



KEYYASK GENERATION PROJECT
STAGE IV STUDIES - PHYSICAL ENVIRONMENT
LABORATORY ESTIMATION OF ORGANIC SEDIMENT SETTLING RATES
REV. 0

DELIVERABLE GN 9.2.22
MANITOBA HYDRO FILE: 00195-11100-0230_01

2011/03/02

PREPARED FOR:
HYDRO POWER PLANNING DEPARTMENT
POWER PROJECTS DEVELOPMENT DIVISION
POWER SUPPLY

PREPARED BY:
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LETTER OF TRANSMITTAL

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March 28, 2011

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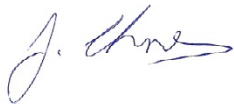
Re: DELIVERABLE GN 9.2.22; Manitoba Hydro File: 00195-11100-00230_01

Dear Mr. St. Laurent:

Attached please find ECOSTEM's Technical Memorandum: GN 9.2.22 Laboratory Estimation of Organic Sediment Settling Rates. This report has been completed in accordance with the scope of work defined for this component of the project and the formatting template provided by Manitoba Hydro.

Please do not hesitate to contact me should you have questions or require additional information.

Sincerely,



James Ehnes, M.Phil., Ph.D.
Terrestrial Ecologist
President
ECOSTEM Ltd.

cc: W. DeWit

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1 PURPOSE OF MEMORANDUM

Manitoba Hydro is currently proposing to develop the Keeyask Generating Station on the Nelson River. Experience from locations affected by water regulation in northern Canada indicates that altered water levels and river hydraulics can affect **peatlands**. Peatlands are wetlands where organic material has accumulated because dead plant material production exceeds decomposition. Flooding has two indirect effects on peatlands. First, intact peatlands along the initial reservoir shoreline break down which, along with mineral bank erosion, contributes to reservoir expansion over time. Second, some flooded **peat** mats float to the surface and either remain in the same general area or are transported elsewhere. Among other things, project-related effects on peatlands will release organic sediments into the aquatic system.

Peatlands cover over 90% of the proposed Keeyask reservoir and adjacent areas. Therefore, it is necessary that peatland processes be studied comprehensively during the project planning phase to identify potential project effects on the environment and to assess the need for and methods to mitigate potential effects.

Peatland disintegration refers to processes related to peat resurfacing, breakdown of non-flooded and resurfaced peat mats and offsetting peat formation in locations and on peat mats that have hydrological connections to a regulated area. Peatland disintegration is being characterized as part of the engineering design and environmental assessments for the proposed Keeyask Generating Station development. The expected amounts and timing of peatland disintegration in the proposed Keeyask Generating Station reservoir area were predicted in a prior, companion technical memorandum (ECOSTEM 2011a). The purpose of this technical memorandum is to estimate organic sediment settling rates through a laboratory experiment using peat samples collected from the Keeyask area.

2 MATERIALS AND METHODS

2.1 SAMPLE COLLECTION

Intact peat samples were collected from five **blanket bogs** in the Keeyask project area during the summer of 2009. Table 1 provides coordinates for the four replicate samples used in the laboratory experiment.

Table 1

Coordinates of peat samples used to estimate organic sediment settling rates.

Sample ID	Easting	Northing
TSS-20	379,124	6,243,153
TSS-21	362,689	6,241,249
TSS-22	357,038	6,241,661
TSS-24	351,666	6,249,036

Notes: Coordinates are in UTM Zone 15.

At each sample location, a small diameter pit was dug down to the bottom of the **mesic organic layer**. Several intact peat blocks with a combined volume of approximately 20 L were then extracted from the center of the mesic organic layer. Prior labwork that measured the physical properties of peat found that the specific gravity of organic fibers and particles do not differ significantly by organic layer (ECOSTEM 2011b). This labwork also found that the mesic organic layer produces a considerably higher volume of fibers and particles than the **fibric organic layer**. It is the mesic layer that is exposed when peat mats resurface and would be the material initially at the bottom of the floating peat mat. Sampling the humic layer would have complicated fieldwork for two reasons. First, the humic organic layer generally stays frozen later into the season and requires different sampling equipment, which is more time consuming to use. Second, the **humic organic layer** contains considerably less fiber than the mesic organic layer thereby requiring that a much higher volume of peat be collected, stored and transported.

Samples were placed in sealed plastic bags and stored at or below room temperature until they were shipped by bus back to the lab. Once received at the lab, the samples were placed in a freezer until the laboratory tests commenced.

2.2 LABORATORY PROCEDURES

The laboratory experiment estimated organic sediment settling rates by placing organic material into separate water-filled barrels, letting the material in each barrel stand undisturbed for a different duration than the other barrels, measuring **TSS** in the water column as a percentage of total organic material by weight at the end of the settling duration and then statistically fitting a settling curve to the time series data.

Peat from each sample location (Table 1) was a replicate in the design. The peat from each location was split into five sub-samples. The five sub-samples were placed into separate barrels for different settling durations and used to estimate the settling curve for that replicate.

The settling procedure was commenced by gently hand submerging and hand agitating the peat sub-sample just below the water surface. The procedure assumes that the settling material all starts from an equal height above the bottom and begins settling at the same time. However, some material starts settling when the peat begins to be agitated and some starts when the mat is removed after five minutes agitation, thus the settled material will include material covering a potential range of settling rates. Similarly, some material will start from the surface while some will start lower in the water since material will shed from the sides and bottom of the block. The deeper the depth of agitation, the greater the approximate range of settling velocity being measured (i.e., the greater the uncertainty). Results from the laboratory experiment will help define an approximate envelope of potential settling rates.

New, smooth-sided plastic drums measuring 100 cm in height and 58.4 cm in diameter were used for the settling tests. The room temperature was maintained near 20° for the duration of the experiment.

The following describes the lab procedure used to estimate organic sediment settling rates. A trial run was conducted to ensure that the proposed laboratory method would estimate settling rates in the desired manner. The lab procedure description indicates how the trial run differed from the balance of the runs, for the steps where this occurred.

Testing involved completing the following steps for each replicate **peat** sample.

- 1) Subdivide the peat sample into five equal sub-samples.
- 2) Saturate each peat sub-sample in a separate container for at least five days. Figure 1 shows two peat sub-samples being saturated.



Figure 1 – Two peat samples saturating in water.

3) Drum setup.

- A) Rinse 5 drums with clean water.
- B) Mark the inside of each drum at 80 cm from the bottom. The volume up to 80 cm depth was measured to establish the depth to volume relation for the tests.
- C) Fill each drum with water up to the 80 cm mark and cover (Figure 2).
 - i) Since empty drums were needed for the filtering step, no more than five barrels at a time were filled with water.
 - ii) The water temperature ranged from 14° - 18° C, depending on the amount of warm water available from the hot water tank.
 - iii) Prior to the start of each run, stir the water to create a more uniform water temperature.
 - (a) For the trial run, the water in each barrel was allowed to warm up for several days which reduced the possibility of having unequal temperatures at different water depths.

- D) Obtain two 1 L samples of the water from one of the drums in Step 3. Submit these samples to the TSS laboratory for TSS analysis. This step determines if the water being used contributes any background TSS.



Figure 2 – Barrels next to the wall being filled with water. Bottles for TSS-analysis and containers for oven-drying are in the foreground.

Complete the remaining steps for each peat sub-sample.

- 4) Record the water temperature and the time.
- 5) Gently hand submerge the peat sub-samples just below the water surface (Figure 3). Do not submerge the peat any deeper than necessary to facilitate adequate agitation and the release of dislodged material to the water column.
 - A) This step was undertaken with the aid of two or three people and did not last longer than five minutes.
- 6) If any peat mat remains after agitation, remove and place it in a container for oven drying, this will comprise the mat mass (Mm). The mat is removed so there is no interference with the TSS sampling in Step 11b. It is assumed that the mat would either sink or float but would not contribute to suspended matter.
- 7) Place a lid on the barrels and let settling proceed for the prescribed settling period. The settling period is different for each of the peat sub-samples.
 - A) The five settling periods for the trial run were 1.75, 5, 12, 27 and 50 hours.

- B) The five settling periods for the remaining replicates were 0.5, 1.75, 6, 18 and 50 hours.



Figure 3 – Hand agitation of peat samples.

- 8) At the end of the settling period:
- A) Record the end time.
 - B) Use a non-porous scoop to remove any floating organic material from the water surface.
 - C) Filter the scooped material through a funnel lined with filter paper (Figure 4). Organic material that remains on the filter paper will comprise the floating fraction of the mass (M_f) and will be oven dried. Ensure that all floating material is removed so it does not become part of the suspended sample to be collected in a later step.



Figure 4 – Filtering the floating material removed with a porous scoop.

- D) Collect two 1L water samples for TSS analysis. It is assumed that a 1L water sample provides the average TSS in the water above the settled material in the drum. Total suspended solids mass in the drum equals the TSS concentration multiplied by the water volume in the drum at the start of the test.
- i) Obtain a 6 L sample of the water overlying the settled material:
 - (a) Using a 0.5L beaker, remove a sample of water. Submerge the beaker very slowly, being very careful to avoid stirring up the settled material.
 - (b) Pour the contents of the beaker into a clean pail.
 - (c) Repeat eleven times so that 6L of water are sampled.
 - (d) For each of the 12 times that a beaker of water was obtained, remove the water sample from successively increasing water depths.
 - ii) Mix the water collected in the pail and collect two 1 L water samples from the pail.

- (a) Visually assess whether or not any of the material in the pail would be trapped in a 2mm sieve. If so then sieve the sample. Transfer the material trapped by the sieve into a clean, labeled aluminum pan for oven drying.
 - (b) Using a beaker, collect and pour the water into a 1 L sample bottle provided by the laboratory conducting the TSS analysis. Repeat a second time.
 - (c) Send the two 1 L samples to the TSS laboratory for analysis.
- E) Pour the remaining water and sediment in the pail back into the drum.
- F) Rinse the inside of pail into drum.
- G) Filter the remaining water and organic material in the drum. The material collected by the filter will comprise the settled (Mse) organic material fraction and will be oven dried in a clean container.
- i) Obtain and weigh a bag filter of 800 μm mesh size and record the weight of the filter alone.
 - ii) Transfer the remaining liquid and settled material into the bag filter.
 - (a) Suspend the bag filter in a clean, empty drum.
 - (b) Several methods were used to transfer the remaining liquid and settled material into the bag filter. The initial methods involved scooping and pouring with a beaker or pail. To speed up the filtering, a siphon was set up for some barrels (Fig.6).
 - (c) Drums were rinsed with water to ensure all organic material was flushed out and filtered.
- H) Mix the filtrate (i.e., the water and material that has passed through the bag filter) well and obtain two 1L samples of the filtrate for lab analysis of the TSS fraction below the 800 μm mesh size (lab TSS should use 1.5 μm mesh size).
- 9) Oven dry any intact peat mat left over from agitation (Step 5) as well as the floating organic material (Step 7C), and the filtered organic material and the bag filter (Step 7C). When completely dry, determine the masses of the mat (Mm), floating (Mf), and settled (Mse) organic material fractions. The mass of filtered organic material residue is equal to the mass of the dried filter with organic material minus the mass of the filter only.



Figure 5 – Using a siphon to filter liquid from a barrel.

3 RESULTS

The laboratory experiment was conducted between January 25 and March 26, 2010. Results from the trial run conducted between January 25 and January 27, 2010 were used to ensure quality control and refine the laboratory procedure. Duplicate TSS samples were collected during the trial run. One set of samples was sent to the Manitoba Hydro analytical laboratory situated in Selkirk, Manitoba and the other set was sent to ALS labs in Winnipeg. Measured TSS values from the two labs were generally within 5% of each other. TSS samples from the remaining runs were sent to the Manitoba Hydro analytical laboratory only.

Settling rates estimated from trial run data were used to refine the settling durations. The trial run results showed that a high percentage (>95%) of mass settled at the shortest settling duration of 1.75 hours. To get a better indication of how much mass settles rapidly, the shortest settling duration was reduced to 0.5 hours. A duration of 1.75 hours was also retained and the 5 hour test was adjusted to 6 hours duration. Because a high percentage of material settles quickly, the longest duration tests was reduced from 50 to 42 hours, while the 27 hour test was reduced to 18 hours to better split the interval between the 6 and 42 hour tests.

A total of 224 lab samples were collected for either TSS analysis or weighing. Table 2 provides a breakdown of this total by peat sample and settling duration.

Measured values for TSS, oven-dried organic material weight and other relevant parameters are provided in Appendix A.

Table 2

Number of lab samples collected for either TSS analysis or weighing by peat sample and settling duration.

Peat Sample	Settling Duration (hr)										All
	0	0.5	1.75	5	6	12	18	27	42	50	
TSS-23	4		12	12		12		12		12	64
TSS-20		8	8		8		8		8		40
TSS-21		8	8		8		8		8		40
TSS-22		8	8		8		8		8		40
TSS-24		8	8		8		8		8		40
All	4	32	44	12	32	12	32	12	12	12	224

Notes:

TSS-23 is the trial run.

Samples with settling duration equal to zero are the clean water samples used to determine background TSS.

GLOSSARY

<i>blanket bog</i>	Peatlands with intermediate thickness peats (i.e., up to approximately 2 m thick) with a featureless surface that cover gentle slopes.
<i>fibric organic layer (Of)</i>	Peat that has undergone little decomposition. This organic soil layer has the highest amount of fiber, the lowest bulk density, and the highest saturated water-holding capacity of the fibric, mesic and humic organic layers.
<i>humic organic layer (Oh)</i>	Peat that is strongly decomposed. This organic soil layer has the lowest amount of fiber, the highest bulk density, and the lowest saturated water-holding capacity of the Of, Om and Oh horizons.
<i>mesic organic layer (Om)</i>	Peat that has undergone a moderate degree of decomposition. This organic soil layer has intermediate levels of fiber, bulk density and saturated water-holding capacity compared with the fibric and mesic organic layers.
<i>peat</i>	Material consisting of non-decomposed and/or partially decomposed organic matter, originating predominantly from plants.
<i>peatland</i>	Wetlands where organic material has accumulated because dead plant material production exceeds decomposition.
<i>peatland disintegration</i>	Processes related to: peat resurfacing; breakdown of non-flooded and resurfaced peatlands/peat mats; and, peat formation on peatlands and peat mats that have hydrological connections to a regulated area.
<i>total suspended solids (TSS)</i>	Measure of the particles mixed into a water sample which can be filtered out.

REFERENCES

ECOSTEM Ltd. 2011a. Peatland disintegration in the proposed Keeyask reservoir area: model development and post-project predictions. Technical memo GN-9.2.7 prepared for Manitoba Hydro.

ECOSTEM Ltd. 2011b. Physical properties of peat: lab results- particle size distribution and specific gravity. Technical memo GN-9.2.13 prepared for Manitoba Hydro.

APPENDIX A - ABBREVIATIONS

cm.....	centimeters
° C	degrees celcius
g.....	gram
hr	hour
L	liter
Mf.....	floating mass
Mg/L	milligram per liter
Mm.....	mat mass
mm	millimeters
Mse.....	settled mass
T1	start time
T2	end time
TSS.....	total suspended solids
µm	micron
UTM.....	universal transverse Mercator coordinate system

APPENDIX B – LABORATORY DATA

Sample ID	Peat Sample	Settling Duration (hr)	Component	Material Type	Lab	Sub-Component	Peat Saturation Duration (days)	Start Date	Start Time (hr) - t1	End Date	End Time (hr) - t2	Settling Duration (min) = t2 - t1	Water Depth (m)	Water Volume in Drum (L) - Vd	Mass - peat (g)	Volume filtered (L) - Vf	TSS (mg/L) from Lab	Water Temperature at Start of Peat Settling
E0001	TSS-23	0	Tap water	Solution	ALS	All	-	25/1/10	-	25/1/10	-	-	0.8	179.5	-	-	<2	18° C
E0002	TSS-23	0	Tap water	Solution	ALS	All	-	25/1/10	-	25/1/10	-	-	0.8	179.5	-	-	<2	18° C
E0003	TSS-23	0	Tap water	Solution	Hydro	All	-	25/1/10	-	25/1/10	-	-	0.8	179.5	-	-	<2	18° C
E0004	TSS-23	0	Tap water	Solution	Hydro	All	-	25/1/10	-	25/1/10	-	-	0.8	179.5	-	-	<2	18° C
E0006	TSS-23	1.75	Float	Peat	ECOSTEM	All	4.83	25/1/10	09:05	25/1/10	10:51	106	0.8	179.5	0.0	-	-	18° C
E0005	TSS-23	1.75	Mat	Peat	ECOSTEM	All	4.83	25/1/10	09:05	25/1/10	09:10	5	0.8	179.5	31.1	-	-	18° C
E0012	TSS-23	1.75	Peat in Filter Bag	Peat	ECOSTEM	All	4.83	25/1/10	09:05	25/1/10	10:51	106	0.8	179.5	178.5	175.5	-	18° C
E0007	TSS-23	1.75	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	4.83	25/1/10	09:05	25/1/10	10:51	106	0.8	179.5	0	-	-	18° C
E0015	TSS-23	1.75	Filtrate	Solution	ALS	1L sample	4.83	25/1/10	09:05	25/1/10	10:51	106	0.8	179.5	-	175.5	216.0	18° C
E0016	TSS-23	1.75	Filtrate	Solution	ALS	1L sample	4.83	25/1/10	09:05	25/1/10	10:51	106	0.8	179.5	-	175.5	208.0	18° C
E0008	TSS-23	1.75	Suspended 6L Sample	Solution	ALS	1L sample	4.83	25/1/10	09:05	25/1/10	10:51	106	0.8	179.5	-	-	50.8	18° C
E0011	TSS-23	1.75	Suspended 6L Sample	Solution	ALS	1L sample	4.83	25/1/10	09:05	25/1/10	10:51	106	0.8	179.5	-	-	50.4	18° C
E0013	TSS-23	1.75	Filtrate	Solution	Hydro	1L sample	4.83	25/1/10	09:05	25/1/10	10:51	106	0.8	179.5	-	175.5	203.0	18° C
E0014	TSS-23	1.75	Filtrate	Solution	Hydro	1L sample	4.83	25/1/10	09:05	25/1/10	10:51	106	0.8	179.5	-	175.5	198.0	18° C
E0009	TSS-23	1.75	Suspended 6L Sample	Solution	Hydro	1L sample	4.83	25/1/10	09:05	25/1/10	10:51	106	0.8	179.5	-	-	51.0	18° C
E0010	TSS-23	1.75	Suspended 6L Sample	Solution	Hydro	1L sample	4.83	25/1/10	09:05	25/1/10	10:51	106	0.8	179.5	-	-	51.0	18° C
E0018	TSS-23	5	Float	Peat	ECOSTEM	All	4.79	25/1/10	08:05	25/1/10	13:09	304	0.8	179.5	0.2	-	-	18° C
E0017	TSS-23	5	Mat	Peat	ECOSTEM	All	4.79	25/1/10	08:05	25/1/10	08:10	5	0.8	179.5	64.5	-	-	18° C
E0024	TSS-23	5	Peat in Filter Bag	Peat	ECOSTEM	All	4.79	25/1/10	08:05	25/1/10	13:09	304	0.8	179.5	227.7	175.5	-	18° C

Sample ID	Peat Sample	Settling Duration (hr)	Component	Material Type	Lab	Sub-Component	Peat Saturation Duration (days)	Start Date	Start Time (hr) - t1	End Date	End Time (hr) - t2	Settling Duration (min) = t2 - t1	Water Depth (m)	Water Volume in Drum (L) - Vd	Mass - peat (g)	Volume filtered (L) - Vf	TSS (mg/L) from Lab	Water Temperature at Start of Peat Settling
E0019	TSS-23	5	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	4.79	25/1/10	08:05	25/1/10	13:09	304	0.8	179.5	0	-	-	18° C
E0027	TSS-23	5	Filtrate	Solution	ALS	1L sample	4.79	25/1/10	08:05	25/1/10	13:09	304	0.8	179.5	-	175.5	246.0	18° C
E0028	TSS-23	5	Filtrate	Solution	ALS	1L sample	4.79	25/1/10	08:05	25/1/10	13:09	304	0.8	179.5	-	175.5	239.0	18° C
E0022	TSS-23	5	Suspended 6L Sample	Solution	ALS	1L sample	4.79	25/1/10	08:05	25/1/10	13:09	304	0.8	179.5	-	-	7.6	18° C
E0023	TSS-23	5	Suspended 6L Sample	Solution	ALS	1L sample	4.79	25/1/10	08:05	25/1/10	13:09	304	0.8	179.5	-	-	6.4	18° C
E0025	TSS-23	5	Filtrate	Solution	Hydro	1L sample	4.79	25/1/10	08:05	25/1/10	13:09	304	0.8	179.5	-	175.5	239.0	18° C
E0026	TSS-23	5	Filtrate	Solution	Hydro	1L sample	4.79	25/1/10	08:05	25/1/10	13:09	304	0.8	179.5	-	175.5	254.0	18° C
E0020	TSS-23	5	Suspended 6L Sample	Solution	Hydro	1L sample	4.79	25/1/10	08:05	25/1/10	13:09	304	0.8	179.5	-	-	7.0	18° C
E0021	TSS-23	5	Suspended 6L Sample	Solution	Hydro	1L sample	4.79	25/1/10	08:05	25/1/10	13:09	304	0.8	179.5	-	-	8.0	18° C
E0030	TSS-23	12	Float	Peat	ECOSTEM	All	4.75	25/1/10	07:05	25/1/10	18:30	685	0.8	179.5	0.1	-	-	18° C
E0029	TSS-23	12	Mat	Peat	ECOSTEM	All	4.75	25/1/10	07:05	25/1/10	07:10	5	0.8	179.5	73.1	-	-	18° C
E0036	TSS-23	12	Peat in Filter Bag	Peat	ECOSTEM	All	4.75	25/1/10	07:05	25/1/10	18:30	685	0.8	179.5	135.4	175.5	-	18° C
E0031	TSS-23	12	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	4.75	25/1/10	07:05	25/1/10	18:30	685	0.8	179.5	0	-	-	18° C
E0039	TSS-23	12	Filtrate	Solution	ALS	1L sample	4.75	25/1/10	07:05	25/1/10	18:30	685	0.8	179.5	-	175.5	182.0	18° C
E0040	TSS-23	12	Filtrate	Solution	ALS	1L sample	4.75	25/1/10	07:05	25/1/10	18:30	685	0.8	179.5	-	175.5	180.0	18° C
E0034	TSS-23	12	Suspended 6L Sample	Solution	ALS	1L sample	4.75	25/1/10	07:05	25/1/10	18:30	685	0.8	179.5	-	-	3.2	18° C
E0035	TSS-23	12	Suspended 6L Sample	Solution	ALS	1L sample	4.75	25/1/10	07:05	25/1/10	18:30	685	0.8	179.5	-	-	3.2	18° C
E0037	TSS-23	12	Filtrate	Solution	Hydro	1L	4.75	25/1/10	07:05	25/1/10	18:30	685	0.8	179.5	-	175.5	181.0	18° C

Sample ID	Peat Sample	Settling Duration (hr)	Component	Material Type	Lab	Sub-Component	Peat Saturation Duration (days)	Start Date	Start Time (hr) - t1	End Date	End Time (hr) - t2	Settling Duration (min) = t2 - t1	Water Depth (m)	Water Volume in Drum (L) - Vd	Mass - peat (g)	Volume filtered (L) - Vf	TSS (mg/L) from Lab	Water Temperature at Start of Peat Settling
						sample												
E0038	TSS-23	12	Filtrate	Solution	Hydro	1L sample	4.75	25/1/10	07:05	25/1/10	18:30	685	0.8	179.5	-	175.5	167.0	18° C
E0032	TSS-23	12	Suspended 6L Sample	Solution	Hydro	1L sample	4.75	25/1/10	07:05	25/1/10	18:30	685	0.8	179.5	-	-	3.0	18° C
E0033	TSS-23	12	Suspended 6L Sample	Solution	Hydro	1L sample	4.75	25/1/10	07:05	25/1/10	18:30	685	0.8	179.5	-	-	3.0	18° C
E0042	TSS-23	27	Float	Peat	ECOSTEM	All	4.88	25/1/10	10:05	26/1/10	12:54	1,609	0.8	179.5	0.1	-	-	18° C
E0041	TSS-23	27	Mat	Peat	ECOSTEM	All	4.88	25/1/10	10:05	25/1/10	10:10	5	0.8	179.5	39.8	-	-	18° C
E0048	TSS-23	27	Peat in Filter Bag	Peat	ECOSTEM	All	4.88	25/1/10	10:05	26/1/10	12:54	1,609	0.8	179.5	214.3	175.5	-	18° C
E0043	TSS-23	27	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	4.88	25/1/10	10:05	26/1/10	12:54	1,609	0.8	179.5	0	-	-	18° C
E0051	TSS-23	27	Filtrate	Solution	ALS	1L sample	4.88	25/1/10	10:05	26/1/10	12:54	1,609	0.8	179.5	-	175.5	250.0	18° C
E0052	TSS-23	27	Filtrate	Solution	ALS	1L sample	4.88	25/1/10	10:05	26/1/10	12:54	1,609	0.8	179.5	-	175.5	244.0	18° C
E0046	TSS-23	27	Suspended 6L Sample	Solution	ALS	1L sample	4.88	25/1/10	10:05	26/1/10	12:54	1,609	0.8	179.5	-	-	3.6	18° C
E0047	TSS-23	27	Suspended 6L Sample	Solution	ALS	1L sample	4.88	25/1/10	10:05	26/1/10	12:54	1,609	0.8	179.5	-	-	4.4	18° C
E0049	TSS-23	27	Filtrate	Solution	Hydro	1L sample	4.88	25/1/10	10:05	26/1/10	12:54	1,609	0.8	179.5	-	175.5	185.0	18° C
E0050	TSS-23	27	Filtrate	Solution	Hydro	1L sample	4.88	25/1/10	10:05	26/1/10	12:54	1,609	0.8	179.5	-	175.5	229.0	18° C
E0044	TSS-23	27	Suspended 6L Sample	Solution	Hydro	1L sample	4.88	25/1/10	10:05	26/1/10	12:54	1,609	0.8	179.5	-	-	4.0	18° C
E0045	TSS-23	27	Suspended 6L Sample	Solution	Hydro	1L sample	4.88	25/1/10	10:05	26/1/10	12:54	1,609	0.8	179.5	-	-	4.0	18° C
E0054	TSS-23	50	Float	Peat	ECOSTEM	All	4.92	25/1/10	11:05	27/1/10	13:05	3,000	0.8	179.5	0.1	-	-	18° C
E0053	TSS-23	50	Mat	Peat	ECOSTEM	All	4.92	25/1/10	11:05	25/1/10	11:10	5	0.8	179.5	74.8	-	-	18° C
E0060	TSS-23	50	Peat in Filter Bag	Peat	ECOSTEM	All	4.92	25/1/10	11:05	27/1/10	13:05	3,000	0.8	179.5	203.1	175.5	-	18° C

Sample ID	Peat Sample	Settling Duration (hr)	Component	Material Type	Lab	Sub-Component	Peat Saturation Duration (days)	Start Date	Start Time (hr) - t1	End Date	End Time (hr) - t2	Settling Duration (min) = t2 - t1	Water Depth (m)	Water Volume in Drum (L) - Vd	Mass - peat (g)	Volume filtered (L) - Vf	TSS (mg/L) from Lab	Water Temperature at Start of Peat Settling
E0055	TSS-23	50	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	4.92	25/1/10	11:05	27/1/10	13:05	3,000	0.8	179.5	0	-	-	18° C
E0063	TSS-23	50	Filtrate	Solution	ALS	1L sample	4.92	25/1/10	11:05	27/1/10	13:05	3,000	0.8	179.5	-	175.5	286.0	18° C
E0064	TSS-23	50	Filtrate	Solution	ALS	1L sample	4.92	25/1/10	11:05	27/1/10	13:05	3,000	0.8	179.5	-	175.5	282.0	18° C
E0058	TSS-23	50	Suspended 6L Sample	Solution	ALS	1L sample	4.92	25/1/10	11:05	27/1/10	13:05	3,000	0.8	179.5	-	-	4.4	18° C
E0059	TSS-23	50	Suspended 6L Sample	Solution	ALS	1L sample	4.92	25/1/10	11:05	27/1/10	13:05	3,000	0.8	179.5	-	-	4.0	18° C
E0061	TSS-23	50	Filtrate	Solution	Hydro	1L sample	4.92	25/1/10	11:05	27/1/10	13:05	3,000	0.8	179.5	-	175.5	257.0	18° C
E0062	TSS-23	50	Filtrate	Solution	Hydro	1L sample	4.92	25/1/10	11:05	27/1/10	13:05	3,000	0.8	179.5	-	175.5	292.0	18° C
E0056	TSS-23	50	Suspended 6L Sample	Solution	Hydro	1L sample	4.92	25/1/10	11:05	27/1/10	13:05	3,000	0.8	179.5	-	-	6.0	18° C
E0057	TSS-23	50	Suspended 6L Sample	Solution	Hydro	1L sample	4.92	25/1/10	11:05	27/1/10	13:05	3,000	0.8	179.5	-	-	3.0	18° C
E0058	TSS-22	0.5	Float	Peat	ECOSTEM	All	3.7	16/3/2010	09:00	16/3/2010	09:30	30	0.8	179.5	7.7	-	-	18° C
E0059	TSS-22	0.5	Mat	Peat	ECOSTEM	All	3.7	16/3/2010	09:00	16/3/2010	09:30	30	0.8	179.5	0.4	-	-	18° C
E0060	TSS-22	0.5	Peat in Filter Bag	Peat	ECOSTEM	All	3.7	16/3/2010	09:00	16/3/2010	09:30	30	0.8	179.5	302.1	-	-	18° C
E0061	TSS-22	0.5	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	3.7	16/3/2010	09:00	16/3/2010	09:30	30	0.8	179.5	-0	-	-	18° C
E0062	TSS-22	0.5	Filtrate	Solution	Hydro	1L sample	3.7	16/3/2010	09:00	16/3/2010	09:30	30	0.8	179.5	-0	175.5	306	18° C
E0063	TSS-22	0.5	Filtrate	Solution	Hydro	1L sample	3.7	16/3/2010	09:00	16/3/2010	09:30	30	0.8	179.5	-0	175.5	353	18° C
E0064	TSS-22	0.5	Suspended 6L Sample	Solution	Hydro	1L sample	3.7	16/3/2010	09:00	16/3/2010	09:30	30	0.8	179.5	-0	-	79	18° C
E0065	TSS-22	0.5	Suspended 6L Sample	Solution	Hydro	1L sample	3.7	16/3/2010	09:00	16/3/2010	09:30	30	0.8	179.5	-0	-	85	18° C
E0066	TSS-22	1.75	Float	Peat	ECOSTEM	All	3.7	16/3/2010	08:30	16/3/2010	10:15	105	0.8	179.5	0.2	-	-	18° C

Sample ID	Peat Sample	Settling Duration (hr)	Component	Material Type	Lab	Sub-Component	Peat Saturation Duration (days)	Start Date	Start Time (hr) - t1	End Date	End Time (hr) - t2	Settling Duration (min) = t2 - t1	Water Depth (m)	Water Volume in Drum (L) - Vd	Mass - peat (g)	Volume filtered (L) - Vf	TSS (mg/L) from Lab	Water Temperature at Start of Peat Settling
E0067	TSS-22	1.75	Mat	Peat	ECOSTEM	All	3.7	16/3/2010	08:30	16/3/2010	10:15	105	0.8	179.5	16.4	-	-	18° C
E0068	TSS-22	1.75	Peat in Filter Bag	Peat	ECOSTEM	All	3.7	16/3/2010	08:30	16/3/2010	10:15	105	0.8	179.5	198.4	-	-	18° C
E0069	TSS-22	1.75	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	3.7	16/3/2010	08:30	16/3/2010	10:15	105	0.8	179.5	-0.0	-	-	18° C
E0070	TSS-22	1.75	Filtrate	Solution	Hydro	1L sample	3.7	16/3/2010	08:30	16/3/2010	10:15	105	0.8	179.5	-0.0	175.5	364	18° C
E0071	TSS-22	1.75	Filtrate	Solution	Hydro	1L sample	3.7	16/3/2010	08:30	16/3/2010	10:15	105	0.8	179.5	-0.0	175.5	375	18° C
E0072	TSS-22	1.75	Suspended 6L Sample	Solution	Hydro	1L sample	3.7	16/3/2010	08:30	16/3/2010	10:15	105	0.8	179.5	-0.0	-	49	18° C
E0073	TSS-22	1.75	Suspended 6L Sample	Solution	Hydro	1L sample	3.7	16/3/2010	08:30	16/3/2010	10:15	105	0.8	179.5	-0.0	-	57	18° C
E0074	TSS-22	6	Float	Peat	ECOSTEM	All	3.7	16/3/2010	08:00	16/3/2010	14:00	360	0.8	179.5	0.0	-	-	18° C
E0075	TSS-22	6	Mat	Peat	ECOSTEM	All	3.7	16/3/2010	08:00	16/3/2010	14:00	360	0.8	179.5	8.8	-	-	18° C
E0076	TSS-22	6	Peat in Filter Bag	Peat	ECOSTEM	All	3.7	16/3/2010	08:00	16/3/2010	14:00	360	0.8	179.5	195.7	-	-	18° C
E0077	TSS-22	6	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	3.7	16/3/2010	08:00	16/3/2010	14:00	360	0.8	179.5	-0.0	-	-	18° C
E0078	TSS-22	6	Filtrate	Solution	Hydro	1L sample	3.7	16/3/2010	08:00	16/3/2010	14:00	360	0.8	179.5	-0.0	175.5	400	18° C
E0079	TSS-22	6	Filtrate	Solution	Hydro	1L sample	3.7	16/3/2010	08:00	16/3/2010	14:00	360	0.8	179.5	-0.0	175.5	416	18° C
E0080	TSS-22	6	Suspended 6L Sample	Solution	Hydro	1L sample	3.7	16/3/2010	08:00	16/3/2010	14:00	360	0.8	179.5	-0.0	-	21	18° C
E0081	TSS-22	6	Suspended 6L Sample	Solution	Hydro	1L sample	3.7	16/3/2010	08:00	16/3/2010	14:00	360	0.8	179.5	-0.0	-	20	18° C
E0082	TSS-22	18	Float	Peat	ECOSTEM	All	12.9	25/3/2010	14:00	26/3/2010	08:00	1080	0.8	179.5	0	-	-	14° C
E0083	TSS-22	18	Mat	Peat	ECOSTEM	All	12.9	25/3/2010	14:00	26/3/2010	08:00	1080	0.8	179.5	0.9	-	-	14° C
E0084	TSS-22	18	Peat in Filter Bag	Peat	ECOSTEM	All	12.9	25/3/2010	14:00	26/3/2010	08:00	1080	0.8	179.5	209.7	-	-	14° C
E0085	TSS-22	18	Suspended 6L	Peat	ECOSTEM	> 2mm	12.9	25/3/2010	14:00	26/3/2010	08:00	1080	0.8	179.5	-0.0	-	-	14° C

Sample ID	Peat Sample	Settling Duration (hr)	Component	Material Type	Lab	Sub-Component	Peat Saturation Duration (days)	Start Date	Start Time (hr) - t1	End Date	End Time (hr) - t2	Settling Duration (min) = t2 - t1	Water Depth (m)	Water Volume in Drum (L) - Vd	Mass - peat (g)	Volume filtered (L) - Vf	TSS (mg/L) from Lab	Water Temperature at Start of Peat Settling
			Sample															
E0086	TSS-22	18	Filtrate	Solution	Hydro	1L sample	12.9	25/3/2010	14:00	26/3/2010	08:00	1080	0.8	179.5	-0.0	175.5	332	14° C
E0087	TSS-22	18	Filtrate	Solution	Hydro	1L sample	12.9	25/3/2010	14:00	26/3/2010	08:00	1080	0.8	179.5	-0.0	175.5	307	14° C
E0088	TSS-22	18	Suspended 6L Sample	Solution	Hydro	1L sample	12.9	25/3/2010	14:00	26/3/2010	08:00	1080	0.8	179.5	-0.0	-	18	14° C
E0089	TSS-22	18	Suspended 6L Sample	Solution	Hydro	1L sample	12.9	25/3/2010	14:00	26/3/2010	08:00	1080	0.8	179.5	-0.0	-	17	14° C
E0090	TSS-22	50	Float	Peat	ECOSTEM	All	4.0	16/3/2010	14:30	18/3/2010	08:30	2520	0.8	179.5	0	-	-	18° C
E0091	TSS-22	50	Mat	Peat	ECOSTEM	All	4.0	16/3/2010	14:30	18/3/2010	08:30	2520	0.8	179.5	3.1	-	-	18° C
E0092	TSS-22	50	Peat in Filter Bag	Peat	ECOSTEM	All	4.0	16/3/2010	14:30	18/3/2010	08:30	2520	0.8	179.5	195.7	-	-	18° C
E0093	TSS-22	50	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	4.0	16/3/2010	14:30	18/3/2010	08:30	2520	0.8	179.5	-0.0	-	-	18° C
E0094	TSS-22	50	Filtrate	Solution	Hydro	1L sample	4.0	16/3/2010	14:30	18/3/2010	08:30	2520	0.8	179.5	-0.0	175.5	145	18° C
E0095	TSS-22	50	Filtrate	Solution	Hydro	1L sample	4.0	16/3/2010	14:30	18/3/2010	08:30	2520	0.8	179.5	-0.0	175.5	189	18° C
E0096	TSS-22	50	Suspended 6L Sample	Solution	Hydro	1L sample	4.0	16/3/2010	14:30	18/3/2010	08:30	2520	0.8	179.5	-0.0	-	11	18° C
E0097	TSS-22	50	Suspended 6L Sample	Solution	Hydro	1L sample	4.0	16/3/2010	14:30	18/3/2010	08:30	2520	0.8	179.5	-0.0	-	10	18° C
E0098	TSS-21	0.5	Float	Peat	ECOSTEM	All	12.7	25/3/2010	08:00	25/3/2010	08:30	30	0.8	179.5	0	-	-	18° C
E0099	TSS-21	0.5	Mat	Peat	ECOSTEM	All	12.7	25/3/2010	08:00	25/3/2010	08:30	30	0.8	179.5	31.2	-	-	18° C
E0100	TSS-21	0.5	Peat in Filter Bag	Peat	ECOSTEM	All	12.7	25/3/2010	08:00	25/3/2010	08:30	30	0.8	179.5	212.8	-	-	18° C
E0101	TSS-21	0.5	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	12.7	25/3/2010	08:00	25/3/2010	08:30	30	0.8	179.5	-0.0	-	-	18° C
E0102	TSS-21	0.5	Filtrate	Solution	Hydro	1L sample	12.7	25/3/2010	08:00	25/3/2010	08:30	30	0.8	179.5	-0.0	175.5	262	18° C
E0103	TSS-21	0.5	Filtrate	Solution	Hydro	1L sample	12.7	25/3/2010	08:00	25/3/2010	08:30	30	0.8	179.5	-0.0	175.5	466	18° C

Sample ID	Peat Sample	Settling Duration (hr)	Component	Material Type	Lab	Sub-Component	Peat Saturation Duration (days)	Start Date	Start Time (hr) - t1	End Date	End Time (hr) - t2	Settling Duration (min) = t2 - t1	Water Depth (m)	Water Volume in Drum (L) - Vd	Mass - peat (g)	Volume filtered (L) - Vf	TSS (mg/L) from Lab	Water Temperature at Start of Peat Settling
E0104	TSS-21	0.5	Suspended 6L Sample	Solution	Hydro	1L sample	12.7	25/3/2010	08:00	25/3/2010	08:30	30	0.8	179.5	-0	-	98	18° C
E0105	TSS-21	0.5	Suspended 6L Sample	Solution	Hydro	1L sample	12.7	25/3/2010	08:00	25/3/2010	08:30	30	0.8	179.5	-0	-	97	18° C
E0106	TSS-21	1.75	Float	Peat	ECOSTEM	All	5.9	18/3/2010	11:45	18/3/2010	13:35	110	0.8	179.5	2.2	-	-	18° C
E0107	TSS-21	1.75	Mat	Peat	ECOSTEM	All	5.9	18/3/2010	11:45	18/3/2010	13:35	110	0.8	179.5	5.6	-	-	18° C
E0108	TSS-21	1.75	Peat in Filter Bag	Peat	ECOSTEM	All	5.9	18/3/2010	11:45	18/3/2010	13:35	110	0.8	179.5	132.2	-	-	18° C
E0109	TSS-21	1.75	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	5.9	18/3/2010	11:45	18/3/2010	13:35	110	0.8	179.5	-0	-	-	18° C
E0110	TSS-21	1.75	Filtrate	Solution	Hydro	1L sample	5.9	18/3/2010	11:45	18/3/2010	13:35	110	0.8	179.5	-0	175.5	287	18° C
E0111	TSS-21	1.75	Filtrate	Solution	Hydro	1L sample	5.9	18/3/2010	11:45	18/3/2010	13:35	110	0.8	179.5	-0	175.5	285	18° C
E0112	TSS-21	1.75	Suspended 6L Sample	Solution	Hydro	1L sample	5.9	18/3/2010	11:45	18/3/2010	13:35	110	0.8	179.5	-0	-	14	18° C
E0113	TSS-21	1.75	Suspended 6L Sample	Solution	Hydro	1L sample	5.9	18/3/2010	11:45	18/3/2010	13:35	110	0.8	179.5	-0	-	17	18° C
E0114	TSS-21	6	Float	Peat	ECOSTEM	All	5.7	18/3/2010	08:05	18/3/2010	14:20	375	0.8	179.5	2.3	-	-	18° C
E0115	TSS-21	6	Mat	Peat	ECOSTEM	All	5.7	18/3/2010	08:05	18/3/2010	14:20	375	0.8	179.5	20.7	-	-	18° C
E0116	TSS-21	6	Peat in Filter Bag	Peat	ECOSTEM	All	5.7	18/3/2010	08:05	18/3/2010	14:20	375	0.8	179.5	157.7	-	-	18° C
E0117	TSS-21	6	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	5.7	18/3/2010	08:05	18/3/2010	14:20	375	0.8	179.5	-0	-	-	18° C
E0118	TSS-21	6	Filtrate	Solution	Hydro	1L sample	5.7	18/3/2010	08:05	18/3/2010	14:20	375	0.8	179.5	-0	175.5	299	18° C
E0119	TSS-21	6	Filtrate	Solution	Hydro	1L sample	5.7	18/3/2010	08:05	18/3/2010	14:20	375	0.8	179.5	-0	175.5	304	18° C
E0120	TSS-21	6	Suspended 6L Sample	Solution	Hydro	1L sample	5.7	18/3/2010	08:05	18/3/2010	14:20	375	0.8	179.5	-0	-	6	18° C
E0121	TSS-21	6	Suspended 6L Sample	Solution	Hydro	1L sample	5.7	18/3/2010	08:05	18/3/2010	14:20	375	0.8	179.5	-0	-	7	18° C

Sample ID	Peat Sample	Settling Duration (hr)	Component	Material Type	Lab	Sub-Component	Peat Saturation Duration (days)	Start Date	Start Time (hr) - t1	End Date	End Time (hr) - t2	Settling Duration (min) = t2 - t1	Water Depth (m)	Water Volume in Drum (L) - Vd	Mass - peat (g)	Volume filtered (L) - Vf	TSS (mg/L) from Lab	Water Temperature at Start of Peat Settling
E0122	TSS-21	18	Float	Peat	ECOSTEM	All	13.0	25/3/2010	15:00	26/3/2010	09:00	1080	0.8	179.5	2.3	-	-	10° C
E0123	TSS-21	18	Mat	Peat	ECOSTEM	All	13.0	25/3/2010	15:00	26/3/2010	09:00	1080	0.8	179.5	9.9	-	-	10° C
E0124	TSS-21	18	Peat in Filter Bag	Peat	ECOSTEM	All	13.0	25/3/2010	15:00	26/3/2010	09:00	1080	0.8	179.5	149.6	-	-	10° C
E0125	TSS-21	18	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	13.0	25/3/2010	15:00	26/3/2010	09:00	1080	0.8	179.5	-0.0	-	-	10° C
E0126	TSS-21	18	Filtrate	Solution	Hydro	1L sample	13.0	25/3/2010	15:00	26/3/2010	09:00	1080	0.8	179.5	-0.0	175.5	216	10° C
E0127	TSS-21	18	Filtrate	Solution	Hydro	1L sample	13.0	25/3/2010	15:00	26/3/2010	09:00	1080	0.8	179.5	-0.0	175.5	242	10° C
E0128	TSS-21	18	Suspended 6L Sample	Solution	Hydro	1L sample	13.0	25/3/2010	15:00	26/3/2010	09:00	1080	0.8	179.5	-0.0	-	7	10° C
E0129	TSS-21	18	Suspended 6L Sample	Solution	Hydro	1L sample	13.0	25/3/2010	15:00	26/3/2010	09:00	1080	0.8	179.5	-0.0	-	7	10° C
E0130	TSS-21	50	Float	Peat	ECOSTEM	All	4.0	16/3/2010	15:00	18/3/2010	09:00	2520	0.8	179.5	2.3	-	-	18° C
E0131	TSS-21	50	Mat	Peat	ECOSTEM	All	4.0	16/3/2010	15:00	18/3/2010	09:00	2520	0.8	179.5	10.5	-	-	18° C
E0132	TSS-21	50	Peat in Filter Bag	Peat	ECOSTEM	All	4.0	16/3/2010	15:00	18/3/2010	09:00	2520	0.8	179.5	150.2	-	-	18° C
E0133	TSS-21	50	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	4.0	16/3/2010	15:00	18/3/2010	09:00	2520	0.8	179.5	-0.0	-	-	18° C
E0134	TSS-21	50	Filtrate	Solution	Hydro	1L sample	4.0	16/3/2010	15:00	18/3/2010	09:00	2520	0.8	179.5	-0.0	175.5	298	18° C
E0135	TSS-21	50	Filtrate	Solution	Hydro	1L sample	4.0	16/3/2010	15:00	18/3/2010	09:00	2520	0.8	179.5	-0.0	175.5	280	18° C
E0136	TSS-21	50	Suspended 6L Sample	Solution	Hydro	1L sample	4.0	16/3/2010	15:00	18/3/2010	09:00	2520	0.8	179.5	-0.0	-	3	18° C
E0137	TSS-21	50	Suspended 6L Sample	Solution	Hydro	1L sample	4.0	16/3/2010	15:00	18/3/2010	09:00	2520	0.8	179.5	-0.0	-	3	18° C
E0138	TSS-20	0.5	Float	Peat	ECOSTEM	All	13.9	26/3/2010	12:00	26/3/2010	12:30	30	0.8	179.5	2.3	-	-	18° C
E0139	TSS-20	0.5	Mat	Peat	ECOSTEM	All	13.9	26/3/2010	12:00	26/3/2010	12:30	30	0.8	179.5	6.6	-	-	18° C
E0140	TSS-20	0.5	Peat in Filter Bag	Peat	ECOSTEM	All	13.9	26/3/2010	12:00	26/3/2010	12:30	30	0.8	179.5	221.6	-	-	18° C

Sample ID	Peat Sample	Settling Duration (hr)	Component	Material Type	Lab	Sub-Component	Peat Saturation Duration (days)	Start Date	Start Time (hr) - t1	End Date	End Time (hr) - t2	Settling Duration (min) = t2 - t1	Water Depth (m)	Water Volume in Drum (L) - Vd	Mass - peat (g)	Volume filtered (L) - Vf	TSS (mg/L) from Lab	Water Temperature at Start of Peat Settling
E0141	TSS-20	0.5	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	13.9	26/3/2010	12:00	26/3/2010	12:30	30	0.8	179.5	-0	-	-	18° C
E0142	TSS-20	0.5	Filtrate	Solution	Hydro	1L sample	13.9	26/3/2010	12:00	26/3/2010	12:30	30	0.8	179.5	-0	175.5	46	18° C
E0143	TSS-20	0.5	Filtrate	Solution	Hydro	1L sample	13.9	26/3/2010	12:00	26/3/2010	12:30	30	0.8	179.5	-0	175.5	49	18° C
E0144	TSS-20	0.5	Suspended 6L Sample	Solution	Hydro	1L sample	13.9	26/3/2010	12:00	26/3/2010	12:30	30	0.8	179.5	-0	-	128	18° C
E0145	TSS-20	0.5	Suspended 6L Sample	Solution	Hydro	1L sample	13.9	26/3/2010	12:00	26/3/2010	12:30	30	0.8	179.5	-0	-	127	18° C
E0146	TSS-20	1.75	Float	Peat	ECOSTEM	All	12.7	25/3/2010	09:00	25/3/2010	10:45	105	0.8	179.5	2.3	-	-	18° C
E0147	TSS-20	1.75	Mat	Peat	ECOSTEM	All	12.7	25/3/2010	09:00	25/3/2010	10:45	105	0.8	179.5	32.4	-	-	18° C
E0148	TSS-20	1.75	Peat in Filter Bag	Peat	ECOSTEM	All	12.7	25/3/2010	09:00	25/3/2010	10:45	105	0.8	179.5	202.6	-	-	18° C
E0149	TSS-20	1.75	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	12.7	25/3/2010	09:00	25/3/2010	10:45	105	0.8	179.5	-0	-	-	18° C
E0150	TSS-20	1.75	Filtrate	Solution	Hydro	1L sample	12.7	25/3/2010	09:00	25/3/2010	10:45	105	0.8	179.5	-0	175.5	117	18° C
E0151	TSS-20	1.75	Filtrate	Solution	Hydro	1L sample	12.7	25/3/2010	09:00	25/3/2010	10:45	105	0.8	179.5	-0	175.5	111	18° C
E0152	TSS-20	1.75	Suspended 6L Sample	Solution	Hydro	1L sample	12.7	25/3/2010	09:00	25/3/2010	10:45	105	0.8	179.5	-0	-	27	18° C
E0153	TSS-20	1.75	Suspended 6L Sample	Solution	Hydro	1L sample	12.7	25/3/2010	09:00	25/3/2010	10:45	105	0.8	179.5	-0	-	24	18° C
E0154	TSS-20	6	Float	Peat	ECOSTEM	All	12.8	25/3/2010	09:30	25/3/2010	15:30	360	0.8	179.5	2.7	-	-	18° C
E0155	TSS-20	6	Mat	Peat	ECOSTEM	All	12.8	25/3/2010	09:30	25/3/2010	15:30	360	0.8	179.5	4.1	-	-	18° C
E0156	TSS-20	6	Peat in Filter Bag	Peat	ECOSTEM	All	12.8	25/3/2010	09:30	25/3/2010	15:30	360	0.8	179.5	204	-	-	18° C
E0157	TSS-20	6	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	12.8	25/3/2010	09:30	25/3/2010	15:30	360	0.8	179.5	-0	-	-	18° C
E0158	TSS-20	6	Filtrate	Solution	Hydro	1L sample	12.8	25/3/2010	09:30	25/3/2010	15:30	360	0.8	179.5	-0	175.5	299	18° C

Sample ID	Peat Sample	Settling Duration (hr)	Component	Material Type	Lab	Sub-Component	Peat Saturation Duration (days)	Start Date	Start Time (hr) - t1	End Date	End Time (hr) - t2	Settling Duration (min) = t2 - t1	Water Depth (m)	Water Volume in Drum (L) - Vd	Mass - peat (g)	Volume filtered (L) - Vf	TSS (mg/L) from Lab	Water Temperature at Start of Peat Settling
E0159	TSS-20	6	Filtrate	Solution	Hydro	1L sample	12.8	25/3/2010	09:30	25/3/2010	15:30	360	0.8	179.5	-0	175.5	319	18° C
E0160	TSS-20	6	Suspended 6L Sample	Solution	Hydro	1L sample	12.8	25/3/2010	09:30	25/3/2010	15:30	360	0.8	179.5	-0	-	22	18° C
E0161	TSS-20	6	Suspended 6L Sample	Solution	Hydro	1L sample	12.8	25/3/2010	09:30	25/3/2010	15:30	360	0.8	179.5	-0	-	21	18° C
E0162	TSS-20	18	Float	Peat	ECOSTEM	All	13.0	25/3/2010	16:00	26/3/2010	09:00	1020	0.8	179.5	2.3	-	-	11° C
E0163	TSS-20	18	Mat	Peat	ECOSTEM	All	13.0	25/3/2010	16:00	26/3/2010	09:00	1020	0.8	179.5	11.7	-	-	11° C
E0164	TSS-20	18	Peat in Filter Bag	Peat	ECOSTEM	All	13.0	25/3/2010	16:00	26/3/2010	09:00	1020	0.8	179.5	177	-	-	11° C
E0165	TSS-20	18	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	13.0	25/3/2010	16:00	26/3/2010	09:00	1020	0.8	179.5	-0	-	-	11° C
E0166	TSS-20	18	Filtrate	Solution	Hydro	1L sample	13.0	25/3/2010	16:00	26/3/2010	09:00	1020	0.8	179.5	-0	175.5	112	11° C
E0167	TSS-20	18	Filtrate	Solution	Hydro	1L sample	13.0	25/3/2010	16:00	26/3/2010	09:00	1020	0.8	179.5	-0	175.5	119	11° C
E0168	TSS-20	18	Suspended 6L Sample	Solution	Hydro	1L sample	13.0	25/3/2010	16:00	26/3/2010	09:00	1020	0.8	179.5	-0	-	17	11° C
E0169	TSS-20	18	Suspended 6L Sample	Solution	Hydro	1L sample	13.0	25/3/2010	16:00	26/3/2010	09:00	1020	0.8	179.5	-0	-	9	11° C
E0170	TSS-20	50	Float	Peat	ECOSTEM	All	4.0	16/3/2010	16:00	18/3/2010	10:00	2520	0.8	179.5	6.1	-	-	18° C
E0171	TSS-20	50	Mat	Peat	ECOSTEM	All	4.0	16/3/2010	16:00	18/3/2010	10:00	2520	0.8	179.5	18.3	-	-	18° C
E0172	TSS-20	50	Peat in Filter Bag	Peat	ECOSTEM	All	4.0	16/3/2010	16:00	18/3/2010	10:00	2520	0.8	179.5	371.1	-	-	18° C
E0173	TSS-20	50	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	4.0	16/3/2010	16:00	18/3/2010	10:00	2520	0.8	179.5	-0	-	-	18° C
E0174	TSS-20	50	Filtrate	Solution	Hydro	1L sample	4.0	16/3/2010	16:00	18/3/2010	10:00	2520	0.8	179.5	-0	175.5	240	18° C
E0175	TSS-20	50	Filtrate	Solution	Hydro	1L sample	4.0	16/3/2010	16:00	18/3/2010	10:00	2520	0.8	179.5	-0	175.5	192	18° C
E0176	TSS-20	50	Suspended 6L Sample	Solution	Hydro	1L sample	4.0	16/3/2010	16:00	18/3/2010	10:00	2520	0.8	179.5	-0	-	14	18° C

Sample ID	Peat Sample	Settling Duration (hr)	Component	Material Type	Lab	Sub-Component	Peat Saturation Duration (days)	Start Date	Start Time (hr) - t1	End Date	End Time (hr) - t2	Settling Duration (min) = t2 - t1	Water Depth (m)	Water Volume in Drum (L) - Vd	Mass - peat (g)	Volume filtered (L) - Vf	TSS (mg/L) from Lab	Water Temperature at Start of Peat Settling
E0177	TSS-20	50	Suspended 6L Sample	Solution	Hydro	1L sample	4.0	16/3/2010	16:00	18/3/2010	10:00	2520	0.8	179.5	-0	-	20	18° C
E0178	TSS-24	0.5	Float	Peat	ECOSTEM	All	12.8	25/3/2010	10:15	25/3/2010	10:45	30	0.8	179.5	0	-	-	18° C
E0179	TSS-24	0.5	Mat	Peat	ECOSTEM	All	12.8	25/3/2010	10:15	25/3/2010	10:45	30	0.8	179.5	2.3	-	-	18° C
E0180	TSS-24	0.5	Peat in Filter Bag	Peat	ECOSTEM	All	12.8	25/3/2010	10:15	25/3/2010	10:45	30	0.8	179.5	158.4	-	-	18° C
E0181	TSS-24	0.5	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	12.8	25/3/2010	10:15	25/3/2010	10:45	30	0.8	179.5	-0	-	-	18° C
E0182	TSS-24	0.5	Filtrate	Solution	Hydro	1L sample	12.8	25/3/2010	10:15	25/3/2010	10:45	30	0.8	179.5	-0	175.5	294	18° C
E0183	TSS-24	0.5	Filtrate	Solution	Hydro	1L sample	12.8	25/3/2010	10:15	25/3/2010	10:45	30	0.8	179.5	-0	175.5	283	18° C
E0184	TSS-24	0.5	Suspended 6L Sample	Solution	Hydro	1L sample	12.8	25/3/2010	10:15	25/3/2010	10:45	30	0.8	179.5	-0	-	82	18° C
E0185	TSS-24	0.5	Suspended 6L Sample	Solution	Hydro	1L sample	12.8	25/3/2010	10:15	25/3/2010	10:45	30	0.8	179.5	-0	-	83	18° C
E0186	TSS-24	1.75	Float	Peat	ECOSTEM	All	12.8	25/3/2010	11:00	25/3/2010	12:45	105	0.8	179.5	2.3	-	-	18° C
E0187	TSS-24	1.75	Mat	Peat	ECOSTEM	All	12.8	25/3/2010	11:00	25/3/2010	12:45	105	0.8	179.5	5.2	-	-	18° C
E0188	TSS-24	1.75	Peat in Filter Bag	Peat	ECOSTEM	All	12.8	25/3/2010	11:00	25/3/2010	12:45	105	0.8	179.5	194.5	-	-	18° C
E0189	TSS-24	1.75	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	12.8	25/3/2010	11:00	25/3/2010	12:45	105	0.8	179.5	-0	-	-	18° C
E0190	TSS-24	1.75	Filtrate	Solution	Hydro	1L sample	12.8	25/3/2010	11:00	25/3/2010	12:45	105	0.8	179.5	-0	175.5	262	18° C
E0191	TSS-24	1.75	Filtrate	Solution	Hydro	1L sample	12.8	25/3/2010	11:00	25/3/2010	12:45	105	0.8	179.5	-0	175.5	251	18° C
E0192	TSS-24	1.75	Suspended 6L Sample	Solution	Hydro	1L sample	12.8	25/3/2010	11:00	25/3/2010	12:45	105	0.8	179.5	-0	-	14	18° C
E0193	TSS-24	1.75	Suspended 6L Sample	Solution	Hydro	1L sample	12.8	25/3/2010	11:00	25/3/2010	12:45	105	0.8	179.5	-0	-	14	18° C
E0194	TSS-24	6	Float	Peat	ECOSTEM	All	13.7	26/3/2010	08:30	26/3/2010	14:30	360	0.8	179.5	2.2	-	-	18° C
E0195	TSS-24	6	Mat	Peat	ECOSTEM	All	13.7	26/3/2010	08:30	26/3/2010	14:30	360	0.8	179.5	3.2	-	-	18° C

Sample ID	Peat Sample	Settling Duration (hr)	Component	Material Type	Lab	Sub-Component	Peat Saturation Duration (days)	Start Date	Start Time (hr) - t1	End Date	End Time (hr) - t2	Settling Duration (min) = t2 - t1	Water Depth (m)	Water Volume in Drum (L) - Vd	Mass - peat (g)	Volume filtered (L) - Vf	TSS (mg/L) from Lab	Water Temperature at Start of Peat Settling
E0196	TSS-24	6	Peat in Filter Bag	Peat	ECOSTEM	All	13.7	26/3/2010	08:30	26/3/2010	14:30	360	0.8	179.5	204.3	-	-	18° C
E0197	TSS-24	6	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	13.7	26/3/2010	08:30	26/3/2010	14:30	360	0.8	179.5	-0	-	-	18° C
E0198	TSS-24	6	Filtrate	Solution	Hydro	1L sample	13.7	26/3/2010	08:30	26/3/2010	14:30	360	0.8	179.5	-0	175.5	184	18° C
E0199	TSS-24	6	Filtrate	Solution	Hydro	1L sample	13.7	26/3/2010	08:30	26/3/2010	14:30	360	0.8	179.5	-0	175.5	180	18° C
E0200	TSS-24	6	Suspended 6L Sample	Solution	Hydro	1L sample	13.7	26/3/2010	08:30	26/3/2010	14:30	360	0.8	179.5	-0	-	13	18° C
E0201	TSS-24	6	Suspended 6L Sample	Solution	Hydro	1L sample	13.7	26/3/2010	08:30	26/3/2010	14:30	360	0.8	179.5	-0	-	11	18° C
E0202	TSS-24	18	Float	Peat	ECOSTEM	All	13.1	25/3/2010	16:45	26/3/2010	11:00	1095	0.8	179.5	2.2	-	-	18° C
E0203	TSS-24	18	Mat	Peat	ECOSTEM	All	13.1	25/3/2010	16:45	26/3/2010	11:00	1095	0.8	179.5	4.8	-	-	18° C
E0204	TSS-24	18	Peat in Filter Bag	Peat	ECOSTEM	All	13.1	25/3/2010	16:45	26/3/2010	11:00	1095	0.8	179.5	166.1	-	-	18° C
E0205	TSS-24	18	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	13.1	25/3/2010	16:45	26/3/2010	11:00	1095	0.8	179.5	-0	-	-	18° C
E0206	TSS-24	18	Filtrate	Solution	Hydro	1L sample	13.1	25/3/2010	16:45	26/3/2010	11:00	1095	0.8	179.5	-0	175.5	117	18° C
E0207	TSS-24	18	Filtrate	Solution	Hydro	1L sample	13.1	25/3/2010	16:45	26/3/2010	11:00	1095	0.8	179.5	-0	175.5	124	18° C
E0208	TSS-24	18	Suspended 6L Sample	Solution	Hydro	1L sample	13.1	25/3/2010	16:45	26/3/2010	11:00	1095	0.8	179.5	-0	-	6	18° C
E0209	TSS-24	18	Suspended 6L Sample	Solution	Hydro	1L sample	13.1	25/3/2010	16:45	26/3/2010	11:00	1095	0.8	179.5	-0	-	6	18° C
E0210	TSS-24	50	Float	Peat	ECOSTEM	All	4.1	16/3/2010	16:32	18/3/2010	10:45	2533	0.8	179.5	0	-	-	18° C
E0211	TSS-24	50	Mat	Peat	ECOSTEM	All	4.1	16/3/2010	16:32	18/3/2010	10:45	2533	0.8	179.5	4.4	-	-	18° C
E0212	TSS-24	50	Peat in Filter Bag	Peat	ECOSTEM	All	4.1	16/3/2010	16:32	18/3/2010	10:45	2533	0.8	179.5	127.3	-	-	18° C
E0213	TSS-24	50	Suspended 6L Sample	Peat	ECOSTEM	> 2mm	4.1	16/3/2010	16:32	18/3/2010	10:45	2533	0.8	179.5	-0	-	-	18° C

Sample ID	Peat Sample	Settling Duration (hr)	Component	Material Type	Lab	Sub-Component	Peat Saturation Duration (days)	Start Date	Start Time (hr) - t1	End Date	End Time (hr) - t2	Settling Duration (min) = t2 - t1	Water Depth (m)	Water Volume in Drum (L) - Vd	Mass - peat (g)	Volume filtered (L) - Vf	TSS (mg/L) from Lab	Water Temperature at Start of Peat Settling
E0214	TSS-24	50	Filtrate	Solution	Hydro	1L sample	4.1	16/3/2010	16:32	18/3/2010	10:45	2533	0.8	179.5	-0	175.5	183	18° C
E0215	TSS-24	50	Filtrate	Solution	Hydro	1L sample	4.1	16/3/2010	16:32	18/3/2010	10:45	2533	0.8	179.5	-0	175.5	198	18° C
E0216	TSS-24	50	Suspended 6L Sample	Solution	Hydro	1L sample	4.1	16/3/2010	16:32	18/3/2010	10:45	2533	0.8	179.5	-0	-	7	18° C
E0217	TSS-24	50	Suspended 6L Sample	Solution	Hydro	1L sample	4.1	16/3/2010	16:32	18/3/2010	10:45	2533	0.8	179.5	-0	-	5	18° C