| 25/08/2003 | 22:00 | 2.5 | 0.4 | 0.002 | 0.5 | 244.2 | 0 | 122.1 | 172.7 |
| 25/08/2003 | 04:15 | 0.25 | 0.515 | -0.01 | 0.75 | 426.5 | 4.8 | 271.1 | 231.7 |
| 25/08/2003 | 12:00 | 3.25 | 0.44 | -0.005 | 0.75 | 256.1 | 0 | 91.2 | 143.1 |
| 25/08/2003 | 08:00 | 0.25 | 0.472 | -0.008 | 1 | 372.4 | 0 | 261.5 | 175.3 |
| 25/08/2003 | 18:45 | 5.75 | 0.404 | -0.004 | 1 | 401 | 0 | 298.6 | 199.0 |
| 25/08/2003 | 23:00 | 0.75 | 0.415 | 0.03 | 1 | 29.8 | 0 | 19.0 | 13.2 |
| 25/08/2003 | 05:00 | 0.25 | 0.505 | -0.033 | 3 | 426.1 | 0 | 161.5 | 191.2 |
| 26/08/2003 | 03:30 | 3.75 | 0.46 | -0.016 | 2.5 | 15.7 | 4.4 | 10.7 | 4.2 |
| 28/08/2003 | 10:00 | 0.25 | 0.349 | 0.002 | 0.5 | 30.8 | 0 | 15.4 | 21.8 |
| 28/08/2003 | 05:00 | 47.25 | 0.356 | -0.004 | 2.5 | 424.8 | 0 | 179.4 | 150.7 |
| 28/08/2003 | 07:30 | 0.25 | 0.352 | -0.003 | 2.5 | 375.2 | 0.2 | 230.7 | 125.0 |
| 28/08/2003 | 20:45 | 1 | 0.348 | -0.002 | 2.5 | 288.7 | 3.7 | 126.8 | 95.6 |
| 28/08/2003 | 10:30 | 0.25 | 0.351 | -0.002 | 3.5 | 346.1 | 0.2 | 167.4 | 118.9 |
| 28/08/2003 | 14:00 | 0.25 | 0.349 | -0.002 | 6 | 314.7 | 4.6 | 140.9 | 95.5 |
| 28/08/2003 | 23:15 | 0.25 | 0.346 | -0.005 | 10.75 | 342.3 | 3.7 | 107.2 | 65.5 |
| 29/08/2003 | 19:15 | 0.5 | 0.336 | 0.001 | 0.75 | 351.3 | 0 | 192.4 | 178.0 |
| 29/08/2003 | 20:00 | 0.25 | 0.337 | 0.003 | 1 | 6.9 | 1.9 | 5.1 | 2.2 |
| 29/08/2003 | 17:45 | 4 | 0.339 | -0.003 | 1.25 | 86.6 | 0 | 55.8 | 42.7 |
| 29/08/2003 | 22:45 | 2 | 0.342 | 0 | 1.25 | 7.2 | 0 | 4.8 | 2.8 |
| 29/08/2003 | 10:00 | 0.25 | 0.341 | 0.005 | 1.5 | 48.4 | 3.2 | 16.9 | 18.3 |
| 29/08/2003 | 11:45 | 0.5 | 0.345 | -0.007 | 2.25 | 119.7 | 3.8 | 78.4 | 32.4 |
| 30/08/2003 | 16:45 | 1 | 0.345 | 0.001 | 1.25 | 427.9 | 0 | 342.2 | 191.3 |
| 30/08/2003 | 22:45 | 1 | 0.346 | 0 | 1.25 | 351.9 | 0.1 | 126.4 | 132.5 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 30/08/2003 | 14:15 | 14.5 | 0.343 | 0.002 | 1.75 | 427.5 | 0.8 | 207.3 | 197.3 |
| 30/08/2003 | 18:45 | 1 | 0.346 | 0.001 | 3.25 | 220.6 | 0 | 127.0 | 55.2 |
| 31/08/2003 | 02:45 | 3 | 0.344 | -0.001 | 1.25 | 7.5 | 0 | 5.6 | 3.1 |
| 01/09/2003 | 17:30 | 37.75 | 0.325 | 0.001 | 1.5 | 198.6 | 0 | 62.1 | 71.8 |
| 01/09/2003 | 19:00 | 0.25 | 0.326 | -0.013 | 15 | 439.9 | 4.7 | 354.6 | 115.1 |
| 02/09/2003 | 14:00 | 0.25 | 0.306 | -0.005 | 1 | 427 | 0 | 272.2 | 198.1 |
| 02/09/2003 | 12:45 | 1 | 0.31 | -0.004 | 1.25 | 423.9 | 0 | 327.8 | 183.6 |
| 02/09/2003 | 10:00 | 0.25 | 0.313 | 0 | 2 | 425.5 | 0.8 | 366.6 | 147.9 |
| 03/09/2003 | 16:15 | 25.5 | 0.328 | 0.004 | 0.75 | 175.1 | 0 | 64.4 | 96.3 |
| 03/09/2003 | 18:15 | 1.5 | 0.331 | 0 | 0.75 | 8.5 | 0 | 4.6 | 4.3 |
| 03/09/2003 | 20:00 | 1.25 | 0.33 | 0 | 1 | 146.6 | 0 | 106.8 | 71.3 |
| 04/09/2003 | 16:00 | 19.25 | 0.345 | -0.005 | 0.5 | 6.1 | 0 | 3.1 | 4.3 |
| 04/09/2003 | 17:15 | 1 | 0.34 | 0.001 | 0.75 | 38.2 | 0 | 21.4 | 19.5 |
| 04/09/2003 | 18:00 | 0.25 | 0.341 | 0.001 | 1 | 31 | 0.5 | 15.6 | 13.0 |
| 05/09/2003 | 18:45 | 24 | 0.384 | 0.001 | 0.5 | 64.3 | 0 | 32.2 | 45.5 |
| 06/09/2003 | 01:45 | 6.75 | 0.526 | 0.009 | 0.5 | 17.9 | 0 | 9.0 | 12.7 |
| 06/09/2003 | 15:00 | 13 | 0.475 | -0.007 | 5.25 | 427.9 | 0 | 174.6 | 174.7 |
| 07/09/2003 | 14:15 | 19.25 | 0.411 | 0.001 | 0.5 | 14.5 | 0 | 7.3 | 10.3 |
| 07/09/2003 | 15:00 | 0.5 | 0.411 | 0 | 1.25 | 99.1 | 0 | 57.0 | 37.6 |
| 07/09/2003 | 05:45 | 9.75 | 0.433 | 0.001 | 357.25 | 102.7 | 0 | 59.8 | 12.4 |
| 08/09/2003 | 17:00 | 25 | 0.372 | -0.001 | 1.25 | 424.8 | 0 | 223.4 | 204.3 |
| 08/09/2003 | 20:00 | 2 | 0.37 | -0.003 | 1.25 | 235.6 | 0 | 113.4 | 105.2 |
| 10/09/2003 | 19:00 | 2 | 0.396 | 0.001 | 0.75 | 8.5 | 0 | 4.9 | 4.4 |
| 10/09/2003 | 16:00 | 43 | 0.386 | 0.004 | 1.25 | 255.3 | 0 | 141.1 | 101.5 |
| 10/09/2003 | 22:00 | 2.5 | 0.399 | -0.001 | 1.25 | 14.8 | 0 | 9.6 | 5.8 |
| 11/09/2003 | 05:00 | 2 | 0.392 | 0.002 | 0.5 | 6.5 | 2.6 | 4.6 | 2.8 |
| 11/09/2003 | 22:15 | 4.25 | 0.378 | 0.001 | 0.5 | 7.6 | 0 | 3.8 | 5.4 |
| 11/09/2003 | 05:30 | 0.25 | 0.394 | -0.001 | 0.75 | 8.2 | 2.1 | 5.6 | 3.1 |
| 11/09/2003 | 08:15 | 2.25 | 0.39 | -0.004 | 1 | 16.9 | 4.9 | 12.3 | 5.7 |
| 11/09/2003 | 17:00 | 8 | 0.381 | -0.001 | 1.25 | 45.7 | 0 | 17.7 | 18.4 |
| 11/09/2003 | 01:30 | 2.5 | 0.398 | -0.002 | 1.75 | 416.7 | 0 | 267.2 | 129.4 |
| 13/09/2003 | 06:45 | 0.75 | 0.617 | -0.016 | 0.5 | 7.7 | 0 | 3.9 | 5.4 |
| 13/09/2003 | 09:15 | 0.25 | 0.581 | -0.008 | 0.5 | 12.8 | 4.6 | 8.7 | 5.8 |
| 13/09/2003 | 09:45 | 0.25 | 0.573 | -0.001 | 0.5 | 28.7 | 0.1 | 14.4 | 20.2 |
| 13/09/2003 | 19:15 | 2.25 | 0.504 | -0.005 | 0.75 | 32.5 | 0 | 14.2 | 16.6 |
| 13/09/2003 | 23:15 | 1.25 | 0.487 | -0.002 | 0.75 | 45.5 | 0 | 23.5 | 22.8 |
| 13/09/2003 | 10:15 | 0.25 | 0.572 | -0.016 | 1 | 12.7 | 0 | 7.5 | 5.4 |
| 13/09/2003 | 08:00 | 1 | 0.603 | -0.022 | 1.25 | 26.2 | 0.2 | 13.9 | 10.9 |
| 13/09/2003 | 11:30 | 0.5 | 0.553 | -0.008 | 1.25 | 25.4 | 0 | 10.6 | 9.3 |
| 13/09/2003 | 13:00 | 0.5 | 0.538 | -0.012 | 1.75 | 394.8 | 1.7 | 123.7 | 178.9 |
| 13/09/2003 | 15:15 | 0.75 | 0.519 | -0.009 | 2 | 423 | 2.1 | 236.6 | 177.0 |
| 13/09/2003 | 20:00 | 0.25 | 0.499 | -0.009 | 2.25 | 416.8 | 0 | 231.9 | 175.4 |
| 13/09/2003 | 01:30 | 27 | 0.592 | 0.033 | 4.75 | 397.7 | 3.8 | 95.9 | 155.3 |
| 14/09/2003 | 02:30 | 2.75 | 0.474 | -0.002 | 0.5 | 285.7 | 0 | 142.9 | 202.0 |
| 14/09/2003 | 06:00 | 3.25 | 0.464 | -0.004 | 0.5 | 16.2 | 0 | 8.1 | 11.5 |
| 14/09/2003 | 08:30 | 2.25 | 0.455 | -0.003 | 0.5 | 69.7 | 0 | 34.9 | 49.3 |
| 14/09/2003 | 22:30 | 13.75 | 0.438 | 0.002 | 0.75 | 398.3 | 0 | 256.5 | 222.6 |
| 15/09/2003 | 21:30 | 2.75 | 0.413 | -0.004 | 0.75 | 316.7 | 5 | 203.0 | 172.1 |
| 15/09/2003 | 17:30 | 18.5 | 0.413 | -0.003 | 1.5 | 390.7 | 0 | 80.5 | 152.7 |
| 17/09/2003 | 21:54 | 29.5 | 0.656 | 0.023 | 20 | 436.2 | 1.2 | 337.6 | 126.5 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 18/09/2003 | 20:24 | 0.25 | 0.663 | 0.002 | 0.5 | 24.8 | 1.4 | 13.1 | 16.5 |
| 18/09/2003 | 17:54 | 0.25 | 0.679 | -0.016 | 2.5 | 120.8 | 2.2 | 36.8 | 38.1 |
| 19/09/2003 | 00:24 | 3.75 | 0.663 | 0.003 | 0.5 | 11.4 | 0 | 5.7 | 8.1 |
| 19/09/2003 | 05:09 | 3 | 0.662 | 0 | 0.5 | 9.1 | 0 | 4.6 | 6.4 |
| 19/09/2003 | 01:39 | 1 | 0.671 | -0.01 | 0.75 | 40.5 | 0 | 21.5 | 20.4 |
| 19/09/2003 | 10:24 | 5 | 0.635 | 0.005 | 1 | 436.6 | 0 | 320.2 | 213.6 |
| 19/09/2003 | 12:54 | 1.75 | 0.629 | -0.01 | 2.25 | 423.4 | 0 | 196.6 | 159.8 |
| 19/09/2003 | 15:09 | 0.25 | 0.619 | -0.021 | 3.5 | 437.7 | 2.7 | 324.1 | 157.1 |
| 20/09/2003 | 03:09 | 1 | 0.56 | 0 | 0.5 | 19 | 0.6 | 9.8 | 13.0 |
| 20/09/2003 | 03:54 | 0.5 | 0.561 | -0.004 | 0.5 | 30.9 | 0 | 15.5 | 21.8 |
| 20/09/2003 | 04:24 | 0.25 | 0.557 | -0.007 | 0.5 | 15.3 | 0 | 7.7 | 10.8 |
| 20/09/2003 | 04:54 | 0.25 | 0.55 | -0.001 | 1 | 98 | 0 | 36.4 | 44.6 |
| 20/09/2003 | 07:24 | 1.75 | 0.543 | 0.001 | 1 | 43.6 | 0 | 21.6 | 22.0 |
| 20/09/2003 | 01:09 | 6.75 | 0.568 | -0.003 | 1.25 | 37.6 | 0 | 20.1 | 14.1 |
| 20/09/2003 | 09:09 | 1 | 0.541 | -0.006 | 1.25 | 135.5 | 0 | 68.2 | 51.1 |
| 20/09/2003 | 10:24 | 0.25 | 0.535 | -0.013 | 4 | 435.4 | 0 | 131.9 | 173.9 |
| 21/09/2003 | 16:54 | 7.75 | 0.462 | 0 | 0.5 | 51.8 | 0 | 25.9 | 36.6 |
| 21/09/2003 | 08:39 | 18.5 | 0.475 | -0.002 | 0.75 | 430.2 | 0 | 259.2 | 228.2 |
| 22/09/2003 | 07:24 | 14.25 | 0.448 | 0 | 1 | 121.3 | 0 | 62.5 | 63.5 |
| 23/09/2003 | 12:54 | 6.25 | 0.435 | -0.003 | 0.5 | 276.2 | 0 | 138.1 | 195.3 |
| 23/09/2003 | 06:09 | 22 | 0.446 | -0.006 | 0.75 | 20.1 | 0 | 8.8 | 10.3 |
| 23/09/2003 | 14:39 | 1.5 | 0.431 | -0.003 | 1.25 | 380.4 | 0.1 | 96.1 | 160.8 |
| 24/09/2003 | 10:39 | 19 | 0.404 | -0.001 | 1.75 | 432.9 | 0 | 332.9 | 159.7 |
| 24/09/2003 | 13:39 | 1.5 | 0.403 | -0.001 | 1.75 | 433.7 | 0 | 254.3 | 223.0 |
| 24/09/2003 | 16:09 | 1 | 0.404 | 0.012 | 2.25 | 47.2 | 0 | 21.4 | 18.2 |
| 25/09/2003 | 03:09 | 9 | 0.457 | -0.002 | 2.25 | 13.8 | 0 | 6.8 | 3.9 |
| 26/09/2003 | 11:24 | 30.25 | 0.417 | -0.008 | 1 | 73.5 | 0 | 44.6 | 31.7 |
| 26/09/2003 | 13:09 | 1 | 0.41 | -0.001 | 1.25 | 432.6 | 0 | 304.5 | 185.4 |
| 27/09/2003 | 07:39 | 17.5 | 0.397 | -0.005 | 0.75 | 83.9 | 0 | 46.4 | 42.7 |
| 28/09/2003 | 08:39 | 24.5 | 0.377 | 0 | 0.75 | 418.8 | 0 | 231.3 | 212.8 |
| 29/09/2003 | 10:54 | 25.75 | 0.363 | -0.002 | 1.5 | 147.7 | 0 | 68.1 | 48.6 |
| 30/09/2003 | 14:24 | 26.25 | 0.351 | 0.001 | 1 | 215.9 | 0 | 154.3 | 103.7 |
| 01/10/2003 | 13:39 | 22.5 | 0.345 | 0 | 0.75 | 208.8 | 0 | 108.4 | 104.6 |
| 03/10/2003 | 09:39 | 43.5 | 0.337 | 0 | 0.75 | 328.9 | 0 | 148.9 | 166.7 |
| 04/10/2003 | 11:24 | 25.25 | 0.333 | -0.001 | 1 | 321 | 0 | 184.9 | 150.1 |
| 05/10/2003 | 10:24 | 22.25 | 0.324 | -0.003 | 1 | 105.6 | 0 | 66.1 | 45.8 |
| 06/10/2003 | 19:54 | 0.75 | 0.563 | -0.003 | 0.5 | 78.1 | 1.1 | 39.6 | 54.4 |
| 06/10/2003 | 17:39 | 0.5 | 0.582 | -0.004 | 0.75 | 35.7 | 0 | 19.2 | 18.0 |
| 06/10/2003 | 18:24 | 0.25 | 0.578 | -0.012 | 1 | 22.6 | 1.8 | 10.8 | 8.8 |
| 06/10/2003 | 13:54 | 0.75 | 0.482 | 0.033 | 1.25 | 388.6 | 0 | 87.9 | 168.5 |
| 06/10/2003 | 11:54 | 24.75 | 0.479 | 0.001 | 1.5 | 433.7 | 0 | 285.9 | 171.8 |
| 06/10/2003 | 15:24 | 0.5 | 0.531 | 0.048 | 2 | 416.1 | 0 | 65.4 | 142.3 |
| 06/10/2003 | 20:24 | 0.25 | 0.56 | 0.011 | 4 | 227.6 | 0 | 67.5 | 76.9 |
| 07/10/2003 | 00:24 | 0.25 | 0.571 | 0.017 | 0.5 | 33.3 | 0 | 16.7 | 23.5 |
| 07/10/2003 | 00:54 | 0.25 | 0.588 | 0.003 | 0.5 | 36.1 | 0 | 18.1 | 25.5 |
| 07/10/2003 | 10:24 | 0.25 | 0.598 | -0.003 | 0.5 | 7.9 | 0.1 | 4.0 | 5.5 |
| 07/10/2003 | 10:54 | 0.25 | 0.595 | 0.008 | 0.5 | 10.7 | 0.4 | 5.6 | 7.3 |
| 07/10/2003 | 12:09 | 1 | 0.605 | -0.003 | 0.5 | 7.2 | 0.3 | 3.8 | 4.9 |
| 07/10/2003 | 04:24 | 3.25 | 0.585 | -0.002 | 1 | 48.4 | 0 | 19.9 | 22.0 |
| 07/10/2003 | 08:24 | 2 | 0.57 | 0.015 | 1 | 36.3 | 0 | 14.8 | 15.7 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|------------------------|--------------------|------------------------------|--------------------------|-------------------|-------------------|--------------------|---------|
| 07/10/2003 | 09:24 | 0.25 | 0.585 | 0.013 | 1 | 16.7 | 1.8 | 10.0 | 7.4 |
| 07/10/2003 | 05:24 | 0.25 | 0.583 | -0.008 | 1.25 | 11.8 | 0 | 8.2 | 5.3 |
| 07/10/2003 | 13:09 | 0.75 | 0.617 | -0.024 | 13 | 434.9 | 0 | 143.7 | 161.9 |
| 08/10/2003 | 08:09 | 5 | 0.56 | -0.005 | 0.5 | 78.8 | 0 | 39.4 | 55.7 |
| 08/10/2003 | 08:39 | 0.25 | 0.555 | 0.003 | 0.5 | 17.6 | 0 | 8.8 | 12.4 |
| 08/10/2003 | 09:54 | 1 | 0.56 | 0.005 | 0.5 | 26.7 | 0 | 13.4 | 18.9 |
| 08/10/2003 | 02:24 | 0.5 | 0.588 | -0.005 | 1 | 12.6 | 0.1 | 8.3 | 5.7 |
| 08/10/2003 | 10:39 | 0.5 | 0.572 | 0.043 | 1 | 291.9 | 0.4 | 127.0 | 141.0 |
| 08/10/2003 | 11:54 | 0.5 | 0.624 | 0.068 | 1.5 | 45.5 | 4 | 18.4 | 14.9 |
| 08/10/2003 | 13:24 | 0.25 | 0.692 | 0.086 | 49 | 434.1 | 1.4 | 253.0 | 135.9 |
| 10/10/2003 | 23:54 | 0.25 | 0.69 | -0.014 | 1 | 32.3 | 0.2 | 12.3 | 14.0 |
| 10/10/2003 | 14:24 | 0.25 | 0.778 | -0.088 | 9.5 | 435.4 | 4.5 | 179.4 | 145.5 |
| 11/10/2003 | 00:54 | 0.25 | 0.676 | -0.005 | 0.5 | 64.8 | 0 | 32.4 | 45.8 |
| 11/10/2003 | 05:39 | 0.25 | 0.649 | -0.003 | 0.5 | 12.8 | 0.4 | 6.6 | 8.8 |
| 11/10/2003 | 07:39 | 1.75 | 0.637 | -0.003 | 0.5 | 10.9 | 0 | 5.5 | 7.7 |
| 11/10/2003 | 09:24 | 1.5 | 0.63 | 0.002 | 0.5 | 16.3 | 0 | 8.2 | 11.5 |
| 11/10/2003 | 10:09 | 0.5 | 0.631 | -0.003 | 0.5 | 5.3 | 0 | 2.7 | 3.7 |
| 11/10/2003 | 15:54 | 0.5 | 0.668 | 0.003 | 0.5 | 40.2 | 0 | 20.1 | 28.4 |
| 11/10/2003 | 16:39 | 0.5 | 0.669 | 0.013 | 0.5 | 8.6 | 0 | 4.3 | 6.1 |
| 11/10/2003 | 18:09 | 0.25 | 0.682 | 0.004 | 0.5 | 72.5 | 3.6 | 38.1 | 48.7 |
| 11/10/2003 | 01:39 | 0.5 | 0.685 | -0.024 | 1 | 19.8 | 1.6 | 12.0 | 8.1 |
| 11/10/2003 | 17:09 | 0.25 | 0.682 | 0 | 1 | 27 | 0 | 15.5 | 11.3 |
| 11/10/2003 | 04:24 | 2 | 0.655 | -0.006 | 1.25 | 412.3 | 3 | 134.6 | 181.1 |
| 11/10/2003 | 13:09 | 2.75 | 0.633 | 0.032 | 2.5 | 433 | 0 | 294.5 | 194.9 |
| 11/10/2003 | 18:39 | 0.25 | 0.686 | -0.003 | 27.75 | 432.3 | 4.2 | 246.6 | 149.8 |
| 12/10/2003 | 23:09 | 1 | 0.673 | -0.011 | 1.25 | 88.5 | 0 | 28.6 | 35.0 |
| 13/10/2003 | 03:39 | 1 | 0.639 | -0.005 | 0.5 | 7.7 | 0.5 | 4.1 | 5.1 |
| 13/10/2003 | 17:24 | 13.5 | 0.573 | -0.003 | 0.5 | 5.1 | 0 | 2.6 | 3.6 |
| 13/10/2003 | 19:54 | 2.25 | 0.56 | 0 | 0.5 | 71.7 | 1.1 | 36.4 | 49.9 |
| 13/10/2003 | 21:54 | 1.75 | 0.553 | 0 | 0.5 | 13.2 | 0.3 | 6.8 | 9.1 |
| 13/10/2003 | 00:24 | 0.25 | 0.662 | -0.004 | 1 | 84.6 | 0.1 | 43.8 | 34.9 |
| 13/10/2003 | 01:24 | 0.25 | 0.658 | -0.014 | 1.5 | 22.5 | 0.2 | 9.6 | 7.4 |
| 14/10/2003 | 11:24 | 13.25 | 0.512 | -0.004 | 1 | 399.2 | 0 | 238.0 | 195.6 |
| 14/10/2003 | 13:24 | 1.25 | 0.508 | -0.004 | 1 | 290.4 | 0 | 162.8 | 127.6 |
| 14/10/2003 | 15:24 | 1.25 | 0.501 | -0.004 | 1 | 76.3 | 0 | 42.8 | 31.6 |
| 14/10/2003 | 17:24 | 1.25 | 0.491 | 0.002 | 1 | 188.6 | 0 | 124.5 | 84.9 |
| 15/10/2003 | 10:54 | 0.75 | 0.458 | -0.003 | 0.5 | 30.5 | 0 | 15.3 | 21.6 |
| 15/10/2003 | 09:39 | 1.5 | 0.459 | -0.003 | 0.75 | 282.6 | 0 | 186.6 | 161.6 |
| 15/10/2003 | 07:24 | 13.25 | 0.462 | -0.005 | 1 | 387.1 | 0 | 258.3 | 175.6 |
| 16/10/2003 | 06:39 | 19.5 | 0.443 | -0.001 | 1 | 109.7 | 0 | 57.8 | 46.9 |
| 16/10/2003 | 11:39 | 4.25 | 0.648 | 0.028 | 63 | 441.5 | 0.1 | 324.6 | 135.0 |
| 19/10/2003 | 08:24 | 1.75 | 0.648 | -0.001 | 0.5 | 24.2 | 0 | 12.1 | 17.1 |
| 19/10/2003 | 11:54 | 0.5 | 0.623 | -0.005 | 0.5 | 29.3 | 0.2 | 14.8 | 20.6 |
| 19/10/2003 | 15:24 | 3.25 | 0.608 | -0.003 | 0.5 | 44.2 | 0 | 22.1 | 31.3 |
| 19/10/2003 | 18:54 | 3.25 | 0.595 | -0.007 | 0.75 | 19.5 | 0 | 9.8 | 9.8 |
| 19/10/2003 | 02:39 | 0.25 | 0.676 | -0.002 | 1 | 39.9 | 1.9 | 20.9 | 15.6 |
| 19/10/2003 | 05:39 | 0.25 | 0.666 | -0.01 | 1.25 | 27.3 | 0 | 13.3 | 10.7 |
| 19/10/2003 | 03:39 | 0.25 | 0.674 | -0.008 | 2 | 64 | 2.6 | 29.5 | 18.3 |
| 19/10/2003 | 08:54 | 0.25 | 0.647 | -0.022 | 2.75 | 431 | 0 | 183.9 | 193.1 |
| 20/10/2003 | 01:09 | 5.75 | 0.568 | -0.004 | 0.5 | 6.2 | 0 | 3.1 | 4.4 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 20/10/2003 | 02:09 | 0.75 | 0.568 | -0.006 | 0.5 | 82.6 | 0 | 41.3 | 58.4 |
| 20/10/2003 | 03:09 | 0.75 | 0.558 | 0.003 | 0.5 | 43.4 | 0.6 | 22.0 | 30.3 |
| 20/10/2003 | 04:09 | 0.75 | 0.568 | -0.001 | 0.5 | 62.2 | 0 | 31.1 | 44.0 |
| 20/10/2003 | 06:24 | 1 | 0.622 | 0.036 | 0.5 | 61.6 | 1.1 | 31.4 | 42.8 |
| 20/10/2003 | 04:54 | 0.5 | 0.571 | 0.008 | 0.75 | 32.5 | 0 | 13.3 | 17.1 |
| 20/10/2003 | 07:09 | 0.5 | 0.667 | -0.001 | 19.5 | 433.7 | 2.2 | 320.8 | 151.2 |
| 21/10/2003 | 06:24 | 0.5 | 0.647 | -0.01 | 0.5 | 21.2 | 0 | 10.6 | 15.0 |
| 21/10/2003 | 15:24 | 5.5 | 0.592 | -0.009 | 0.5 | 13.6 | 0 | 6.8 | 9.6 |
| 21/10/2003 | 22:39 | 5.75 | 0.562 | 0.003 | 0.5 | 5.9 | 1.4 | 3.7 | 3.2 |
| 21/10/2003 | 08:39 | 2 | 0.628 | -0.006 | 0.75 | 35.5 | 0 | 14.6 | 18.6 |
| 21/10/2003 | 02:39 | 0.25 | 0.666 | -0.007 | 1 | 190.4 | 0.7 | 66.0 | 85.3 |
| 21/10/2003 | 23:09 | 0.25 | 0.565 | -0.001 | 1 | 7.3 | 0 | 5.5 | 3.7 |
| 21/10/2003 | 03:39 | 0.25 | 0.659 | -0.001 | 1.25 | 56.4 | 3.5 | 17.2 | 22.1 |
| 21/10/2003 | 04:54 | 0.25 | 0.658 | -0.015 | 1.25 | 68.1 | 0 | 31.9 | 27.2 |
| 21/10/2003 | 15:54 | 0.25 | 0.583 | -0.001 | 1.25 | 324.4 | 0 | 203.7 | 122.8 |
| 22/10/2003 | 09:24 | 9.5 | 0.682 | 0.028 | 17.75 | 429.5 | 0 | 332.0 | 140.1 |
| 23/10/2003 | 08:39 | 0.5 | 0.678 | -0.007 | 0.5 | 35.1 | 0 | 17.6 | 24.8 |
| 23/10/2003 | 09:39 | 0.75 | 0.67 | 0.001 | 0.5 | 13.4 | 0.8 | 7.1 | 8.9 |
| 23/10/2003 | 10:39 | 0.75 | 0.663 | -0.009 | 0.5 | 31.8 | 0.4 | 16.1 | 22.2 |
| 23/10/2003 | 16:39 | 1.5 | 0.65 | 0.009 | 0.5 | 28.4 | 0 | 14.2 | 20.1 |
| 23/10/2003 | 03:24 | 0.5 | 0.705 | 0.001 | 0.75 | 68.3 | 1 | 43.7 | 37.1 |
| 23/10/2003 | 05:24 | 0.5 | 0.694 | -0.005 | 0.75 | 98.3 | 2.9 | 45.8 | 48.4 |
| 23/10/2003 | 04:09 | 0.25 | 0.706 | -0.013 | 1 | 121.3 | 1.8 | 60.1 | 49.4 |
| 23/10/2003 | 06:24 | 0.5 | 0.685 | -0.001 | 1 | 90.5 | 3 | 35.1 | 40.7 |
| 23/10/2003 | 07:24 | 0.25 | 0.684 | -0.005 | 1 | 120.2 | 0.9 | 48.1 | 50.8 |
| 23/10/2003 | 13:54 | 3 | 0.653 | 0.003 | 1.5 | 307.6 | 0.3 | 143.2 | 124.0 |
| 24/10/2003 | 13:39 | 20.75 | 0.625 | 0.002 | 0.5 | 14.9 | 0 | 7.5 | 10.5 |
| 24/10/2003 | 14:09 | 0.25 | 0.627 | 0.013 | 1 | 96.8 | 0.3 | 65.2 | 44.5 |
| 24/10/2003 | 18:24 | 3.5 | 0.709 | -0.03 | 9.75 | 425.7 | 1.2 | 275.2 | 156.5 |
| 25/10/2003 | 06:39 | 0.75 | 0.657 | -0.003 | 0.5 | 44.9 | 0 | 22.5 | 31.7 |
| 25/10/2003 | 05:24 | 0.5 | 0.664 | -0.004 | 0.75 | 127.1 | 0 | 48.7 | 68.6 |
| 25/10/2003 | 04:09 | 0.25 | 0.679 | -0.011 | 1 | 330.8 | 0.5 | 105.4 | 151.9 |
| 26/10/2003 | 03:09 | 20.25 | 0.551 | -0.001 | 0.5 | 5.3 | 0 | 2.7 | 3.7 |
| 26/10/2003 | 10:39 | 7.25 | 0.523 | 0.001 | 0.75 | 80.7 | 0 | 29.3 | 44.6 |
| 27/10/2003 | 01:24 | 14.25 | 0.501 | -0.001 | 0.5 | 6.3 | 0 | 3.2 | 4.5 |
| 27/10/2003 | 07:24 | 5.75 | 0.524 | -0.008 | 0.75 | 86.1 | 0 | 41.5 | 43.1 |
| 28/10/2003 | 21:54 | 9 | 0.527 | 0.004 | 1.25 | 39.9 | 0 | 21.5 | 17.2 |
| 28/10/2003 | 11:24 | 27.5 | 0.537 | -0.003 | 1.75 | 402.7 | 0 | 225.7 | 182.0 |
| 29/10/2003 | 11:39 | 12.75 | 0.529 | -0.004 | 0.5 | 407.6 | 0 | 203.8 | 288.2 |
| 30/10/2003 | 12:09 | 24.25 | 0.458 | -0.003 | 1 | 187.3 | 0.4 | 119.4 | 83.1 |
| 01/11/2003 | 12:24 | 47.5 | 0.399 | -0.002 | 0.75 | 384.8 | 0 | 239.0 | 208.6 |
| 02/11/2003 | 10:39 | 21.75 | 0.382 | 0 | 0.5 | 40.9 | 0 | 20.5 | 28.9 |
| 03/11/2003 | 10:24 | 23.5 | 0.373 | -0.006 | 0.75 | 50 | 0 | 28.8 | 25.8 |
| 04/11/2003 | 14:54 | 28 | 0.354 | -0.001 | 1.25 | 350.3 | 4.5 | 218.9 | 140.6 |
| 05/11/2003 | 11:24 | 19.5 | 0.345 | 0.006 | 0.75 | 6.4 | 0 | 4.2 | 3.6 |
| 06/11/2003 | 15:39 | 27.75 | 0.337 | 0 | 0.5 | 19.3 | 0 | 9.7 | 13.6 |
| 07/11/2003 | 16:39 | 24.75 | 0.33 | 0.003 | 0.5 | 87.6 | 0 | 43.8 | 61.9 |
| 07/11/2003 | 17:09 | 0.25 | 0.333 | -0.003 | 1 | 25.4 | 0.2 | 16.1 | 11.0 |
| 08/11/2003 | 12:09 | 18.25 | 0.326 | 0.007 | 0.5 | 9.2 | 0 | 4.6 | 6.5 |
| 10/11/2003 | 13:54 | 49.5 | 0.345 | -0.004 | 0.75 | 23.5 | 0 | 12.1 | 11.8 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|------------------------|--------------------|------------------------------|--------------------------|-------------------|-------------------|--------------------|---------|
| 10/11/2003 | 20:24 | 6 | 0.468 | 0.02 | 0.75 | 7.3 | 2.7 | 5.2 | 2.3 |
| 11/11/2003 | 12:09 | 15.25 | 0.501 | -0.009 | 1 | 400.1 | 0 | 220.9 | 170.5 |
| 12/11/2003 | 12:09 | 23.25 | 0.445 | 0.002 | 1 | 254 | 0.7 | 134.4 | 107.9 |
| 14/11/2003 | 07:24 | 42.5 | 0.565 | -0.006 | 0.5 | 6.7 | 3.3 | 5.0 | 2.4 |
| 15/11/2003 | 12:39 | 29 | 0.453 | -0.002 | 0.5 | 21.6 | 0 | 10.8 | 15.3 |
| 15/11/2003 | 16:39 | 3.75 | 0.451 | -0.004 | 0.5 | 34.4 | 0 | 17.2 | 24.3 |
| 16/11/2003 | 14:54 | 5.75 | 0.565 | 0.023 | 0.5 | 46.1 | 3.5 | 24.8 | 30.1 |
| 16/11/2003 | 21:54 | 5.75 | 0.591 | 0 | 0.5 | 29.8 | 0 | 14.9 | 21.1 |
| 16/11/2003 | 15:39 | 0.5 | 0.583 | 0.021 | 0.75 | 164.5 | 0.1 | 88.8 | 83.0 |
| 16/11/2003 | 08:24 | 15.5 | 0.436 | 0.008 | 1 | 35.1 | 0 | 20.4 | 17.6 |
| 17/11/2003 | 00:39 | 2.5 | 0.613 | 0.002 | 0.5 | 5.2 | 3.3 | 4.3 | 1.3 |
| 17/11/2003 | 06:54 | 6 | 0.646 | -0.007 | 0.5 | 10.4 | 0 | 5.2 | 7.4 |
| 17/11/2003 | 18:24 | 0.25 | 0.63 | 0.011 | 0.5 | 7 | 0.2 | 3.6 | 4.8 |
| 17/11/2003 | 14:24 | 1.25 | 0.603 | 0.012 | 1 | 11.9 | 4.7 | 8.1 | 3.1 |
| 17/11/2003 | 12:09 | 5 | 0.615 | -0.006 | 1.25 | 45.2 | 0 | 20.1 | 21.0 |
| 17/11/2003 | 15:54 | 0.75 | 0.608 | 0.022 | 2.5 | 418.7 | 1.6 | 93.3 | 117.5 |
| 17/11/2003 | 22:24 | 3.75 | 0.703 | -0.016 | 6 | 435.2 | 0.1 | 239.0 | 136.2 |
| 18/11/2003 | 08:54 | 0.75 | 0.635 | 0.002 | 0.5 | 45.1 | 0 | 22.6 | 31.9 |
| 18/11/2003 | 09:24 | 0.25 | 0.637 | -0.006 | 0.5 | 5.8 | 0.7 | 3.3 | 3.6 |
| 18/11/2003 | 20:09 | 1.75 | 0.605 | 0.007 | 0.5 | 6.4 | 0.7 | 3.6 | 4.0 |
| 18/11/2003 | 06:54 | 0.75 | 0.649 | 0.003 | 0.75 | 9 | 0.8 | 5.3 | 4.1 |
| 18/11/2003 | 07:39 | 0.25 | 0.652 | -0.011 | 0.75 | 9.6 | 4.9 | 7.3 | 2.4 |
| 18/11/2003 | 23:39 | 3.25 | 0.625 | -0.002 | 0.75 | 7.5 | 3.5 | 5.7 | 2.0 |
| 18/11/2003 | 04:24 | 0.25 | 0.687 | -0.017 | 1 | 269 | 0 | 122.3 | 133.7 |
| 18/11/2003 | 05:24 | 0.25 | 0.67 | -0.01 | 1 | 26.3 | 2.8 | 11.2 | 10.6 |
| 18/11/2003 | 09:54 | 0.25 | 0.631 | -0.004 | 1 | 21.4 | 0.7 | 14.7 | 9.5 |
| 18/11/2003 | 17:39 | 0.5 | 0.583 | 0.009 | 1 | 27.1 | 0 | 9.7 | 11.9 |
| 18/11/2003 | 15:54 | 5.25 | 0.593 | -0.011 | 1.5 | 276.2 | 0.2 | 169.5 | 109.7 |
| 19/11/2003 | 02:09 | 2 | 0.619 | -0.002 | 0.5 | 5.1 | 0.8 | 3.0 | 3.0 |
| 19/11/2003 | 15:54 | 2.75 | 0.567 | -0.006 | 0.5 | 56.1 | 0.2 | 28.2 | 39.5 |
| 19/11/2003 | 06:09 | 3.75 | 0.603 | -0.007 | 0.75 | 9.2 | 0.4 | 5.9 | 4.8 |
| 19/11/2003 | 12:39 | 0.5 | 0.576 | -0.002 | 0.75 | 416.6 | 2.8 | 277.9 | 238.3 |
| 19/11/2003 | 18:39 | 0.25 | 0.552 | 0.001 | 0.75 | 30.8 | 4.1 | 14.5 | 14.3 |
| 19/11/2003 | 11:09 | 4.5 | 0.581 | -0.005 | 1.25 | 19.4 | 1.3 | 15.8 | 8.1 |
| 19/11/2003 | 16:54 | 0.75 | 0.563 | -0.011 | 1.75 | 112.4 | 0 | 33.9 | 38.5 |
| 19/11/2003 | 20:24 | 1.25 | 0.546 | -0.009 | 3.5 | 381 | 2.6 | 89.0 | 120.1 |
| 20/11/2003 | 00:09 | 0.5 | 0.531 | 0.004 | 0.5 | 40.4 | 0 | 20.2 | 28.6 |
| 20/11/2003 | 01:39 | 1.25 | 0.528 | 0.002 | 0.5 | 5.1 | 0 | 2.6 | 3.6 |
| 20/11/2003 | 04:39 | 2.75 | 0.517 | 0.001 | 0.5 | 6.1 | 1 | 3.6 | 3.6 |
| 20/11/2003 | 13:09 | 2 | 0.497 | -0.002 | 0.5 | 7.4 | 0 | 3.7 | 5.2 |
| 20/11/2003 | 14:24 | 1 | 0.494 | -0.005 | 0.75 | 10.2 | 2.1 | 5.9 | 4.1 |
| 20/11/2003 | 15:09 | 0.25 | 0.489 | -0.002 | 0.75 | 17.2 | 3.4 | 8.7 | 7.4 |
| 20/11/2003 | 08:24 | 3.5 | 0.511 | -0.004 | 1 | 68.7 | 0.4 | 29.3 | 32.2 |
| 20/11/2003 | 09:24 | 0.25 | 0.507 | -0.006 | 1 | 45.9 | 0 | 19.6 | 21.0 |
| 20/11/2003 | 10:24 | 0.25 | 0.501 | 0.004 | 1 | 38.8 | 0 | 26.3 | 17.9 |
| 21/11/2003 | 14:54 | 2.75 | 0.449 | -0.006 | 0.5 | 36.5 | 0.7 | 18.6 | 25.3 |
| 21/11/2003 | 11:39 | 20 | 0.451 | 0.001 | 0.75 | 117.5 | 4.4 | 69.2 | 58.3 |
| 22/11/2003 | 14:39 | 23.5 | 0.418 | 0 | 1.75 | 393.9 | 0.1 | 254.2 | 170.0 |
| 23/11/2003 | 23:39 | 0.5 | 0.659 | -0.011 | 0.75 | 21.8 | 0 | 13.4 | 11.7 |
| 23/11/2003 | 03:24 | 11.25 | 0.416 | 0 | 1 | 99.5 | 0 | 64.9 | 44.7 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|------------------------|--------------------|------------------------------|--------------------------|-------------------|-------------------|--------------------|---------|
| 23/11/2003 | 11:39 | 7.5 | 0.488 | 0.168 | 11.75 | 414.7 | 0.6 | 291.6 | 148.1 |
| 24/11/2003 | 06:54 | 1.5 | 0.603 | 0.002 | 0.5 | 9.1 | 1.4 | 5.3 | 5.4 |
| 24/11/2003 | 18:54 | 0.75 | 0.577 | 0.005 | 0.5 | 37.5 | 0 | 18.8 | 26.5 |
| 24/11/2003 | 20:24 | 0.25 | 0.598 | 0.002 | 0.5 | 7.9 | 0 | 4.0 | 5.6 |
| 24/11/2003 | 23:54 | 0.75 | 0.628 | -0.007 | 0.5 | 7.8 | 3.4 | 5.6 | 3.1 |
| 24/11/2003 | 03:09 | 3 | 0.628 | -0.009 | 0.75 | 7.4 | 0 | 4.7 | 4.1 |
| 24/11/2003 | 04:54 | 1.25 | 0.615 | -0.008 | 0.75 | 7 | 4.9 | 5.9 | 1.1 |
| 24/11/2003 | 08:24 | 1.25 | 0.596 | -0.006 | 0.75 | 26 | 0.8 | 11.3 | 13.1 |
| 24/11/2003 | 19:39 | 0.5 | 0.583 | 0.015 | 0.75 | 399.9 | 0 | 149.8 | 218.0 |
| 24/11/2003 | 21:09 | 0.5 | 0.607 | 0.009 | 1 | 13.5 | 0 | 6.8 | 5.5 |
| 24/11/2003 | 22:09 | 0.25 | 0.616 | 0.008 | 1.25 | 15.6 | 3 | 7.5 | 4.8 |
| 24/11/2003 | 13:24 | 0.25 | 0.573 | -0.012 | 2 | 397.9 | 3 | 137.9 | 143.2 |
| 24/11/2003 | 15:24 | 0.25 | 0.561 | 0.01 | 3 | 415.7 | 2.7 | 248.9 | 169.9 |
| 24/11/2003 | 10:09 | 1.25 | 0.592 | -0.019 | 3.25 | 381.7 | 3.2 | 132.5 | 127.2 |
| 25/11/2003 | 08:39 | 8.5 | 0.662 | -0.007 | 0.75 | 279 | 0 | 151.4 | 141.0 |
| 25/11/2003 | 16:24 | 7.25 | 0.628 | 0.004 | 1 | 25.5 | 0 | 13.3 | 11.8 |
| 26/11/2003 | 09:09 | 2 | 0.572 | 0.003 | 0.5 | 7.4 | 0.2 | 3.8 | 5.1 |
| 26/11/2003 | 09:39 | 0.25 | 0.575 | -0.003 | 0.5 | 19.6 | 0.7 | 10.2 | 13.4 |
| 26/11/2003 | 11:54 | 2 | 0.569 | -0.003 | 0.5 | 6.5 | 4.1 | 5.3 | 1.7 |
| 26/11/2003 | 18:54 | 0.75 | 0.566 | 0.017 | 0.5 | 114.5 | 0.3 | 57.4 | 80.8 |
| 26/11/2003 | 05:09 | 12 | 0.589 | -0.001 | 0.75 | 5.7 | 0.9 | 4.0 | 2.7 |
| 26/11/2003 | 14:39 | 0.5 | 0.567 | 0.013 | 0.75 | 54.3 | 3.8 | 30.0 | 25.3 |
| 26/11/2003 | 15:39 | 0.5 | 0.569 | 0.009 | 0.75 | 149.9 | 1.3 | 55.2 | 82.3 |
| 26/11/2003 | 16:39 | 0.5 | 0.567 | 0.012 | 0.75 | 414.5 | 0.5 | 140.1 | 237.7 |
| 26/11/2003 | 19:39 | 0.5 | 0.565 | 0.009 | 0.75 | 147.8 | 0 | 73.1 | 73.9 |
| 26/11/2003 | 20:39 | 0.5 | 0.577 | -0.012 | 0.75 | 404.8 | 0 | 151.1 | 221.0 |
| 26/11/2003 | 06:24 | 0.75 | 0.605 | -0.012 | 1 | 34 | 4.9 | 14.0 | 13.4 |
| 26/11/2003 | 17:24 | 0.25 | 0.579 | 0 | 1 | 189.6 | 1.3 | 62.2 | 87.0 |
| 26/11/2003 | 13:09 | 1 | 0.57 | 0.01 | 1.25 | 374.8 | 0 | 162.9 | 193.4 |
| 26/11/2003 | 21:24 | 0.25 | 0.565 | -0.007 | 3 | 414.7 | 0 | 123.9 | 140.5 |
| 27/11/2003 | 11:09 | 4 | 0.526 | 0.01 | 0.5 | 5.3 | 0 | 2.7 | 3.7 |
| 27/11/2003 | 22:39 | 0.25 | 0.566 | 0.006 | 0.75 | 145.5 | 1.3 | 84.6 | 74.7 |
| 27/11/2003 | 03:24 | 0.25 | 0.559 | -0.015 | 1 | 171.5 | 2.1 | 107.6 | 74.3 |
| 27/11/2003 | 21:24 | 10 | 0.55 | 0.016 | 1.25 | 393 | 4.3 | 114.9 | 164.4 |
| 27/11/2003 | 23:39 | 0.5 | 0.556 | 0.021 | 1.75 | 397.4 | 0 | 154.5 | 167.9 |
| 27/11/2003 | 05:09 | 1 | 0.542 | -0.006 | 2.25 | 63.4 | 0.6 | 31.9 | 19.7 |
| 27/11/2003 | 00:24 | 0.25 | 0.558 | 0.001 | 3 | 384.4 | 0.4 | 139.7 | 96.2 |
| 28/11/2003 | 02:54 | 1.75 | 0.652 | 0.016 | 24.5 | 428.2 | 0 | 372.2 | 110.3 |
| 29/11/2003 | 06:09 | 0.5 | 0.666 | -0.023 | 0.5 | 11.3 | 2.8 | 7.1 | 6.0 |
| 29/11/2003 | 09:24 | 1.25 | 0.637 | 0.008 | 0.5 | 6.7 | 1.9 | 4.3 | 3.4 |
| 29/11/2003 | 15:54 | 0.5 | 0.617 | -0.001 | 0.5 | 29.4 | 0.2 | 14.8 | 20.6 |
| 29/11/2003 | 16:39 | 0.5 | 0.614 | -0.005 | 0.5 | 5.3 | 3.4 | 4.4 | 1.3 |
| 29/11/2003 | 21:24 | 0.25 | 0.593 | -0.004 | 0.5 | 69.4 | 0.7 | 35.1 | 48.6 |
| 29/11/2003 | 21:54 | 0.25 | 0.589 | -0.002 | 0.5 | 55.5 | 1.5 | 28.5 | 38.2 |
| 29/11/2003 | 03:39 | 0.5 | 0.669 | 0.005 | 0.75 | 135.1 | 0 | 74.6 | 68.6 |
| 29/11/2003 | 05:09 | 1 | 0.658 | -0.003 | 0.75 | 13.9 | 1.5 | 9.4 | 6.9 |
| 29/11/2003 | 14:39 | 0.25 | 0.622 | -0.007 | 1 | 21.3 | 3.5 | 10.8 | 8.0 |
| 29/11/2003 | 11:09 | 1.5 | 0.638 | -0.005 | 1.25 | 21.1 | 0.5 | 11.7 | 8.3 |
| 29/11/2003 | 13:24 | 1.25 | 0.624 | -0.002 | 1.25 | 47.9 | 0.7 | 21.0 | 21.5 |
| 29/11/2003 | 18:09 | 1.25 | 0.601 | 0.003 | 1.25 | 17.9 | 0.8 | 8.7 | 7.0 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|------------------------|--------------------|------------------------------|--------------------------|-------------------|-------------------|--------------------|---------|
| 29/11/2003 | 23:09 | 1 | 0.587 | -0.007 | 1.25 | 133.8 | 0.3 | 48.3 | 56.9 |
| 29/11/2003 | 06:54 | 0.5 | 0.641 | -0.008 | 1.5 | 100.5 | 2.3 | 26.0 | 37.0 |
| 29/11/2003 | 19:24 | 0.25 | 0.604 | -0.011 | 2 | 159.6 | 1.6 | 51.6 | 57.2 |
| 30/11/2003 | 11:39 | 0.5 | 0.54 | 0.003 | 0.5 | 7.5 | 0 | 3.8 | 5.3 |
| 30/11/2003 | 12:09 | 0.25 | 0.543 | 0 | 0.5 | 12.8 | 0 | 6.4 | 9.1 |
| 30/11/2003 | 14:39 | 0.5 | 0.532 | 0.001 | 0.5 | 11.4 | 3 | 7.2 | 5.9 |
| 30/11/2003 | 15:39 | 0.75 | 0.535 | -0.004 | 0.5 | 5.6 | 0 | 2.8 | 4.0 |
| 30/11/2003 | 21:24 | 2.25 | 0.516 | -0.001 | 0.5 | 10.7 | 3.3 | 7.0 | 5.2 |
| 30/11/2003 | 21:54 | 0.25 | 0.515 | 0 | 0.5 | 5.5 | 0.4 | 3.0 | 3.6 |
| 30/11/2003 | 10:39 | 0.5 | 0.543 | 0.002 | 0.75 | 50.8 | 1 | 24.5 | 25.0 |
| 30/11/2003 | 13:39 | 1.25 | 0.539 | -0.005 | 0.75 | 10.6 | 0 | 6.0 | 5.4 |
| 30/11/2003 | 17:24 | 1.5 | 0.526 | -0.001 | 0.75 | 39.5 | 0 | 23.1 | 20.6 |
| 30/11/2003 | 18:39 | 0.75 | 0.524 | -0.003 | 0.75 | 9.9 | 0.5 | 5.2 | 4.7 |
| 30/11/2003 | 02:24 | 0.25 | 0.563 | -0.014 | 1 | 414.5 | 3.8 | 236.2 | 201.5 |
| 30/11/2003 | 00:24 | 0.25 | 0.58 | -0.017 | 2 | 394.7 | 0 | 188.5 | 143.8 |
| 30/11/2003 | 07:39 | 0.25 | 0.545 | 0.005 | 2.75 | 404.3 | 2.1 | 150.7 | 156.1 |
| 30/11/2003 | 03:24 | 0.25 | 0.549 | -0.004 | 4.25 | 414.4 | 1.8 | 230.5 | 166.4 |
| 01/12/2003 | 00:09 | 2 | 0.514 | -0.005 | 0.5 | 5.9 | 4.2 | 5.1 | 1.2 |
| 01/12/2003 | 02:54 | 2.5 | 0.504 | -0.001 | 0.5 | 11.1 | 0.5 | 5.8 | 7.5 |
| 02/12/2003 | 14:24 | 35.25 | 0.619 | 0.019 | 10.25 | 436.6 | 0.6 | 349.6 | 140.5 |
| 03/12/2003 | 09:09 | 0.75 | 0.583 | -0.004 | 0.5 | 8.5 | 3.5 | 6.0 | 3.5 |
| 03/12/2003 | 09:54 | 0.5 | 0.579 | -0.005 | 0.5 | 18.6 | 2.2 | 10.4 | 11.6 |
| 03/12/2003 | 22:54 | 0.75 | 0.526 | -0.002 | 0.5 | 43.5 | 0 | 21.8 | 30.8 |
| 03/12/2003 | 00:39 | 0.25 | 0.638 | 0.003 | 0.75 | 408.1 | 0.4 | 239.3 | 212.7 |
| 03/12/2003 | 04:39 | 3.5 | 0.612 | 0.002 | 0.75 | 7 | 4 | 5.6 | 1.5 |
| 03/12/2003 | 07:54 | 2.75 | 0.589 | 0.003 | 0.75 | 11.8 | 1.5 | 8.2 | 5.8 |
| 03/12/2003 | 12:24 | 0.25 | 0.566 | -0.005 | 1.25 | 334.2 | 3.7 | 78.4 | 143.6 |
| 03/12/2003 | 13:39 | 0.25 | 0.561 | -0.01 | 1.75 | 387.9 | 4.6 | 198.7 | 155.9 |
| 03/12/2003 | 20:39 | 0.5 | 0.535 | -0.007 | 1.75 | 20.5 | 4.7 | 12.6 | 4.6 |
| 03/12/2003 | 10:24 | 0.25 | 0.574 | -0.008 | 2 | 123.1 | 0 | 41.6 | 39.1 |
| 03/12/2003 | 15:24 | 0.25 | 0.551 | -0.016 | 5 | 361.7 | 1 | 121.8 | 112.3 |
| 04/12/2003 | 09:54 | 0.75 | 0.494 | -0.002 | 0.5 | 17.8 | 0 | 8.9 | 12.6 |
| 04/12/2003 | 14:09 | 1 | 0.494 | 0.011 | 0.5 | 20.8 | 0 | 10.4 | 14.7 |
| 04/12/2003 | 15:54 | 0.5 | 0.526 | 0.02 | 0.5 | 196.7 | 0 | 98.4 | 139.1 |
| 04/12/2003 | 06:24 | 2.25 | 0.503 | 0.004 | 0.75 | 12.7 | 1.7 | 6.8 | 5.5 |
| 04/12/2003 | 10:39 | 0.5 | 0.497 | -0.007 | 0.75 | 34.1 | 0 | 21.1 | 18.4 |
| 04/12/2003 | 14:54 | 0.5 | 0.511 | 0.003 | 0.75 | 438.6 | 1.6 | 150.4 | 249.6 |
| 04/12/2003 | 16:24 | 0.25 | 0.546 | 0.046 | 0.75 | 27.6 | 0.5 | 12.7 | 13.8 |
| 04/12/2003 | 18:39 | 1.75 | 0.688 | 0.023 | 0.75 | 98.7 | 1.9 | 36.9 | 53.7 |
| 04/12/2003 | 08:24 | 1.5 | 0.502 | -0.006 | 1 | 122.6 | 0.4 | 67.3 | 54.3 |
| 04/12/2003 | 03:09 | 4 | 0.512 | -0.006 | 1.25 | 80 | 0 | 32.8 | 29.4 |
| 04/12/2003 | 11:24 | 0.25 | 0.49 | 0.007 | 2 | 401.9 | 0.6 | 156.0 | 187.9 |
| 04/12/2003 | 19:24 | 0.25 | 0.711 | -0.006 | 64 | 439.2 | 0.7 | 398.0 | 67.6 |
| 07/12/2003 | 23:09 | 7 | 0.636 | 0.001 | 0.5 | 11 | 0 | 5.5 | 7.8 |
| 07/12/2003 | 11:24 | 0.25 | 0.705 | 0 | 1 | 396.8 | 0.1 | 290.4 | 193.7 |
| 07/12/2003 | 14:39 | 0.5 | 0.683 | -0.011 | 1.75 | 396.6 | 4.4 | 99.2 | 138.1 |
| 07/12/2003 | 12:24 | 0.25 | 0.705 | -0.018 | 2 | 414.5 | 3.4 | 210.2 | 176.7 |
| 08/12/2003 | 02:54 | 3.5 | 0.616 | 0.002 | 0.5 | 16.2 | 1.7 | 9.0 | 10.3 |
| 08/12/2003 | 07:54 | 4.75 | 0.596 | -0.002 | 0.5 | 43.8 | 0.6 | 22.2 | 30.5 |
| 08/12/2003 | 09:09 | 1 | 0.591 | -0.002 | 0.5 | 7.7 | 0 | 3.9 | 5.4 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|------------------------|--------------------|------------------------------|--------------------------|-------------------|-------------------|--------------------|---------|
| 08/12/2003 | 10:24 | 1 | 0.59 | -0.006 | 0.5 | 35.9 | 0.2 | 18.1 | 25.2 |
| 08/12/2003 | 10:54 | 0.25 | 0.584 | 0.001 | 0.5 | 29.7 | 0.5 | 15.1 | 20.6 |
| 08/12/2003 | 11:24 | 0.25 | 0.585 | -0.003 | 0.5 | 11.9 | 0.2 | 6.1 | 8.3 |
| 08/12/2003 | 11:54 | 0.25 | 0.582 | -0.002 | 0.5 | 66.7 | 1.4 | 34.1 | 46.2 |
| 08/12/2003 | 12:39 | 0.5 | 0.576 | -0.001 | 0.75 | 322.2 | 0 | 200.4 | 174.9 |
| 08/12/2003 | 23:39 | 0.5 | 0.545 | -0.001 | 0.75 | 46.6 | 4.8 | 19.5 | 23.5 |
| 08/12/2003 | 13:24 | 0.25 | 0.575 | -0.003 | 1 | 413.8 | 0 | 212.6 | 232.3 |
| 08/12/2003 | 17:24 | 0.25 | 0.563 | -0.003 | 1 | 406.5 | 0.6 | 299.2 | 199.2 |
| 08/12/2003 | 21:39 | 0.5 | 0.549 | -0.003 | 1.75 | 388.2 | 0 | 293.7 | 164.8 |
| 08/12/2003 | 14:39 | 0.5 | 0.576 | -0.013 | 2.75 | 414.1 | 0.5 | 224.0 | 155.1 |
| 08/12/2003 | 18:24 | 0.25 | 0.56 | -0.008 | 3 | 394.3 | 0.6 | 123.2 | 132.4 |
| 09/12/2003 | 01:09 | 1 | 0.538 | -0.001 | 0.5 | 8.8 | 2.4 | 5.6 | 4.5 |
| 09/12/2003 | 01:54 | 0.5 | 0.538 | -0.005 | 0.5 | 16.4 | 0.1 | 8.3 | 11.5 |
| 09/12/2003 | 02:54 | 0.75 | 0.533 | 0.003 | 0.5 | 11 | 0 | 5.5 | 7.8 |
| 09/12/2003 | 10:54 | 1.75 | 0.504 | -0.004 | 0.5 | 13.6 | 4.7 | 9.2 | 6.3 |
| 09/12/2003 | 19:24 | 3.75 | 0.496 | -0.001 | 0.5 | 9.9 | 0 | 5.0 | 7.0 |
| 09/12/2003 | 20:39 | 1 | 0.49 | 0.002 | 0.5 | 15.6 | 0.1 | 7.9 | 11.0 |
| 09/12/2003 | 11:39 | 0.5 | 0.498 | -0.003 | 0.75 | 40.5 | 0 | 26.8 | 23.2 |
| 09/12/2003 | 12:39 | 0.5 | 0.495 | 0.001 | 0.75 | 14.3 | 2 | 8.8 | 6.3 |
| 09/12/2003 | 15:09 | 2 | 0.491 | 0.011 | 0.75 | 29.2 | 0 | 13.6 | 14.7 |
| 09/12/2003 | 08:24 | 5.25 | 0.522 | -0.006 | 1 | 397.5 | 0 | 115.1 | 188.9 |
| 10/12/2003 | 14:39 | 17.75 | 0.464 | -0.003 | 0.75 | 383 | 0 | 182.8 | 192.1 |
| 11/12/2003 | 16:24 | 25.25 | 0.441 | -0.003 | 1 | 103.6 | 0 | 47.0 | 52.0 |
| 12/12/2003 | 12:09 | 19 | 0.48 | 0 | 1.25 | 253.7 | 0 | 143.4 | 106.1 |
| 13/12/2003 | 01:39 | 12.5 | 0.506 | -0.001 | 0.5 | 6.4 | 0 | 3.2 | 4.5 |
| 13/12/2003 | 07:39 | 5.75 | 0.495 | 0.009 | 0.75 | 189.2 | 4.3 | 87.5 | 93.8 |
| 13/12/2003 | 09:39 | 1.5 | 0.519 | 0.012 | 0.75 | 329.2 | 0 | 131.9 | 174.1 |
| 13/12/2003 | 17:54 | 0.75 | 0.625 | 0.026 | 0.75 | 77.1 | 0 | 29.0 | 42.0 |
| 13/12/2003 | 18:39 | 0.25 | 0.651 | 0.034 | 0.75 | 392.7 | 0.1 | 157.8 | 207.4 |
| 13/12/2003 | 13:24 | 3.25 | 0.554 | 0.009 | 1 | 68.3 | 2.4 | 32.9 | 27.1 |
| 13/12/2003 | 14:24 | 0.25 | 0.563 | 0.005 | 1 | 133.7 | 0.4 | 56.3 | 56.1 |
| 13/12/2003 | 19:24 | 0.25 | 0.685 | 0.041 | 1 | 122.7 | 4.3 | 79.3 | 53.7 |
| 13/12/2003 | 15:24 | 0.25 | 0.568 | 0.039 | 2 | 389.9 | 0 | 265.9 | 153.8 |
| 13/12/2003 | 20:24 | 0.25 | 0.726 | -0.03 | 31 | 428.5 | 2.3 | 371.2 | 110.4 |
| 15/12/2003 | 03:54 | 0.75 | 0.685 | 0 | 0.5 | 65.6 | 0.3 | 33.0 | 46.2 |
| 15/12/2003 | 06:54 | 0.25 | 0.662 | -0.004 | 0.5 | 9.8 | 4.5 | 7.2 | 3.7 |
| 15/12/2003 | 10:09 | 1.75 | 0.642 | 0.014 | 0.5 | 27.3 | 0 | 13.7 | 19.3 |
| 15/12/2003 | 10:54 | 0.5 | 0.647 | 0.006 | 0.5 | 157.8 | 0.8 | 79.3 | 111.0 |
| 15/12/2003 | 11:24 | 0.25 | 0.653 | -0.005 | 0.5 | 6.4 | 1.1 | 3.8 | 3.7 |
| 15/12/2003 | 12:09 | 0.5 | 0.652 | -0.004 | 0.5 | 12.7 | 0 | 6.4 | 9.0 |
| 15/12/2003 | 14:24 | 2 | 0.664 | -0.011 | 0.5 | 5.3 | 2.1 | 3.7 | 2.3 |
| 15/12/2003 | 15:54 | 1.25 | 0.675 | -0.014 | 0.5 | 21.1 | 0 | 10.6 | 14.9 |
| 15/12/2003 | 06:09 | 1 | 0.674 | -0.012 | 0.75 | 29.2 | 4.1 | 13.3 | 13.8 |
| 15/12/2003 | 16:24 | 0.25 | 0.661 | 0.012 | 0.75 | 7.3 | 3.2 | 5.4 | 2.1 |
| 15/12/2003 | 04:24 | 0.25 | 0.685 | -0.011 | 1 | 385.7 | 0 | 139.2 | 175.1 |
| 15/12/2003 | 07:24 | 0.25 | 0.658 | -0.004 | 1.25 | 38.3 | 1.3 | 13.1 | 14.6 |
| 15/12/2003 | 17:09 | 0.25 | 0.673 | 0.046 | 28.25 | 415.6 | 2.6 | 351.2 | 123.8 |
| 16/12/2003 | 21:24 | 0.25 | 0.719 | -0.011 | 6 | 415.2 | 3 | 266.0 | 167.8 |
| 17/12/2003 | 17:54 | 0.75 | 0.681 | -0.034 | 0.5 | 10.5 | 0.1 | 5.3 | 7.4 |
| 17/12/2003 | 20:24 | 0.25 | 0.647 | 0.019 | 0.5 | 10.2 | 0.2 | 5.2 | 7.1 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|------------------------|--------------------|------------------------------|--------------------------|-------------------|-------------------|--------------------|---------|
| 17/12/2003 | 20:54 | 0.25 | 0.666 | -0.018 | 0.5 | 7.5 | 0.9 | 4.2 | 4.7 |
| 17/12/2003 | 22:54 | 1.75 | 0.655 | 0 | 0.5 | 11.9 | 2.3 | 7.1 | 6.8 |
| 17/12/2003 | 11:39 | 0.5 | 0.696 | -0.019 | 0.75 | 144.6 | 3.9 | 75.1 | 70.4 |
| 17/12/2003 | 16:39 | 1.5 | 0.665 | -0.001 | 0.75 | 87 | 3.2 | 31.8 | 47.8 |
| 17/12/2003 | 18:39 | 0.5 | 0.659 | -0.002 | 0.75 | 24.1 | 3.8 | 11.2 | 11.2 |
| 17/12/2003 | 19:39 | 0.5 | 0.654 | -0.007 | 0.75 | 23.5 | 3.8 | 11.5 | 10.5 |
| 17/12/2003 | 05:24 | 0.25 | 0.704 | -0.001 | 1 | 369.8 | 2.9 | 269.0 | 177.8 |
| 17/12/2003 | 06:24 | 0.25 | 0.703 | -0.009 | 1 | 179.3 | 3 | 81.2 | 73.6 |
| 17/12/2003 | 07:24 | 0.25 | 0.694 | 0 | 1 | 396.7 | 1.7 | 209.7 | 162.3 |
| 17/12/2003 | 12:24 | 0.25 | 0.677 | 0.002 | 1 | 140 | 1.3 | 50.3 | 64.3 |
| 17/12/2003 | 13:24 | 0.25 | 0.679 | 0.017 | 1 | 79 | 3.6 | 30.8 | 35.3 |
| 17/12/2003 | 14:24 | 0.25 | 0.696 | -0.016 | 1 | 385 | 1.4 | 105.1 | 187.0 |
| 17/12/2003 | 03:24 | 0.25 | 0.708 | -0.004 | 2 | 415.2 | 2.4 | 251.5 | 195.4 |
| 17/12/2003 | 08:24 | 0.25 | 0.694 | -0.011 | 3 | 414.2 | 1 | 109.7 | 143.8 |
| 18/12/2003 | 00:24 | 1.25 | 0.637 | 0.001 | 0.5 | 9 | 2.7 | 5.9 | 4.5 |
| 18/12/2003 | 00:54 | 0.25 | 0.638 | -0.001 | 0.5 | 32.8 | 1.8 | 17.3 | 21.9 |
| 18/12/2003 | 02:39 | 1.5 | 0.641 | -0.005 | 0.5 | 5.1 | 1.4 | 3.3 | 2.6 |
| 18/12/2003 | 03:54 | 1 | 0.623 | 0.006 | 0.5 | 5.9 | 2.7 | 4.3 | 2.3 |
| 18/12/2003 | 04:54 | 0.75 | 0.616 | 0.01 | 0.5 | 8.8 | 0.1 | 4.5 | 6.2 |
| 18/12/2003 | 05:24 | 0.25 | 0.626 | 0 | 0.5 | 7.3 | 1.1 | 4.2 | 4.4 |
| 18/12/2003 | 07:24 | 1.75 | 0.629 | -0.017 | 0.5 | 9.2 | 2 | 5.6 | 5.1 |
| 18/12/2003 | 09:39 | 0.5 | 0.592 | 0.011 | 0.75 | 307 | 1 | 144.5 | 153.9 |
| 18/12/2003 | 14:39 | 0.5 | 0.593 | -0.01 | 0.75 | 162.9 | 1.7 | 102.9 | 88.2 |
| 18/12/2003 | 23:39 | 0.5 | 0.562 | -0.016 | 0.75 | 415.2 | 0.4 | 175.7 | 214.7 |
| 18/12/2003 | 08:24 | 0.75 | 0.604 | -0.005 | 1 | 414.9 | 4.8 | 120.3 | 196.8 |
| 18/12/2003 | 13:24 | 3.25 | 0.596 | -0.002 | 1 | 83.6 | 2 | 41.8 | 41.3 |
| 18/12/2003 | 15:24 | 0.25 | 0.583 | -0.011 | 1 | 401.6 | 1.4 | 269.9 | 185.3 |
| 18/12/2003 | 16:24 | 0.25 | 0.572 | 0.013 | 1 | 151.6 | 2.4 | 68.5 | 62.6 |
| 18/12/2003 | 20:24 | 0.25 | 0.573 | -0.019 | 1 | 43.5 | 3.2 | 20.3 | 16.9 |
| 18/12/2003 | 21:39 | 0.5 | 0.555 | 0.011 | 1.75 | 277.3 | 1.2 | 122.2 | 94.7 |
| 18/12/2003 | 17:39 | 0.5 | 0.581 | -0.008 | 2.75 | 350.1 | 1.2 | 98.8 | 108.6 |
| 19/12/2003 | 08:54 | 0.5 | 0.536 | -0.001 | 0.5 | 7.1 | 1.2 | 4.2 | 4.2 |
| 19/12/2003 | 10:54 | 0.75 | 0.521 | 0.007 | 0.5 | 13.4 | 4.6 | 9.0 | 6.2 |
| 19/12/2003 | 11:39 | 0.5 | 0.532 | -0.015 | 0.5 | 10.3 | 1.3 | 5.8 | 6.4 |
| 19/12/2003 | 12:09 | 0.25 | 0.517 | 0.01 | 0.5 | 81.3 | 2.8 | 42.1 | 55.5 |
| 19/12/2003 | 13:54 | 1.5 | 0.514 | -0.003 | 0.5 | 7 | 0.6 | 3.8 | 4.5 |
| 19/12/2003 | 19:24 | 3 | 0.517 | -0.001 | 0.5 | 11.7 | 0 | 5.9 | 8.3 |
| 19/12/2003 | 20:54 | 0.5 | 0.506 | -0.003 | 0.5 | 6.8 | 1.6 | 4.2 | 3.7 |
| 19/12/2003 | 09:39 | 0.5 | 0.526 | 0.01 | 0.75 | 7.6 | 3.3 | 5.7 | 2.2 |
| 19/12/2003 | 19:54 | 0.25 | 0.516 | -0.016 | 0.75 | 11.7 | 1.2 | 8.1 | 6.0 |
| 19/12/2003 | 22:24 | 1.25 | 0.503 | 0.001 | 1 | 11 | 2.6 | 7.1 | 3.5 |
| 19/12/2003 | 00:39 | 0.5 | 0.55 | -0.01 | 1.25 | 233.1 | 0 | 91.3 | 115.7 |
| 19/12/2003 | 01:54 | 0.25 | 0.54 | -0.001 | 1.75 | 36 | 2.2 | 18.6 | 13.5 |
| 19/12/2003 | 14:24 | 0.25 | 0.511 | 0.008 | 2.25 | 129 | 0.2 | 25.6 | 42.0 |
| 19/12/2003 | 03:39 | 0.25 | 0.539 | 0.008 | 2.5 | 121.2 | 2.6 | 47.5 | 46.5 |
| 19/12/2003 | 06:09 | 0.25 | 0.547 | -0.019 | 2.5 | 72.2 | 3.2 | 19.3 | 19.4 |
| 20/12/2003 | 03:24 | 4.25 | 0.518 | 0.001 | 0.5 | 6 | 0.8 | 3.4 | 3.7 |
| 20/12/2003 | 08:09 | 4.5 | 0.537 | 0.001 | 0.5 | 5.6 | 1.6 | 3.6 | 2.8 |
| 20/12/2003 | 08:39 | 0.25 | 0.538 | 0.029 | 0.5 | 17.2 | 2.4 | 9.8 | 10.5 |
| 20/12/2003 | 09:09 | 0.25 | 0.567 | -0.001 | 0.5 | 63.4 | 4.7 | 34.1 | 41.5 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 20/12/2003 | 15:09 | 0.5 | 0.597 | 0.014 | 0.5 | 109.5 | 2.5 | 56.0 | 75.7 |
| 20/12/2003 | 18:09 | 0.5 | 0.595 | -0.008 | 0.5 | 6.3 | 0.8 | 3.6 | 3.9 |
| 20/12/2003 | 16:54 | 1.5 | 0.594 | -0.003 | 1 | 12.4 | 1.4 | 6.2 | 4.6 |
| 20/12/2003 | 18:39 | 0.25 | 0.587 | 0.003 | 1 | 134.9 | 0 | 56.0 | 64.2 |
| 20/12/2003 | 13:39 | 1.25 | 0.617 | -0.003 | 1.25 | 15.3 | 1 | 7.3 | 5.4 |
| 20/12/2003 | 23:09 | 0.5 | 0.581 | -0.005 | 1.5 | 56.6 | 3.7 | 21.7 | 18.6 |
| 20/12/2003 | 20:24 | 1 | 0.588 | -0.014 | 2.5 | 105.9 | 2 | 35.1 | 34.6 |
| 20/12/2003 | 09:39 | 0.25 | 0.566 | 0.038 | 3 | 266.4 | 4.6 | 52.3 | 77.4 |
| 21/12/2003 | 13:24 | 1 | 0.542 | 0 | 0.5 | 17.2 | 0.9 | 9.1 | 11.5 |
| 21/12/2003 | 08:54 | 1.5 | 0.539 | -0.001 | 0.75 | 15.6 | 1.8 | 9.4 | 7.0 |
| 21/12/2003 | 10:54 | 0.25 | 0.534 | -0.001 | 0.75 | 13 | 2.6 | 7.0 | 5.4 |
| 21/12/2003 | 03:39 | 0.25 | 0.556 | -0.008 | 1 | 177.9 | 1.1 | 77.3 | 87.7 |
| 21/12/2003 | 11:39 | 0.25 | 0.533 | -0.005 | 1 | 414.2 | 3.1 | 287.8 | 194.9 |
| 21/12/2003 | 04:39 | 0.25 | 0.548 | 0.005 | 1.25 | 46.2 | 0 | 24.8 | 17.6 |
| 21/12/2003 | 09:39 | 0.25 | 0.538 | -0.004 | 1.25 | 27 | 1.4 | 10.2 | 9.8 |
| 21/12/2003 | 05:54 | 0.25 | 0.553 | -0.008 | 1.75 | 113.6 | 1.1 | 59.5 | 42.1 |
| 21/12/2003 | 00:39 | 0.25 | 0.576 | -0.02 | 3 | 414.2 | 4.9 | 163.0 | 141.4 |
| 22/12/2003 | 07:09 | 17.5 | 0.502 | -0.014 | 0.5 | 7.6 | 1 | 4.3 | 4.7 |
| 22/12/2003 | 14:54 | 0.5 | 0.492 | -0.016 | 0.5 | 64.4 | 1.4 | 32.9 | 44.5 |
| 22/12/2003 | 10:54 | 3.5 | 0.483 | -0.001 | 0.75 | 36.5 | 0.6 | 21.9 | 18.9 |
| 22/12/2003 | 13:54 | 0.5 | 0.478 | -0.002 | 0.75 | 27.3 | 0.9 | 16.4 | 13.8 |
| 22/12/2003 | 16:39 | 1.5 | 0.485 | -0.012 | 0.75 | 26.9 | 1.8 | 18.4 | 14.3 |
| 22/12/2003 | 12:09 | 0.75 | 0.479 | 0.001 | 1.5 | 416.2 | 0.3 | 262.2 | 178.0 |
| 23/12/2003 | 22:39 | 0.25 | 0.679 | -0.029 | 3 | 423.9 | 3.6 | 167.9 | 131.2 |
| 23/12/2003 | 07:54 | 14.75 | 0.539 | 0.14 | 14.75 | 425.9 | 3 | 298.8 | 161.1 |
| 24/12/2003 | 05:39 | 1.25 | 0.629 | 0.015 | 0.5 | 6 | 4 | 5.0 | 1.4 |
| 24/12/2003 | 07:54 | 0.75 | 0.645 | -0.013 | 0.5 | 6.5 | 4.5 | 5.5 | 1.4 |
| 24/12/2003 | 09:24 | 1.25 | 0.639 | 0.012 | 0.5 | 7.8 | 2.5 | 5.2 | 3.7 |
| 24/12/2003 | 03:39 | 0.25 | 0.637 | 0.005 | 1 | 20.2 | 3.1 | 9.4 | 7.6 |
| 24/12/2003 | 06:24 | 0.5 | 0.641 | 0.001 | 1 | 8.6 | 3.7 | 6.4 | 2.2 |
| 24/12/2003 | 01:39 | 0.25 | 0.65 | -0.013 | 2 | 31.1 | 4 | 13.5 | 9.7 |
| 24/12/2003 | 10:39 | 1 | 0.647 | 0.051 | 3 | 420.9 | 2.8 | 226.9 | 176.5 |
| 24/12/2003 | 13:39 | 0.25 | 0.698 | -0.086 | 38.5 | 439 | 3.8 | 271.4 | 177.2 |
| 26/12/2003 | 04:09 | 0.25 | 0.612 | -0.019 | 0.75 | 235.7 | 3.9 | 81.7 | 133.3 |
| 26/12/2003 | 04:54 | 0.25 | 0.593 | -0.005 | 0.75 | 55.5 | 3.9 | 25.4 | 26.9 |
| 26/12/2003 | 05:54 | 0.5 | 0.589 | 0.01 | 1 | 190.3 | 3.4 | 52.5 | 91.9 |
| 26/12/2003 | 23:09 | 0.25 | 0.546 | -0.015 | 3.25 | 17.8 | 1 | 10.8 | 4.8 |
| 26/12/2003 | 16:39 | 0.25 | 0.557 | -0.011 | 6.5 | 413 | 4.6 | 103.6 | 123.7 |
| 26/12/2003 | 07:39 | 1 | 0.58 | -0.023 | 9 | 412.3 | 4.5 | 157.4 | 154.9 |
| 27/12/2003 | 13:39 | 0.25 | 0.512 | -0.001 | 0.75 | 12.9 | 2.7 | 7.2 | 5.2 |
| 27/12/2003 | 15:24 | 1.25 | 0.507 | 0.002 | 0.75 | 10.2 | 1.7 | 7.2 | 4.7 |
| 27/12/2003 | 17:54 | 0.25 | 0.503 | 0.015 | 0.75 | 17.1 | 4.5 | 11.1 | 6.3 |
| 27/12/2003 | 02:39 | 0.5 | 0.531 | -0.001 | 1.25 | 11.4 | 4.9 | 9.0 | 2.6 |
| 27/12/2003 | 08:24 | 1 | 0.524 | 0.001 | 1.5 | 32.8 | 0.9 | 18.6 | 15.7 |
| 27/12/2003 | 10:09 | 0.5 | 0.52 | 0 | 1.5 | 271.1 | 3.9 | 157.3 | 119.6 |
| 27/12/2003 | 16:09 | 0.25 | 0.509 | -0.006 | 1.75 | 56.2 | 3.2 | 14.8 | 18.4 |
| 27/12/2003 | 05:39 | 2 | 0.526 | 0.002 | 2 | 12.7 | 4.3 | 7.7 | 2.8 |
| 27/12/2003 | 11:39 | 0.25 | 0.52 | -0.008 | 2 | 19.1 | 4.1 | 12.3 | 4.7 |
| 27/12/2003 | 19:24 | 1 | 0.499 | -0.002 | 2.25 | 7.3 | 4.4 | 6.3 | 1.0 |
| 27/12/2003 | 21:54 | 0.5 | 0.498 | -0.008 | 2.75 | 11 | 2.8 | 7.7 | 2.2 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|------------------------|--------------------|------------------------------|--------------------------|-------------------|-------------------|--------------------|---------|
| 28/12/2003 | 17:54 | 1.25 | 0.459 | -0.002 | 0.5 | 5.5 | 3 | 4.3 | 1.8 |
| 28/12/2003 | 06:54 | 0.25 | 0.492 | -0.013 | 0.75 | 22.3 | 4.5 | 10.8 | 10.0 |
| 28/12/2003 | 12:54 | 1.5 | 0.477 | -0.014 | 1 | 10 | 2.4 | 6.7 | 3.2 |
| 28/12/2003 | 21:24 | 1 | 0.452 | -0.003 | 1 | 6.7 | 1.7 | 4.9 | 2.3 |
| 28/12/2003 | 04:54 | 1.5 | 0.483 | 0.009 | 2 | 11.1 | 4.7 | 8.3 | 2.6 |
| 28/12/2003 | 01:24 | 1 | 0.488 | -0.005 | 2.25 | 18.3 | 0.7 | 8.9 | 5.6 |
| 28/12/2003 | 18:24 | 0.25 | 0.457 | -0.004 | 2.25 | 11.7 | 0.6 | 8.2 | 3.6 |
| 28/12/2003 | 13:54 | 0.25 | 0.463 | -0.004 | 3 | 12.6 | 4.1 | 8.8 | 2.5 |
| 28/12/2003 | 08:24 | 1 | 0.472 | -0.003 | 3.25 | 30.5 | 4.4 | 11.4 | 8.1 |
| 28/12/2003 | 22:24 | 0.25 | 0.449 | -0.002 | 3.75 | 11.2 | 4.5 | 8.5 | 2.3 |
| 29/12/2003 | 11:39 | 0.25 | 0.431 | -0.002 | 2 | 351.2 | 3.9 | 81.1 | 127.8 |
| 29/12/2003 | 19:24 | 1 | 0.423 | -0.002 | 2.25 | 11.9 | 2.8 | 9.8 | 2.8 |
| 29/12/2003 | 02:09 | 0.25 | 0.447 | 0.004 | 2.5 | 12.3 | 3.6 | 8.6 | 2.9 |
| 29/12/2003 | 05:09 | 0.75 | 0.441 | -0.003 | 2.5 | 12.5 | 5 | 9.7 | 2.6 |
| 29/12/2003 | 08:24 | 1 | 0.435 | -0.004 | 3.25 | 11.5 | 2.6 | 8.2 | 2.7 |
| 29/12/2003 | 13:54 | 0.5 | 0.429 | -0.006 | 4.75 | 371.4 | 2.9 | 29.1 | 83.2 |
| 29/12/2003 | 22:24 | 1 | 0.421 | -0.003 | 5.25 | 11.3 | 3.1 | 8.7 | 2.3 |
| 30/12/2003 | 08:09 | 0.25 | 0.412 | 0 | 2.5 | 14.3 | 4.9 | 12.2 | 3.5 |
| 30/12/2003 | 11:24 | 1 | 0.413 | -0.001 | 3 | 14.5 | 3.5 | 9.9 | 3.7 |
| 30/12/2003 | 04:24 | 1 | 0.415 | -0.003 | 3.75 | 12.8 | 2.6 | 9.2 | 3.2 |
| 30/12/2003 | 14:54 | 0.75 | 0.409 | 0.002 | 8.75 | 35.6 | 4.2 | 11.2 | 6.5 |
| 31/12/2003 | 00:24 | 1 | 0.423 | -0.016 | 3.25 | 15.9 | 4.7 | 11.8 | 3.1 |
| 31/12/2003 | 04:24 | 1 | 0.406 | 0.001 | 3.25 | 14.6 | 4.2 | 10.5 | 3.4 |
| 31/12/2003 | 08:24 | 1 | 0.419 | -0.013 | 3.25 | 243.3 | 3.4 | 56.5 | 88.0 |
| 31/12/2003 | 12:24 | 1 | 0.407 | -0.004 | 4.25 | 15.5 | 3.5 | 10.1 | 3.7 |
| 31/12/2003 | 23:24 | 1 | 0.4 | 0.009 | 4.25 | 16.1 | 2.1 | 11.7 | 3.9 |
| 31/12/2003 | 17:24 | 1 | 0.402 | -0.003 | 5.25 | 15.4 | 3.2 | 11.1 | 3.3 |
| 01/01/2004 | 12:24 | 1 | 0.402 | -0.014 | 2.25 | 14.8 | 3.1 | 10.0 | 4.1 |
| 01/01/2004 | 19:24 | 1 | 0.386 | -0.002 | 2.25 | 13.3 | 0.4 | 9.0 | 4.2 |
| 01/01/2004 | 04:24 | 1 | 0.396 | -0.004 | 3.25 | 16.2 | 2.3 | 11.4 | 4.4 |
| 01/01/2004 | 15:24 | 1 | 0.388 | -0.003 | 3.25 | 15.1 | 1.5 | 10.1 | 3.5 |
| 01/01/2004 | 22:24 | 1 | 0.383 | 0.014 | 3.25 | 14.3 | 0.2 | 9.8 | 3.8 |
| 01/01/2004 | 07:54 | 0.5 | 0.407 | -0.017 | 3.75 | 19.4 | 4.5 | 10.5 | 4.6 |
| 02/01/2004 | 07:24 | 1 | 0.38 | -0.001 | 1.25 | 13.1 | 4.2 | 11.2 | 3.9 |
| 02/01/2004 | 12:24 | 0.75 | 0.376 | 0.001 | 1.25 | 133.8 | 4.5 | 98.7 | 54.1 |
| 02/01/2004 | 17:24 | 1 | 0.378 | -0.005 | 1.25 | 12.1 | 1.8 | 10.0 | 4.6 |
| 02/01/2004 | 19:24 | 1 | 0.375 | -0.001 | 1.25 | 11.1 | 0.5 | 8.8 | 4.7 |
| 02/01/2004 | 21:24 | 1 | 0.387 | -0.013 | 1.25 | 9.5 | 0.1 | 7.5 | 4.2 |
| 02/01/2004 | 23:24 | 1 | 0.372 | 0 | 1.25 | 9.9 | 4.9 | 8.4 | 2.0 |
| 02/01/2004 | 14:54 | 1.5 | 0.389 | -0.015 | 1.75 | 12.3 | 4.8 | 8.8 | 3.4 |
| 02/01/2004 | 09:24 | 1 | 0.379 | -0.001 | 2.5 | 409.5 | 0.7 | 95.0 | 151.8 |
| 02/01/2004 | 03:24 | 2 | 0.396 | -0.016 | 3.25 | 13.1 | 2.2 | 9.0 | 3.7 |
| 03/01/2004 | 01:24 | 1 | 0.37 | 0.013 | 1.25 | 11.2 | 0 | 8.5 | 4.8 |
| 03/01/2004 | 03:24 | 1 | 0.37 | -0.001 | 1.25 | 11 | 0 | 8.7 | 4.8 |
| 03/01/2004 | 08:24 | 1 | 0.366 | -0.002 | 1.25 | 11.3 | 0 | 8.4 | 4.7 |
| 03/01/2004 | 15:24 | 2 | 0.36 | 0.001 | 1.25 | 9 | 0 | 6.9 | 3.9 |
| 03/01/2004 | 18:24 | 2 | 0.359 | -0.001 | 1.25 | 8.7 | 3.9 | 7.5 | 2.0 |
| 03/01/2004 | 20:24 | 1 | 0.357 | -0.001 | 1.25 | 9.6 | 0 | 7.5 | 4.2 |
| 03/01/2004 | 22:24 | 1 | 0.356 | 0.013 | 1.25 | 9.5 | 0.3 | 7.3 | 4.0 |
| 03/01/2004 | 05:24 | 1 | 0.382 | -0.017 | 2.25 | 7.9 | 1.1 | 6.1 | 2.1 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|------------------------|--------------------|------------------------------|--------------------------|-------------------|-------------------|--------------------|---------|
| 03/01/2004 | 11:24 | 2 | 0.363 | -0.005 | 2.25 | 180.9 | 0 | 58.6 | 78.7 |
| 04/01/2004 | 07:24 | 1 | 0.348 | -0.001 | 1 | 6.5 | 0 | 4.6 | 3.1 |
| 04/01/2004 | 00:24 | 1 | 0.356 | 0.012 | 1.25 | 9 | 1.1 | 6.8 | 3.2 |
| 04/01/2004 | 03:24 | 2 | 0.354 | -0.004 | 1.25 | 13 | 0 | 7.6 | 4.8 |
| 04/01/2004 | 05:24 | 1 | 0.35 | -0.001 | 1.25 | 9.7 | 0 | 7.7 | 4.3 |
| 04/01/2004 | 10:24 | 2.25 | 0.345 | -0.001 | 1.25 | 8.3 | 1.1 | 6.7 | 3.1 |
| 04/01/2004 | 13:24 | 2 | 0.345 | 0 | 1.25 | 9.2 | 2.4 | 7.5 | 2.8 |
| 04/01/2004 | 16:24 | 2 | 0.347 | 0 | 1.25 | 8.6 | 0.1 | 6.6 | 3.7 |
| 04/01/2004 | 18:24 | 1 | 0.35 | 0.002 | 1.25 | 8.5 | 0 | 6.7 | 3.7 |
| 04/01/2004 | 20:24 | 1 | 0.352 | 0.001 | 1.25 | 9.1 | 0 | 7.0 | 3.9 |
| 04/01/2004 | 22:24 | 1 | 0.354 | -0.003 | 1.25 | 9.2 | 0 | 7.0 | 3.9 |
| 05/01/2004 | 08:24 | 2 | 0.355 | 0 | 0.5 | 5.4 | 0 | 2.7 | 3.8 |
| 05/01/2004 | 14:54 | 0.5 | 0.362 | 0.016 | 0.5 | 5.5 | 3.5 | 4.5 | 1.4 |
| 05/01/2004 | 00:24 | 1 | 0.352 | 0.002 | 1.25 | 9.2 | 0 | 7.1 | 4.0 |
| 05/01/2004 | 05:24 | 4 | 0.354 | 0 | 1.25 | 8.2 | 0 | 6.4 | 3.6 |
| 05/01/2004 | 13:24 | 2 | 0.36 | 0.014 | 1.25 | 9 | 4.5 | 8.0 | 2.0 |
| 05/01/2004 | 16:24 | 1.25 | 0.38 | -0.012 | 2.25 | 9.4 | 0 | 7.0 | 2.9 |
| 05/01/2004 | 20:24 | 2 | 0.384 | -0.015 | 2.25 | 9 | 0 | 6.5 | 2.8 |
| 05/01/2004 | 08:54 | 0.25 | 0.355 | 0.002 | 2.75 | 9.4 | 5 | 7.9 | 1.6 |
| 06/01/2004 | 22:24 | 0.25 | 0.379 | 0.013 | 0.5 | 5.5 | 4.8 | 5.2 | 0.5 |
| 06/01/2004 | 04:39 | 0.25 | 0.385 | -0.016 | 2 | 7.4 | 2.9 | 6.4 | 1.4 |
| 06/01/2004 | 19:39 | 13.25 | 0.377 | 0.002 | 2.75 | 7.8 | 5 | 6.1 | 0.8 |
| 06/01/2004 | 01:24 | 3 | 0.372 | 0.013 | 3.25 | 21.2 | 0 | 8.4 | 4.5 |
| 07/01/2004 | 03:39 | 0.25 | 0.393 | 0 | 0.5 | 5.2 | 4.1 | 4.7 | 0.8 |
| 07/01/2004 | 15:54 | 4.5 | 0.418 | -0.01 | 0.5 | 7.3 | 3.4 | 5.4 | 2.8 |
| 07/01/2004 | 10:54 | 0.5 | 0.392 | -0.001 | 0.75 | 165.4 | 3 | 86.2 | 81.3 |
| 07/01/2004 | 16:54 | 0.75 | 0.411 | 0.018 | 0.75 | 92.7 | 2.8 | 33.6 | 51.2 |
| 07/01/2004 | 19:39 | 0.25 | 0.728 | 0.061 | 1 | 117.8 | 4.5 | 64.9 | 48.8 |
| 07/01/2004 | 02:24 | 3.75 | 0.39 | 0.003 | 1.25 | 5.9 | 1.6 | 5.0 | 1.9 |
| 07/01/2004 | 09:24 | 2 | 0.392 | 0.001 | 1.25 | 7.2 | 0 | 5.4 | 3.0 |
| 07/01/2004 | 17:39 | 0.25 | 0.429 | 0.299 | 2 | 257.2 | 3.2 | 161.0 | 90.3 |
| 07/01/2004 | 05:24 | 1.5 | 0.393 | -0.001 | 2.25 | 8 | 0 | 6.2 | 2.4 |
| 07/01/2004 | 20:39 | 0.25 | 0.789 | -0.108 | 77 | 426.3 | 2.3 | 381.1 | 90.1 |
| 11/01/2004 | 18:39 | 13.25 | 0.657 | -0.005 | 0.5 | 13.7 | 0 | 6.9 | 9.7 |
| 11/01/2004 | 04:39 | 0.25 | 0.671 | -0.002 | 1 | 23 | 0.6 | 12.7 | 11.3 |
| 11/01/2004 | 01:39 | 0.25 | 0.681 | -0.01 | 3 | 305.3 | 3.8 | 127.0 | 81.2 |
| 12/01/2004 | 14:09 | 19.25 | 0.691 | -0.005 | 0.5 | 8.7 | 0.2 | 4.5 | 6.0 |
| 12/01/2004 | 15:09 | 0.75 | 0.71 | -0.02 | 0.5 | 223.5 | 0 | 111.8 | 158.0 |
| 12/01/2004 | 18:09 | 0.75 | 0.706 | -0.006 | 0.5 | 147.3 | 0 | 73.7 | 104.2 |
| 12/01/2004 | 15:54 | 0.5 | 0.696 | 0.001 | 0.75 | 394.1 | 0.6 | 140.4 | 220.1 |
| 12/01/2004 | 16:54 | 0.5 | 0.708 | -0.008 | 0.75 | 183.6 | 1 | 89.0 | 91.5 |
| 12/01/2004 | 20:54 | 1.5 | 0.702 | -0.006 | 0.75 | 190.5 | 0.3 | 70.9 | 104.2 |
| 12/01/2004 | 22:54 | 0.25 | 0.697 | -0.005 | 0.75 | 71.8 | 0.2 | 38.5 | 36.1 |
| 12/01/2004 | 23:54 | 0.5 | 0.686 | 0.019 | 0.75 | 294.3 | 0 | 101.4 | 167.2 |
| 12/01/2004 | 18:39 | 0.25 | 0.7 | 0 | 1 | 182.2 | 0 | 92.1 | 89.2 |
| 12/01/2004 | 21:54 | 0.5 | 0.693 | 0.004 | 1 | 105.8 | 0.5 | 65.8 | 45.4 |
| 13/01/2004 | 01:09 | 0.75 | 0.691 | -0.006 | 0.5 | 62 | 0 | 31.0 | 43.8 |
| 13/01/2004 | 02:09 | 0.75 | 0.695 | -0.003 | 0.5 | 6.6 | 1 | 3.8 | 4.0 |
| 13/01/2004 | 04:09 | 1.75 | 0.68 | -0.004 | 0.5 | 32.4 | 0 | 16.2 | 22.9 |
| 13/01/2004 | 06:09 | 1.75 | 0.672 | 0.015 | 0.5 | 8.1 | 1 | 4.6 | 5.0 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|------------------------|--------------------|------------------------------|--------------------------|-------------------|-------------------|--------------------|---------|
| 13/01/2004 | 09:09 | 0.25 | 0.683 | 0.009 | 0.5 | 6.4 | 1.1 | 3.8 | 3.7 |
| 13/01/2004 | 10:09 | 0.75 | 0.702 | 0.01 | 0.5 | 22.6 | 0.7 | 11.7 | 15.5 |
| 13/01/2004 | 08:24 | 2 | 0.677 | 0.006 | 0.75 | 9.4 | 0 | 5.4 | 4.9 |
| 13/01/2004 | 10:54 | 0.5 | 0.71 | -0.001 | 0.75 | 116.4 | 2.9 | 49.9 | 59.2 |
| 13/01/2004 | 11:39 | 0.25 | 0.709 | 0.03 | 1 | 413.8 | 4.1 | 180.0 | 202.2 |
| 13/01/2004 | 12:39 | 0.25 | 0.739 | -0.002 | 40 | 438.1 | 0.6 | 390.5 | 84.3 |
| 15/01/2004 | 10:54 | 0.5 | 0.693 | -0.003 | 0.75 | 327.6 | 1.5 | 184.9 | 166.8 |
| 15/01/2004 | 11:54 | 0.5 | 0.682 | 0.002 | 0.75 | 10.5 | 0 | 7.0 | 6.1 |
| 15/01/2004 | 12:54 | 0.5 | 0.683 | -0.002 | 0.75 | 28 | 0.6 | 17.0 | 14.5 |
| 15/01/2004 | 13:54 | 0.5 | 0.683 | -0.005 | 0.75 | 36.1 | 0 | 18.0 | 18.1 |
| 15/01/2004 | 08:39 | 0.25 | 0.706 | 0 | 1 | 202.6 | 0 | 81.2 | 88.5 |
| 15/01/2004 | 09:39 | 0.25 | 0.706 | -0.005 | 1 | 63.2 | 0 | 29.4 | 31.3 |
| 15/01/2004 | 04:39 | 0.25 | 0.737 | -0.017 | 2 | 415.8 | 0 | 305.9 | 185.8 |
| 15/01/2004 | 06:39 | 0.25 | 0.72 | -0.014 | 2 | 415.7 | 4.4 | 252.5 | 172.7 |
| 17/01/2004 | 11:09 | 44.75 | 0.522 | -0.002 | 0.5 | 142.1 | 0 | 71.1 | 100.5 |
| 17/01/2004 | 12:09 | 0.75 | 0.521 | 0.008 | 1.5 | 15.2 | 0 | 12.7 | 6.2 |
| 18/01/2004 | 08:09 | 18.75 | 0.684 | 0.004 | 0.5 | 57.9 | 0 | 29.0 | 40.9 |
| 18/01/2004 | 08:54 | 0.5 | 0.701 | -0.008 | 0.75 | 116.6 | 0.3 | 50.3 | 59.8 |
| 18/01/2004 | 21:54 | 1.5 | 0.683 | -0.013 | 0.75 | 16.5 | 0.5 | 9.3 | 8.1 |
| 18/01/2004 | 22:54 | 0.5 | 0.67 | -0.011 | 0.75 | 9.3 | 0 | 5.4 | 4.8 |
| 18/01/2004 | 17:39 | 0.25 | 0.709 | -0.011 | 1 | 342.3 | 1.1 | 196.3 | 149.3 |
| 18/01/2004 | 18:39 | 0.25 | 0.698 | -0.01 | 1 | 77.2 | 1 | 29.4 | 34.2 |
| 18/01/2004 | 19:39 | 0.25 | 0.688 | -0.002 | 1 | 59 | 0 | 23.3 | 25.7 |
| 18/01/2004 | 09:39 | 0.25 | 0.693 | 0.026 | 3 | 407.6 | 0 | 189.2 | 166.7 |
| 18/01/2004 | 12:39 | 0.25 | 0.719 | -0.01 | 5 | 416.7 | 0.1 | 231.9 | 168.2 |
| 20/01/2004 | 19:24 | 4.75 | 0.499 | 0.001 | 0.5 | 16.5 | 0 | 8.3 | 11.7 |
| 20/01/2004 | 13:54 | 38.5 | 0.511 | -0.001 | 1 | 110.4 | 0 | 73.0 | 51.0 |
| 21/01/2004 | 10:54 | 15.25 | 0.47 | 0 | 1.75 | 68.7 | 0 | 37.6 | 25.1 |
| 22/01/2004 | 07:24 | 19 | 0.699 | 0.021 | 0.5 | 61.9 | 0 | 31.0 | 43.8 |
| 22/01/2004 | 23:09 | 0.5 | 0.657 | -0.005 | 0.75 | 12.3 | 1 | 6.8 | 5.7 |
| 22/01/2004 | 21:09 | 0.5 | 0.67 | -0.012 | 1.75 | 47.2 | 0 | 30.8 | 15.1 |
| 22/01/2004 | 07:54 | 0.25 | 0.72 | -0.045 | 13 | 435.1 | 0.1 | 327.0 | 139.6 |
| 23/01/2004 | 14:39 | 1 | 0.605 | 0.001 | 0.5 | 15.6 | 0.2 | 7.9 | 10.9 |
| 23/01/2004 | 15:24 | 0.5 | 0.606 | -0.003 | 0.75 | 183.9 | 0.3 | 63.7 | 104.1 |
| 23/01/2004 | 12:39 | 13 | 0.614 | -0.005 | 1.25 | 388 | 0 | 268.4 | 169.1 |
| 24/01/2004 | 09:39 | 17.75 | 0.56 | 0.009 | 0.5 | 6.6 | 0 | 3.3 | 4.7 |
| 25/01/2004 | 11:39 | 25.75 | 0.523 | -0.015 | 1.25 | 116.8 | 0 | 45.3 | 43.7 |
| 27/01/2004 | 09:24 | 44.75 | 0.49 | -0.016 | 0.5 | 13.1 | 0 | 6.6 | 9.3 |
| 27/01/2004 | 20:54 | 3.25 | 0.663 | 0.028 | 0.5 | 10.3 | 1.2 | 5.8 | 6.4 |
| 27/01/2004 | 14:09 | 4.5 | 0.479 | -0.003 | 0.75 | 104.2 | 0 | 42.1 | 54.9 |
| 27/01/2004 | 15:09 | 0.5 | 0.482 | 0.004 | 0.75 | 102.1 | 0 | 55.8 | 51.7 |
| 27/01/2004 | 16:24 | 0.75 | 0.494 | 0.04 | 1.5 | 413.6 | 3.1 | 86.0 | 161.4 |
| 27/01/2004 | 21:24 | 0.25 | 0.691 | -0.025 | 14.5 | 439.1 | 0.7 | 371.4 | 106.1 |
| 28/01/2004 | 13:09 | 0.5 | 0.647 | -0.005 | 0.75 | 44.9 | 0.2 | 17.1 | 24.3 |
| 28/01/2004 | 11:54 | 0.25 | 0.666 | -0.014 | 1 | 135.5 | 0 | 61.5 | 61.4 |
| 30/01/2004 | 11:09 | 45.5 | 0.526 | 0.005 | 1.25 | 91.1 | 0.2 | 57.6 | 39.4 |
| 31/01/2004 | 11:24 | 23.25 | 0.491 | -0.001 | 0.5 | 399.9 | 0 | 200.0 | 282.8 |
| 31/01/2004 | 12:24 | 0.75 | 0.491 | 0.011 | 0.75 | 325.2 | 0.3 | 117.2 | 180.6 |
| 31/01/2004 | 13:09 | 0.25 | 0.502 | -0.009 | 0.75 | 9 | 0 | 5.6 | 4.9 |
| 31/01/2004 | 13:54 | 0.25 | 0.493 | -0.002 | 2 | 334.6 | 0.2 | 243.9 | 102.8 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|------------------------|--------------------|------------------------------|--------------------------|-------------------|-------------------|--------------------|---------|
| 03/02/2004 | 10:54 | 67.25 | 0.442 | 0.013 | 0.5 | 10.3 | 0 | 5.2 | 7.3 |
| 03/02/2004 | 12:24 | 1.25 | 0.457 | -0.01 | 0.5 | 89.5 | 0 | 44.8 | 63.3 |
| 03/02/2004 | 15:09 | 2 | 0.443 | 0.005 | 1 | 328.6 | 0 | 130.7 | 141.5 |
| 04/02/2004 | 10:39 | 18.75 | 0.446 | -0.013 | 0.5 | 397 | 0 | 198.5 | 280.7 |
| 04/02/2004 | 11:09 | 0.25 | 0.433 | -0.005 | 1 | 75.1 | 0 | 25.7 | 34.1 |
| 05/02/2004 | 19:39 | 1.75 | 0.556 | -0.002 | 0.5 | 8.3 | 0 | 4.2 | 5.9 |
| 05/02/2004 | 17:09 | 0.25 | 0.505 | 0.007 | 1 | 393.3 | 0 | 238.5 | 168.2 |
| 05/02/2004 | 15:54 | 28 | 0.469 | 0.036 | 1.25 | 408.3 | 0.3 | 226.3 | 181.8 |
| 06/02/2004 | 00:24 | 4.5 | 0.655 | 0.037 | 0.75 | 133.6 | 1.2 | 51.6 | 71.7 |
| 06/02/2004 | 01:09 | 0.25 | 0.692 | -0.025 | 26 | 435.2 | 1.1 | 279.2 | 150.9 |
| 07/02/2004 | 03:24 | 0.5 | 0.664 | -0.012 | 0.75 | 41.9 | 0.7 | 23.9 | 21.1 |
| 07/02/2004 | 05:24 | 0.5 | 0.642 | 0.006 | 0.75 | 41.8 | 2.7 | 27.3 | 21.4 |
| 07/02/2004 | 06:24 | 0.5 | 0.651 | -0.002 | 0.75 | 25.4 | 0 | 13.8 | 12.8 |
| 07/02/2004 | 04:09 | 0.25 | 0.652 | -0.01 | 1 | 63.4 | 0.3 | 32.7 | 26.0 |
| 07/02/2004 | 11:54 | 5 | 0.61 | -0.01 | 1.25 | 244.9 | 0.9 | 139.0 | 99.5 |
| 08/02/2004 | 07:39 | 18.75 | 0.562 | -0.015 | 0.5 | 14.9 | 0 | 7.5 | 10.5 |
| 08/02/2004 | 09:24 | 1.5 | 0.545 | -0.005 | 0.5 | 9.8 | 0 | 4.9 | 6.9 |
| 08/02/2004 | 10:39 | 1 | 0.538 | 0.001 | 0.5 | 17.9 | 0 | 9.0 | 12.7 |
| 08/02/2004 | 12:09 | 1.25 | 0.536 | -0.002 | 0.5 | 7.3 | 0.1 | 3.7 | 5.1 |
| 08/02/2004 | 12:39 | 0.25 | 0.534 | -0.004 | 1.5 | 173.8 | 0.1 | 117.6 | 66.3 |
| 09/02/2004 | 02:09 | 12.25 | 0.511 | 0.003 | 0.5 | 19.6 | 0 | 9.8 | 13.9 |
| 09/02/2004 | 08:54 | 6.5 | 0.499 | 0.001 | 0.75 | 31.7 | 1.5 | 16.7 | 15.1 |
| 09/02/2004 | 11:39 | 2.25 | 0.498 | 0.001 | 1.5 | 423.2 | 0 | 249.0 | 191.0 |
| 10/02/2004 | 10:24 | 21.5 | 0.481 | 0.004 | 0.5 | 26.1 | 0 | 13.1 | 18.5 |
| 10/02/2004 | 13:09 | 2.5 | 0.487 | 0.005 | 0.5 | 16.8 | 0.5 | 8.7 | 11.5 |
| 10/02/2004 | 21:39 | 8.25 | 0.479 | 0 | 0.5 | 22.7 | 0 | 11.4 | 16.1 |
| 11/02/2004 | 10:39 | 4.75 | 0.461 | 0.005 | 0.5 | 18.1 | 0 | 9.1 | 12.8 |
| 11/02/2004 | 14:39 | 3.75 | 0.456 | 0.003 | 0.5 | 136.9 | 0 | 68.5 | 96.8 |
| 11/02/2004 | 22:39 | 3.75 | 0.454 | -0.002 | 0.5 | 28.5 | 1.3 | 14.9 | 19.2 |
| 11/02/2004 | 05:24 | 7.5 | 0.471 | -0.001 | 0.75 | 25.9 | 0 | 16.4 | 14.3 |
| 11/02/2004 | 18:24 | 3.5 | 0.452 | 0.004 | 0.75 | 13.2 | 0 | 6.5 | 6.6 |
| 12/02/2004 | 05:39 | 6.75 | 0.454 | -0.002 | 0.5 | 9.4 | 0 | 4.7 | 6.6 |
| 12/02/2004 | 06:24 | 0.5 | 0.449 | 0.001 | 0.5 | 8.8 | 0 | 4.4 | 6.2 |
| 13/02/2004 | 14:39 | 0.75 | 0.441 | 0.002 | 0.5 | 148.3 | 0 | 74.2 | 104.9 |
| 13/02/2004 | 12:39 | 30 | 0.441 | 0.01 | 1.5 | 390.5 | 0 | 212.5 | 184.1 |
| 14/02/2004 | 17:24 | 6.5 | 0.531 | -0.015 | 0.5 | 6.2 | 0 | 3.1 | 4.4 |
| 14/02/2004 | 19:09 | 1.5 | 0.521 | -0.001 | 0.5 | 5.3 | 0 | 2.7 | 3.7 |
| 14/02/2004 | 22:09 | 2.75 | 0.522 | -0.002 | 0.5 | 98.1 | 0 | 49.1 | 69.4 |
| 14/02/2004 | 09:39 | 18.75 | 0.52 | -0.002 | 1.5 | 422.8 | 0 | 130.9 | 151.8 |
| 15/02/2004 | 03:39 | 5.25 | 0.511 | 0.002 | 0.5 | 58.2 | 0 | 29.1 | 41.2 |
| 15/02/2004 | 06:39 | 2.75 | 0.508 | -0.007 | 0.5 | 37.1 | 0 | 18.6 | 26.2 |
| 16/02/2004 | 15:39 | 4.75 | 0.546 | 0.016 | 0.5 | 152.7 | 0 | 76.4 | 108.0 |
| 16/02/2004 | 22:39 | 1.5 | 0.613 | 0.012 | 0.5 | 25.7 | 0.5 | 13.1 | 17.8 |
| 16/02/2004 | 23:39 | 0.75 | 0.638 | -0.003 | 0.5 | 9.7 | 4.3 | 7.0 | 3.8 |
| 16/02/2004 | 09:09 | 26.25 | 0.502 | -0.003 | 0.75 | 13.3 | 0.1 | 6.5 | 6.6 |
| 16/02/2004 | 10:09 | 0.5 | 0.487 | 0.006 | 1 | 31.7 | 0 | 13.5 | 13.4 |
| 16/02/2004 | 16:09 | 0.25 | 0.562 | 0.032 | 1 | 12.6 | 0 | 7.6 | 5.4 |
| 16/02/2004 | 17:39 | 0.75 | 0.615 | 0.012 | 3.75 | 414.7 | 0.6 | 152.7 | 178.7 |
| 17/02/2004 | 17:39 | 0.75 | 0.658 | -0.005 | 0.5 | 14 | 3 | 8.5 | 7.8 |
| 17/02/2004 | 18:54 | 0.25 | 0.65 | 0.011 | 0.5 | 29.5 | 2.9 | 16.2 | 18.8 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|------------------------|--------------------|------------------------------|--------------------------|-------------------|-------------------|--------------------|---------|
| 17/02/2004 | 19:39 | 0.5 | 0.653 | -0.013 | 0.5 | 61.6 | 0 | 30.8 | 43.6 |
| 17/02/2004 | 20:39 | 0.75 | 0.633 | 0.019 | 0.5 | 5.4 | 1.1 | 3.3 | 3.0 |
| 17/02/2004 | 23:54 | 3 | 0.618 | 0.012 | 0.5 | 20.3 | 0 | 10.2 | 14.4 |
| 17/02/2004 | 18:09 | 0.25 | 0.653 | -0.003 | 0.75 | 19.8 | 0 | 11.0 | 10.1 |
| 17/02/2004 | 04:09 | 0.25 | 0.71 | -0.027 | 1 | 121.4 | 0 | 77.9 | 53.4 |
| 17/02/2004 | 05:09 | 0.25 | 0.683 | -0.001 | 1 | 53.8 | 0.4 | 40.5 | 26.7 |
| 17/02/2004 | 10:09 | 0.25 | 0.672 | 0.005 | 1 | 108 | 0.1 | 57.0 | 44.2 |
| 17/02/2004 | 16:09 | 0.25 | 0.669 | -0.001 | 1 | 39.5 | 0 | 23.3 | 19.5 |
| 17/02/2004 | 06:09 | 0.25 | 0.682 | -0.007 | 2 | 133.1 | 0.3 | 64.0 | 41.2 |
| 17/02/2004 | 08:09 | 0.25 | 0.675 | -0.003 | 2 | 120.9 | 1.7 | 57.4 | 43.4 |
| 17/02/2004 | 00:39 | 0.75 | 0.67 | 0.04 | 3.5 | 400.1 | 0.5 | 169.2 | 139.6 |
| 17/02/2004 | 11:09 | 0.25 | 0.677 | -0.008 | 5 | 400.4 | 0 | 168.0 | 135.4 |
| 18/02/2004 | 01:24 | 1.25 | 0.621 | -0.007 | 0.5 | 38.9 | 0 | 19.5 | 27.5 |
| 19/02/2004 | 10:39 | 33 | 0.507 | -0.001 | 0.5 | 121.3 | 4.1 | 62.7 | 82.9 |
| 19/02/2004 | 12:24 | 1.5 | 0.504 | -0.003 | 0.5 | 7.2 | 0 | 3.6 | 5.1 |
| 20/02/2004 | 00:39 | 12 | 0.479 | 0.001 | 0.5 | 63.4 | 0.1 | 31.8 | 44.8 |
| 20/02/2004 | 14:24 | 13.5 | 0.463 | 0 | 0.5 | 10.7 | 0 | 5.4 | 7.6 |
| 21/02/2004 | 11:24 | 20.75 | 0.455 | -0.015 | 0.5 | 8.1 | 0.8 | 4.5 | 5.2 |
| 21/02/2004 | 11:54 | 0.25 | 0.44 | -0.001 | 1.25 | 425.2 | 0 | 256.3 | 229.1 |
| 22/02/2004 | 09:24 | 20.5 | 0.419 | 0 | 0.75 | 227.9 | 0 | 77.9 | 129.9 |
| 23/02/2004 | 12:09 | 26.25 | 0.416 | 0.001 | 1 | 35 | 0.4 | 20.3 | 15.0 |
| 25/02/2004 | 11:09 | 46.25 | 0.433 | -0.012 | 1 | 6.2 | 0 | 4.4 | 3.0 |
| 26/02/2004 | 11:24 | 0.25 | 0.415 | 0 | 1 | 184.4 | 0 | 127.5 | 85.6 |
| 26/02/2004 | 10:09 | 22.25 | 0.414 | 0.001 | 1.25 | 375.4 | 0 | 238.5 | 141.0 |
| 27/02/2004 | 14:09 | 26 | 0.395 | 0.002 | 1.25 | 160.3 | 0 | 120.5 | 67.9 |
| 29/02/2004 | 16:24 | 49.25 | 0.378 | -0.004 | 0.75 | 33.5 | 0.1 | 17.0 | 16.7 |
| 01/03/2004 | 14:24 | 21.5 | 0.365 | 0 | 1 | 278.9 | 0.2 | 191.8 | 129.7 |
| 01/03/2004 | 17:24 | 2.25 | 0.377 | -0.011 | 1 | 425.2 | 0 | 248.4 | 210.5 |
| 03/03/2004 | 10:24 | 40.25 | 0.386 | 0.002 | 1 | 154.5 | 0 | 96.8 | 70.8 |
| 03/03/2004 | 23:24 | 12.25 | 0.421 | 0.004 | 1 | 411.2 | 0.4 | 307.1 | 204.4 |
| 04/03/2004 | 02:54 | 0.75 | 0.434 | 0.003 | 0.5 | 15.1 | 1.3 | 8.2 | 9.8 |
| 04/03/2004 | 04:54 | 0.25 | 0.442 | -0.003 | 0.5 | 11.7 | 3 | 7.4 | 6.2 |
| 04/03/2004 | 07:39 | 0.5 | 0.445 | -0.001 | 0.5 | 11 | 1.8 | 6.4 | 6.5 |
| 04/03/2004 | 09:24 | 0.25 | 0.448 | 0 | 0.5 | 6.9 | 4.5 | 5.7 | 1.7 |
| 04/03/2004 | 23:54 | 2.75 | 0.451 | 0 | 0.5 | 6.4 | 2 | 4.2 | 3.1 |
| 04/03/2004 | 04:09 | 1 | 0.435 | 0.007 | 0.75 | 35.6 | 0 | 14.8 | 18.6 |
| 04/03/2004 | 01:09 | 1 | 0.439 | -0.01 | 1.25 | 41.5 | 0 | 19.1 | 16.1 |
| 04/03/2004 | 06:09 | 1 | 0.458 | -0.007 | 1.25 | 174.2 | 0 | 81.7 | 66.1 |
| 04/03/2004 | 08:09 | 0.25 | 0.444 | 0.004 | 1.25 | 239.3 | 1.9 | 114.2 | 88.3 |
| 04/03/2004 | 10:09 | 0.5 | 0.452 | 0.01 | 1.25 | 83.8 | 3.1 | 49.2 | 30.7 |
| 04/03/2004 | 12:09 | 1 | 0.452 | 0 | 1.25 | 44.9 | 2.9 | 28.0 | 15.4 |
| 04/03/2004 | 14:09 | 1 | 0.469 | -0.013 | 1.25 | 36.7 | 0 | 18.7 | 13.5 |
| 04/03/2004 | 16:09 | 1 | 0.467 | -0.011 | 1.25 | 20.7 | 0 | 16.6 | 9.3 |
| 04/03/2004 | 18:09 | 1 | 0.454 | -0.001 | 1.25 | 64.6 | 0.3 | 21.9 | 25.4 |
| 04/03/2004 | 20:09 | 1 | 0.455 | -0.003 | 1.25 | 19 | 0 | 11.3 | 7.3 |
| 05/03/2004 | 03:24 | 3.25 | 0.475 | 0.013 | 0.5 | 5.1 | 2.3 | 3.7 | 2.0 |
| 05/03/2004 | 06:39 | 0.5 | 0.623 | 0.017 | 0.5 | 46.8 | 0.8 | 23.8 | 32.5 |
| 05/03/2004 | 05:09 | 1.5 | 0.549 | 0.063 | 1.25 | 60.6 | 0 | 33.2 | 26.6 |
| 05/03/2004 | 18:39 | 0.25 | 0.61 | -0.004 | 2.25 | 70.5 | 3.4 | 31.3 | 26.9 |
| 05/03/2004 | 20:54 | 0.25 | 0.606 | -0.045 | 4.75 | 185.5 | 4.7 | 48.7 | 46.5 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 05/03/2004 | 07:09 | 0.25 | 0.64 | -0.03 | 11.5 | 247.6 | 2.1 | 93.5 | 61.1 |
| 06/03/2004 | 09:39 | 2.5 | 0.519 | -0.001 | 0.5 | 13.4 | 1.1 | 7.3 | 8.7 |
| 06/03/2004 | 11:54 | 0.25 | 0.51 | -0.001 | 0.75 | 8.7 | 0.7 | 5.6 | 4.3 |
| 06/03/2004 | 01:39 | 0.25 | 0.561 | -0.01 | 1.75 | 32 | 0.8 | 19.1 | 13.3 |
| 06/03/2004 | 10:09 | 0.25 | 0.518 | -0.008 | 1.75 | 83.2 | 1.2 | 42.2 | 29.2 |
| 06/03/2004 | 12:54 | 0.5 | 0.519 | 0 | 2.5 | 81.3 | 3.2 | 30.4 | 24.6 |
| 06/03/2004 | 03:39 | 0.5 | 0.549 | -0.022 | 3.75 | 175.5 | 3.4 | 53.8 | 47.2 |
| 06/03/2004 | 16:24 | 1.25 | 0.505 | 0.139 | 42.5 | 426.9 | 0.4 | 138.3 | 102.9 |
| 08/03/2004 | 10:54 | 0.25 | 0.644 | -0.032 | 4.75 | 131.3 | 2.4 | 58.3 | 37.1 |
| 08/03/2004 | 15:39 | 0.25 | 0.612 | 0.061 | 6 | 189 | 4.9 | 84.7 | 61.8 |
| 08/03/2004 | 21:39 | 0.25 | 0.673 | 0.022 | 10.75 | 444.7 | 0.2 | 226.1 | 150.2 |
| 09/03/2004 | 13:09 | 2 | 0.667 | 0.002 | 0.5 | 12 | 0 | 6.0 | 8.5 |
| 09/03/2004 | 23:39 | 7.5 | 0.6 | 0.009 | 0.5 | 10 | 0 | 5.0 | 7.1 |
| 09/03/2004 | 10:24 | 0.25 | 0.672 | -0.006 | 1 | 133.5 | 0 | 54.4 | 63.8 |
| 09/03/2004 | 14:39 | 1.25 | 0.647 | -0.011 | 1.75 | 184.2 | 0 | 54.1 | 67.0 |
| 09/03/2004 | 08:24 | 0.25 | 0.695 | -0.023 | 2 | 90.6 | 0.8 | 72.0 | 32.1 |
| 10/03/2004 | 10:09 | 10.25 | 0.551 | 0.001 | 0.5 | 16.9 | 0 | 8.5 | 12.0 |
| 10/03/2004 | 11:54 | 0.75 | 0.541 | -0.001 | 0.5 | 13.3 | 0 | 6.7 | 9.4 |
| 10/03/2004 | 10:39 | 0.25 | 0.552 | -0.005 | 0.75 | 340.7 | 3.1 | 207.1 | 179.5 |
| 10/03/2004 | 12:24 | 0.25 | 0.54 | 0 | 1 | 133.7 | 0 | 87.5 | 61.1 |
| 11/03/2004 | 11:24 | 22.25 | 0.481 | -0.006 | 0.75 | 49.4 | 0 | 32.6 | 28.2 |
| 13/03/2004 | 11:09 | 47.25 | 0.425 | 0.014 | 1.25 | 426 | 0 | 340.8 | 190.5 |
| 14/03/2004 | 11:24 | 0.75 | 0.42 | 0.011 | 0.5 | 23.8 | 0 | 11.9 | 16.8 |
| 14/03/2004 | 09:54 | 21.75 | 0.42 | 0.002 | 1 | 68.9 | 0 | 25.6 | 29.9 |
| 17/03/2004 | 11:39 | 72 | 0.492 | -0.001 | 0.75 | 145.2 | 0 | 93.2 | 80.9 |
| 18/03/2004 | 03:09 | 15 | 0.708 | -0.02 | 5.25 | 436.2 | 2.6 | 280.7 | 173.0 |
| 18/03/2004 | 08:24 | 0.25 | 0.688 | 0 | 16 | 426.6 | 1.5 | 297.7 | 155.1 |
| 19/03/2004 | 10:24 | 4.25 | 0.628 | -0.012 | 0.5 | 17.4 | 0 | 8.7 | 12.3 |
| 19/03/2004 | 11:54 | 0.25 | 0.616 | 0 | 0.5 | 6.3 | 0 | 3.2 | 4.5 |
| 19/03/2004 | 02:39 | 0.25 | 0.685 | -0.013 | 0.75 | 50.5 | 0 | 33.7 | 29.2 |
| 19/03/2004 | 03:39 | 0.5 | 0.665 | -0.008 | 0.75 | 39.4 | 1.4 | 19.4 | 19.1 |
| 19/03/2004 | 04:39 | 0.5 | 0.657 | -0.009 | 0.75 | 43.7 | 0.2 | 19.6 | 22.1 |
| 19/03/2004 | 11:09 | 0.5 | 0.622 | -0.006 | 0.75 | 16.6 | 0 | 7.5 | 8.4 |
| 19/03/2004 | 00:24 | 0.25 | 0.688 | -0.003 | 1 | 402.8 | 0 | 299.5 | 199.7 |
| 19/03/2004 | 05:24 | 0.25 | 0.648 | -0.003 | 1 | 25.3 | 0.5 | 11.8 | 10.2 |
| 19/03/2004 | 01:24 | 0.25 | 0.685 | 0 | 1.25 | 104 | 0.9 | 51.1 | 49.1 |
| 21/03/2004 | 09:39 | 45.5 | 0.514 | -0.002 | 0.75 | 13.7 | 0 | 6.9 | 6.9 |
| 22/03/2004 | 11:24 | 25.25 | 0.488 | -0.005 | 1 | 18 | 0 | 9.4 | 7.4 |
| 23/03/2004 | 03:09 | 15 | 0.477 | -0.015 | 0.5 | 6.9 | 0 | 3.5 | 4.9 |
| 23/03/2004 | 07:24 | 4 | 0.458 | 0.012 | 0.5 | 17.6 | 0.1 | 8.9 | 12.4 |
| 24/03/2004 | 08:54 | 1.25 | 0.609 | 0.006 | 0.5 | 6.1 | 0 | 3.1 | 4.3 |
| 24/03/2004 | 06:54 | 23.25 | 0.601 | 0.028 | 1 | 5.9 | 1.5 | 4.5 | 2.0 |
| 26/03/2004 | 08:24 | 46.5 | 0.518 | -0.003 | 1.25 | 94.2 | 0 | 44.4 | 41.3 |
| 29/03/2004 | 19:54 | 0.75 | 0.427 | -0.014 | 0.5 | 104.6 | 0 | 52.3 | 74.0 |
| 29/03/2004 | 18:39 | 4.25 | 0.41 | 0.004 | 0.75 | 42.5 | 0.1 | 18.8 | 21.6 |
| 29/03/2004 | 13:39 | 76.25 | 0.42 | -0.002 | 1 | 430.9 | 0 | 323.1 | 215.4 |
| 31/03/2004 | 11:39 | 39.5 | 0.424 | 0 | 1 | 262.7 | 0 | 173.8 | 123.9 |
| 31/03/2004 | 13:24 | 1 | 0.423 | 0.002 | 1.25 | 43.7 | 0 | 19.6 | 16.9 |
| 03/04/2004 | 09:09 | 66.75 | 0.375 | 0 | 0.5 | 26.4 | 0 | 13.2 | 18.7 |
| 04/04/2004 | 08:54 | 23.5 | 0.377 | -0.012 | 0.75 | 10.5 | 0 | 6.6 | 5.7 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 04/04/2004 | 11:39 | 2.25 | 0.364 | 0.001 | 1 | 24.6 | 0 | 10.7 | 10.5 |
| 06/04/2004 | 12:39 | 48.25 | 0.346 | 0.001 | 1 | 53.2 | 0 | 36.6 | 24.6 |
| 07/04/2004 | 12:54 | 23.5 | 0.342 | 0.001 | 0.75 | 145.1 | 0 | 51.6 | 81.1 |
| 08/04/2004 | 10:24 | 21 | 0.337 | 0.002 | 1.25 | 266.5 | 0 | 174.8 | 111.1 |
| 10/04/2004 | 10:24 | 47 | 0.327 | 0.001 | 1.25 | 199.5 | 0 | 144.9 | 86.2 |
| 12/04/2004 | 12:54 | 2.5 | 0.314 | 0 | 0.75 | 68.7 | 0 | 28.8 | 35.7 |
| 12/04/2004 | 09:39 | 46.25 | 0.32 | 0.009 | 1 | 37 | 0 | 23.4 | 16.4 |
| 14/04/2004 | 09:54 | 44.5 | 0.329 | 0 | 0.75 | 22.1 | 0 | 12.5 | 11.3 |
| 15/04/2004 | 15:54 | 29.5 | 0.322 | 0.012 | 0.75 | 142.2 | 0 | 87.7 | 76.7 |
| 18/04/2004 | 10:09 | 65.75 | 0.312 | 0.001 | 0.5 | 38.6 | 1.4 | 20.0 | 26.3 |
| 23/04/2004 | 11:24 | 121 | 0.376 | 0.002 | 0.5 | 111 | 0 | 55.5 | 78.5 |
| 24/04/2004 | 10:54 | 23.25 | 0.357 | -0.001 | 0.5 | 6.5 | 0.6 | 3.6 | 4.2 |
| 24/04/2004 | 12:09 | 1 | 0.351 | -0.001 | 1.75 | 125.4 | 3.5 | 83.6 | 45.6 |
| 24/04/2004 | 14:09 | 0.5 | 0.352 | -0.003 | 2.75 | 305.3 | 0.6 | 173.9 | 93.5 |
| 26/04/2004 | 13:09 | 44.5 | 0.35 | -0.017 | 1.75 | 211.5 | 0 | 98.2 | 76.4 |
| 27/04/2004 | 08:54 | 18.25 | 0.338 | 0.005 | 1 | 269.7 | 0 | 168.4 | 128.0 |
| 28/04/2004 | 11:39 | 26 | 0.357 | -0.001 | 1.25 | 435.1 | 0 | 282.3 | 208.7 |
| 28/04/2004 | 13:54 | 1.25 | 0.357 | -0.002 | 2 | 435.9 | 0 | 267.7 | 162.1 |
| 29/04/2004 | 07:24 | 15.75 | 0.345 | 0.012 | 0.5 | 22.6 | 0 | 11.3 | 16.0 |
| 30/04/2004 | 11:39 | 28 | 0.349 | -0.015 | 1.25 | 20.5 | 0 | 12.1 | 8.7 |
| 02/05/2004 | 12:24 | 47.75 | 0.336 | 0.012 | 0.5 | 52.7 | 2.3 | 27.5 | 35.6 |
| 05/05/2004 | 09:09 | 68.5 | 0.365 | | 0.5 | 13.4 | 0 | 6.7 | 9.5 |
| 25/01/2005 | 16:45 | 2135 | 0.656 | -0.003 | 0.5 | 6.5 | 0.7 | 3.6 | 4.1 |
| 26/01/2005 | 08:15 | 4.75 | 0.588 | -0.003 | 0.5 | 163.8 | 0 | 81.9 | 115.8 |
| 26/01/2005 | 13:15 | 0.75 | 0.575 | -0.001 | 0.5 | 10 | 1 | 5.5 | 6.4 |
| 26/01/2005 | 16:15 | 2.75 | 0.567 | 0.002 | 0.5 | 6.4 | 4 | 5.2 | 1.7 |
| 26/01/2005 | 03:00 | 10 | 0.608 | 0.001 | 0.75 | 39.1 | 0 | 15.1 | 21.0 |
| 26/01/2005 | 11:00 | 0.5 | 0.578 | 0.001 | 0.75 | 23.9 | 1.5 | 13.8 | 11.4 |
| 26/01/2005 | 08:45 | 0.25 | 0.585 | 0 | 1 | 28 | 4.9 | 14.5 | 10.6 |
| 26/01/2005 | 09:45 | 0.25 | 0.585 | -0.006 | 1 | 41.7 | 1.6 | 28.3 | 18.1 |
| 26/01/2005 | 11:45 | 0.25 | 0.579 | -0.002 | 1 | 17.3 | 3.6 | 10.1 | 5.6 |
| 27/01/2005 | 01:15 | 8.75 | 0.57 | 0.001 | 0.5 | 5.3 | 2 | 3.7 | 2.3 |
| 27/01/2005 | 12:15 | 0.75 | 0.675 | -0.011 | 0.5 | 16.9 | 3.4 | 10.2 | 9.5 |
| 27/01/2005 | 05:00 | 0.25 | 0.635 | 0.019 | 0.75 | 15.8 | 3.5 | 11.4 | 6.9 |
| 27/01/2005 | 06:00 | 0.5 | 0.661 | 0.009 | 0.75 | 11.8 | 4.8 | 7.5 | 3.7 |
| 27/01/2005 | 04:00 | 2.5 | 0.614 | 0.021 | 1 | 6.5 | 5 | 5.5 | 0.7 |
| 27/01/2005 | 12:45 | 0.25 | 0.664 | -0.013 | 1 | 53.8 | 0.5 | 39.9 | 26.3 |
| 27/01/2005 | 07:00 | 0.5 | 0.675 | -0.008 | 4.75 | 338.8 | 4 | 59.9 | 100.8 |
| 28/01/2005 | 01:30 | 12 | 0.583 | -0.001 | 0.5 | 6.7 | 0.3 | 3.5 | 4.5 |
| 28/01/2005 | 08:00 | 2.75 | 0.554 | 0.004 | 0.5 | 6.4 | 3.1 | 4.8 | 2.3 |
| 28/01/2005 | 09:15 | 1 | 0.552 | -0.003 | 0.5 | 10.9 | 0 | 5.5 | 7.7 |
| 28/01/2005 | 04:30 | 2.75 | 0.569 | -0.006 | 1 | 8.8 | 0 | 6.1 | 4.1 |
| 28/01/2005 | 15:45 | 0.25 | 0.532 | 0.002 | 1 | 106.9 | 0 | 66.8 | 46.5 |
| 28/01/2005 | 14:30 | 5 | 0.54 | -0.008 | 1.25 | 311.1 | 0.1 | 108.4 | 118.4 |
| 29/01/2005 | 12:00 | 1.5 | 0.492 | -0.001 | 0.5 | 18.5 | 0.2 | 9.4 | 12.9 |
| 29/01/2005 | 13:45 | 0.25 | 0.497 | -0.005 | 0.5 | 6.3 | 1.7 | 4.0 | 3.3 |
| 29/01/2005 | 19:15 | 4 | 0.494 | -0.002 | 0.5 | 15.5 | 2.3 | 8.9 | 9.3 |
| 29/01/2005 | 00:00 | 7.5 | 0.516 | -0.003 | 0.75 | 15 | 0.4 | 7.9 | 7.3 |
| 29/01/2005 | 10:00 | 5.5 | 0.494 | -0.001 | 0.75 | 17.1 | 0.1 | 9.0 | 8.5 |
| 29/01/2005 | 14:45 | 0.75 | 0.495 | -0.001 | 0.75 | 5.4 | 1.7 | 4.1 | 2.1 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 29/01/2005 | 03:45 | 3.25 | 0.504 | -0.001 | 1 | 61.2 | 4.1 | 35.4 | 23.7 |
| 29/01/2005 | 12:45 | 0.5 | 0.491 | 0.006 | 1 | 20.2 | 3.8 | 12.4 | 6.8 |
| 30/01/2005 | 00:15 | 4.75 | 0.488 | -0.002 | 0.5 | 15.5 | 3.5 | 9.5 | 8.5 |
| 30/01/2005 | 11:45 | 1.25 | 0.481 | 0.002 | 0.75 | 68.1 | 1.6 | 45.3 | 37.9 |
| 30/01/2005 | 08:45 | 8.25 | 0.481 | 0 | 1 | 139.3 | 3.9 | 87.9 | 58.5 |
| 30/01/2005 | 09:45 | 0.25 | 0.481 | 0.003 | 1 | 412.3 | 1.5 | 303.1 | 201.2 |
| 31/01/2005 | 02:15 | 14 | 0.65 | 0.017 | 0.5 | 8.5 | 4.3 | 6.4 | 3.0 |
| 31/01/2005 | 14:15 | 0.75 | 0.681 | -0.007 | 0.5 | 158.4 | 3.1 | 80.8 | 109.8 |
| 31/01/2005 | 17:45 | 2.25 | 0.654 | 0.007 | 0.5 | 8.4 | 0.2 | 4.3 | 5.8 |
| 31/01/2005 | 18:15 | 0.25 | 0.661 | -0.003 | 0.5 | 5.8 | 1.4 | 3.6 | 3.1 |
| 31/01/2005 | 09:00 | 0.5 | 0.725 | 0.001 | 0.75 | 22.8 | 2.2 | 10.8 | 10.7 |
| 31/01/2005 | 11:00 | 0.5 | 0.714 | -0.005 | 0.75 | 10.6 | 3.7 | 6.5 | 3.6 |
| 31/01/2005 | 15:00 | 0.5 | 0.674 | -0.01 | 0.75 | 48.3 | 2.8 | 24.5 | 22.8 |
| 31/01/2005 | 04:45 | 0.25 | 0.684 | 0.001 | 1 | 36.5 | 1.7 | 13.5 | 15.6 |
| 31/01/2005 | 05:45 | 0.25 | 0.685 | 0.021 | 1 | 19.8 | 4.2 | 11.7 | 7.7 |
| 31/01/2005 | 09:45 | 0.25 | 0.726 | -0.012 | 1 | 35 | 4.4 | 15.1 | 13.6 |
| 31/01/2005 | 12:45 | 1.25 | 0.695 | -0.01 | 1 | 32.3 | 4.9 | 13.2 | 12.9 |
| 31/01/2005 | 07:00 | 0.5 | 0.706 | 0.019 | 1.75 | 27.7 | 2.6 | 16.0 | 10.4 |
| 31/01/2005 | 02:45 | 0.25 | 0.667 | 0.017 | 2 | 27.4 | 2.7 | 15.1 | 10.0 |
| 31/01/2005 | 19:30 | 1 | 0.678 | 0.064 | 76.25 | 444.8 | 2.6 | 355.3 | 132.9 |
| 04/02/2005 | 02:45 | 1 | 0.717 | 0 | 0.5 | 7.7 | 3.8 | 5.8 | 2.8 |
| 04/02/2005 | 05:00 | 2 | 0.702 | -0.001 | 0.5 | 7.4 | 4.6 | 6.0 | 2.0 |
| 04/02/2005 | 05:45 | 0.5 | 0.702 | -0.004 | 0.5 | 10 | 4.2 | 7.1 | 4.1 |
| 04/02/2005 | 00:45 | 1.25 | 0.737 | -0.016 | 1.25 | 14.7 | 1.3 | 8.4 | 5.0 |
| 05/02/2005 | 12:15 | 30.25 | 0.591 | -0.002 | 0.5 | 20.8 | 0.5 | 10.7 | 14.4 |
| 05/02/2005 | 13:00 | 0.5 | 0.591 | -0.003 | 0.75 | 214.6 | 0.5 | 137.5 | 118.9 |
| 05/02/2005 | 14:00 | 0.5 | 0.586 | -0.001 | 0.75 | 26.6 | 1.2 | 15.9 | 13.2 |
| 05/02/2005 | 20:45 | 6.25 | 0.578 | -0.001 | 0.75 | 13.8 | 0.1 | 6.9 | 6.9 |
| 06/02/2005 | 08:15 | 11 | 0.58 | 0.001 | 0.5 | 7.3 | 4.8 | 6.1 | 1.8 |
| 07/02/2005 | 13:15 | 28.75 | 0.508 | 0 | 0.5 | 59.2 | 0 | 29.6 | 41.9 |
| 07/02/2005 | 13:45 | 0.25 | 0.508 | 0.002 | 1 | 15.3 | 0 | 6.8 | 6.3 |
| 08/02/2005 | 09:00 | 18.5 | 0.478 | 0.001 | 0.75 | 77.1 | 0 | 50.0 | 43.4 |
| 12/02/2005 | 10:45 | 97.25 | 0.517 | 0.003 | 0.5 | 5.6 | 1.7 | 3.7 | 2.8 |
| 12/02/2005 | 11:15 | 0.25 | 0.52 | 0.003 | 0.5 | 6.9 | 2.6 | 4.8 | 3.0 |
| 12/02/2005 | 15:15 | 2.5 | 0.527 | 0.003 | 0.5 | 12.6 | 2.6 | 7.6 | 7.1 |
| 12/02/2005 | 12:15 | 0.75 | 0.522 | -0.001 | 0.75 | 7 | 4.4 | 5.6 | 1.3 |
| 14/02/2005 | 09:45 | 42.25 | 0.464 | -0.001 | 0.5 | 14.2 | 0 | 7.1 | 10.0 |
| 14/02/2005 | 10:15 | 0.25 | 0.463 | 0 | 0.5 | 9.6 | 4.6 | 7.1 | 3.5 |
| 24/02/2005 | 10:00 | 239.5 | 0.366 | 0 | 0.75 | 17.8 | 0 | 10.0 | 9.1 |
| 25/02/2005 | 12:45 | 3.25 | 0.382 | -0.004 | 0.5 | 6.3 | 0.8 | 3.6 | 3.9 |
| 25/02/2005 | 08:30 | 22 | 0.375 | 0.001 | 1.25 | 29.4 | 0.6 | 16.8 | 11.4 |
| 27/02/2005 | 08:30 | 43.5 | 0.381 | 0 | 0.5 | 20.8 | 0 | 10.4 | 14.7 |
| 27/02/2005 | 09:15 | 0.5 | 0.382 | 0.002 | 0.75 | 5.6 | 0.5 | 3.7 | 2.8 |
| 01/03/2005 | 18:30 | 56.75 | 0.475 | 0.021 | 6.25 | 17.8 | 4.7 | 10.9 | 3.7 |
| 02/03/2005 | 00:45 | 0.25 | 0.496 | 0 | 0.5 | 5.6 | 4.8 | 5.2 | 0.6 |
| 02/03/2005 | 04:15 | 2 | 0.487 | -0.005 | 0.5 | 5.3 | 3 | 4.2 | 1.6 |
| 02/03/2005 | 01:45 | 0.75 | 0.497 | -0.004 | 0.75 | 5.3 | 5 | 5.2 | 0.2 |
| 03/03/2005 | 14:15 | 33.75 | 0.434 | -0.004 | 0.5 | 6.1 | 0.4 | 3.3 | 4.0 |
| 05/03/2005 | 10:45 | 44.25 | 0.591 | 0.105 | 15.5 | 442.3 | 5 | 182.4 | 181.0 |
| 06/03/2005 | 03:30 | 0.5 | 0.688 | -0.004 | 0.5 | 9.5 | 4.4 | 7.0 | 3.6 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 06/03/2005 | 07:30 | 0.75 | 0.661 | 0.001 | 0.5 | 5.4 | 4.1 | 4.8 | 0.9 |
| 06/03/2005 | 08:00 | 0.25 | 0.662 | -0.002 | 0.5 | 5.6 | 3.1 | 4.4 | 1.8 |
| 06/03/2005 | 08:30 | 0.25 | 0.66 | -0.009 | 0.5 | 12.8 | 3.1 | 8.0 | 6.9 |
| 06/03/2005 | 11:30 | 0.75 | 0.641 | -0.006 | 0.5 | 10.4 | 3 | 6.7 | 5.2 |
| 06/03/2005 | 18:30 | 0.5 | 0.627 | -0.001 | 0.5 | 6.5 | 2.6 | 4.6 | 2.8 |
| 06/03/2005 | 21:15 | 2.5 | 0.622 | -0.003 | 0.5 | 9.7 | 4.6 | 7.2 | 3.6 |
| 06/03/2005 | 04:15 | 0.5 | 0.689 | -0.014 | 0.75 | 16.5 | 3.7 | 10.6 | 6.5 |
| 06/03/2005 | 09:15 | 0.5 | 0.65 | -0.005 | 0.75 | 41.7 | 3.3 | 17.7 | 20.9 |
| 06/03/2005 | 15:15 | 0.5 | 0.63 | -0.009 | 0.75 | 17.2 | 1.5 | 10.4 | 8.1 |
| 06/03/2005 | 02:15 | 0.25 | 0.696 | -0.012 | 1 | 7.8 | 2.5 | 5.3 | 2.2 |
| 06/03/2005 | 05:00 | 0.25 | 0.675 | -0.004 | 1 | 29.3 | 2 | 16.7 | 11.7 |
| 06/03/2005 | 06:00 | 0.25 | 0.671 | -0.003 | 1 | 24.6 | 4.7 | 13.5 | 8.7 |
| 06/03/2005 | 10:00 | 0.25 | 0.645 | -0.007 | 1 | 10.5 | 2.8 | 6.4 | 3.2 |
| 06/03/2005 | 16:00 | 0.25 | 0.621 | 0.001 | 1 | 13.9 | 2.1 | 9.4 | 5.5 |
| 06/03/2005 | 17:15 | 0.5 | 0.622 | -0.002 | 1 | 7.6 | 4.4 | 6.0 | 1.3 |
| 06/03/2005 | 13:45 | 2 | 0.627 | -0.001 | 1.25 | 10.3 | 4.8 | 7.0 | 2.1 |
| 06/03/2005 | 23:45 | 2.25 | 0.639 | 0.07 | 10.25 | 127.6 | 3.8 | 40.0 | 27.4 |
| 07/03/2005 | 20:15 | 1 | 0.638 | -0.003 | 0.5 | 8.1 | 0.7 | 4.4 | 5.2 |
| 07/03/2005 | 18:45 | 0.5 | 0.641 | 0.002 | 0.75 | 9 | 1 | 5.0 | 4.0 |
| 07/03/2005 | 16:45 | 1 | 0.655 | -0.01 | 1.75 | 10.4 | 2.1 | 8.1 | 2.8 |
| 07/03/2005 | 20:45 | 0.25 | 0.635 | -0.01 | 2.25 | 111.3 | 3.1 | 42.7 | 41.8 |
| 07/03/2005 | 13:15 | 0.5 | 0.682 | -0.02 | 2.75 | 25.5 | 4.3 | 12.7 | 6.9 |
| 07/03/2005 | 10:00 | 0.25 | 0.709 | -0.026 | 3 | 39.9 | 1.3 | 22.8 | 11.8 |
| 08/03/2005 | 04:00 | 0.25 | 0.615 | 0.004 | 0.5 | 9.2 | 0.3 | 4.8 | 6.3 |
| 08/03/2005 | 03:15 | 2.5 | 0.613 | 0.002 | 0.75 | 7.7 | 4.1 | 6.3 | 1.9 |
| 08/03/2005 | 00:00 | 1.25 | 0.617 | -0.006 | 1 | 9.8 | 2.7 | 6.6 | 3.0 |
| 08/03/2005 | 05:45 | 1.5 | 0.634 | 0.046 | 1.5 | 18.9 | 4.8 | 11.5 | 5.3 |
| 08/03/2005 | 07:15 | 0.25 | 0.68 | 0.03 | 28.75 | 443.2 | 4.4 | 255.4 | 176.8 |
| 09/03/2005 | 20:00 | 0.25 | 0.668 | -0.006 | 0.5 | 14.6 | 3 | 8.8 | 8.2 |
| 09/03/2005 | 19:15 | 0.5 | 0.673 | -0.005 | 0.75 | 12.4 | 3.7 | 8.5 | 4.4 |
| 09/03/2005 | 21:00 | 0.75 | 0.665 | -0.006 | 0.75 | 9 | 2.5 | 6.3 | 3.4 |
| 09/03/2005 | 23:15 | 0.5 | 0.648 | 0.002 | 0.75 | 8.1 | 1.9 | 5.3 | 3.2 |
| 09/03/2005 | 14:00 | 0.25 | 0.702 | 0 | 1 | 12.7 | 3.7 | 7.8 | 3.9 |
| 09/03/2005 | 17:45 | 0.5 | 0.681 | -0.012 | 1.25 | 10.1 | 4.8 | 7.4 | 2.3 |
| 09/03/2005 | 21:45 | 0.25 | 0.659 | -0.013 | 1.25 | 9.1 | 3.8 | 6.8 | 2.1 |
| 09/03/2005 | 12:00 | 0.25 | 0.71 | -0.008 | 2 | 15.3 | 4.9 | 9.3 | 3.9 |
| 09/03/2005 | 15:00 | 0.25 | 0.702 | -0.017 | 2.5 | 33.5 | 1.6 | 12.7 | 8.7 |
| 10/03/2005 | 07:15 | 1.5 | 0.608 | -0.001 | 0.5 | 7.2 | 1.1 | 4.2 | 4.3 |
| 10/03/2005 | 08:45 | 1.25 | 0.607 | -0.005 | 0.5 | 5.1 | 2.3 | 3.7 | 2.0 |
| 10/03/2005 | 09:30 | 0.5 | 0.598 | -0.004 | 0.5 | 6.4 | 4.8 | 5.6 | 1.1 |
| 10/03/2005 | 12:00 | 2.25 | 0.589 | 0.002 | 0.5 | 8.6 | 3.3 | 6.0 | 3.7 |
| 10/03/2005 | 12:30 | 0.25 | 0.591 | -0.007 | 0.5 | 111.1 | 5 | 58.1 | 75.0 |
| 10/03/2005 | 14:15 | 1.5 | 0.582 | 0 | 0.5 | 7.2 | 3.6 | 5.4 | 2.5 |
| 10/03/2005 | 15:30 | 1 | 0.575 | 0.003 | 0.5 | 7.1 | 2 | 4.6 | 3.6 |
| 10/03/2005 | 18:15 | 0.25 | 0.565 | 0 | 0.5 | 5.3 | 3.7 | 4.5 | 1.1 |
| 10/03/2005 | 19:45 | 1.25 | 0.564 | 0.003 | 0.5 | 5.4 | 0.5 | 3.0 | 3.5 |
| 10/03/2005 | 01:00 | 1.25 | 0.637 | -0.004 | 1 | 6.8 | 4.6 | 6.0 | 1.0 |
| 10/03/2005 | 04:45 | 3 | 0.615 | 0 | 1.25 | 8.6 | 2.1 | 6.3 | 2.5 |
| 10/03/2005 | 17:00 | 1.25 | 0.575 | -0.01 | 1.25 | 13.6 | 4.2 | 7.4 | 3.6 |
| 11/03/2005 | 02:15 | 0.5 | 0.568 | -0.001 | 0.5 | 5.6 | 1.9 | 3.8 | 2.6 |

| Start Date | Start Time | Recovery Time (hrs) | Water Level (m) | Change in water level (m) | Duration of event (h) | Max turb (NTU) | Min turb (NTU) | Avg. turb (NTU) | St.Dev. |
|------------|------------|---------------------|-----------------|---------------------------|-----------------------|----------------|----------------|-----------------|---------|
| 11/03/2005 | 08:15 | 1.25 | 0.57 | 0.002 | 0.5 | 5.1 | 5 | 5.1 | 0.1 |
| 11/03/2005 | 09:30 | 1 | 0.568 | -0.003 | 0.5 | 7 | 0.3 | 3.7 | 4.7 |
| 11/03/2005 | 19:30 | 9.75 | 0.542 | -0.009 | 0.5 | 7 | 1.2 | 4.1 | 4.1 |
| 11/03/2005 | 01:15 | 5.25 | 0.572 | -0.007 | 0.75 | 7.2 | 4.1 | 6.0 | 1.7 |
| 11/03/2005 | 20:45 | 1 | 0.537 | -0.004 | 1 | 5.9 | 0.7 | 4.3 | 2.4 |
| 11/03/2005 | 05:45 | 1 | 0.57 | 0.001 | 1.5 | 7.2 | 3.9 | 6.0 | 1.2 |
| 11/03/2005 | 02:45 | 0.25 | 0.567 | 0.005 | 2.25 | 12.4 | 4.6 | 9.4 | 2.7 |
| 12/03/2005 | 05:00 | 7.5 | 0.514 | 0 | 0.5 | 5.7 | 0.5 | 3.1 | 3.7 |
| 12/03/2005 | 16:15 | 4.5 | 0.49 | 0 | 0.5 | 5.5 | 0.2 | 2.9 | 3.7 |
| 12/03/2005 | 11:15 | 6 | 0.499 | -0.001 | 0.75 | 93.8 | 0.4 | 43.9 | 47.0 |
| 13/03/2005 | 04:45 | 12.25 | 0.47 | 0.003 | 0.75 | 7 | 0.5 | 4.5 | 3.5 |
| 13/03/2005 | 10:15 | 5 | 0.462 | -0.001 | 0.75 | 10.4 | 0 | 5.3 | 5.2 |

Table 4. Comparison of turbidity values reported by laboratory analyses and automated turbidity probe.

| START DATE | Laboratory Result (NTU) | Automated Sensor Result (NTU) | Difference (Automated - Laboratory) (NTU) |
|------------------|-------------------------|-------------------------------|---|
| 03/04/2003 9:15 | 0.73 | 55.7 | 54.97 |
| 05/06/2003 9:15 | 1.4 | 0 | -1.4 |
| 08/06/2003 8:10 | 0.31 | 0 | -0.31 |
| 15/07/2003 11:40 | 0.75 | 0 | -0.75 |
| 01/08/2003 9:00 | 0.58 | 0 | -0.58 |
| 04/09/2003 9:00 | 1.47 | 0.7 | -0.77 |
| 06/10/2003 10:15 | 0.43 | 0.1 | -0.33 |
| 02/11/2003 10:35 | 0.5 | 0 | -0.5 |
| 09/01/2004 8:00 | 0.72 | 412.2 | 411.48 |
| 06/02/2004 16:00 | 1.4 | 422.4 | 421 |
| 11/02/2004 10:25 | 0.9 | 0.1 | -0.8 |
| 02/04/2004 10:00 | 0.58 | 0 | -0.58 |
| 08/04/2004 9:50 | 0.41 | 0.1 | -0.31 |
| 14/12/2004 10:20 | 0.97 | 0 | -0.97 |
| 18/01/2005 11:00 | 0.73 | 0 | -0.73 |