BORD NA MÓNA

BORD NA MÓNA ENERGY LIMITED
Leabeg, Tullamore, Co Offaly

Srahmore Waste Licence W199-2

Annual Environmental Report

2010

29th March 2011

Bord na Móna today operates 5 main subsidiary companies in more than 20 locations throughout Ireland, the UK and USA. The principal businesses are in the Energy, Resource Recovery, Horticulture, Home Heating and Wastewater Treatment and Air Pollution Abatement markets. The company also engages in an extensive rehabilitation program to develop its peat lands in an environmentally sustainable manner.

Bord na Móna has long recognised the need to diversify its activities in order to secure a sustainable future. In this context we identified the energy and resource recovery sectors as appropriate areas of growth and development, given our assets, strengths and skills.
Significant challenges face Ireland in meeting the country's needs to provide secure sustainable energy and manage waste while minimising the impact on the environment. Bord na Móna is in a strong position to contribute to dealing with these challenges. We have a unique mixture of assets, experience and innovation which will enable us to cross-link our activities in energy, water and resource recovery to provide products and services which will meet Ireland's needs. We also have the capacity to become an exemplar for others to follow in these fields.
With this background we have scoped out a new vision for the future sustainable development of Bord na Móna.
Following on from our vision, we have developed a new mission for Bord na Móna which the Company is committed to achieving.
In 1934 the Turf Development Board was formed to ‘develop and improve the turf industry.' The experience of fuel shortages during the war re-enforced the Irish State's commitment to developing the country's bogs. In 1944 the TDB was asked to devise and submit a comprehensive programme, the outcome was the transformation in 1946 of the TDB into Bord na Móna. The Board was given a mandate to increase the use of peat as a fuel and in energy production. Markets for the use of moss peat in horticulture were also developed.
In 1990 Bord na Móna implemented a divisionalised and decentralised structure, designed to delegate responsibility downwards ensuring a sharper focus on each profit centre and a greater spirit of enterprise.

Group Vision

The vision statement defines the Company's purpose, in terms of its values.
Values are guiding beliefs about how things should be done.
The vision statement communicates both the purpose and values of Bord na Móna.
For employees, it gives direction about how they are expected to behave and inspires them to give their best. Shared with customers, it shapes the customers' understanding of why they should work with Bord na Móna.
Bord na Móna will seek solutions that optimise the creative energy and potential of the organisation, driven by long term goals and the organisation's vision and mission.
In this context our devolved business units will align their vision and strategic planning with the global direction provided.
Consistent with our vision, innovation will once again return to the core of everything we do. We will capitalise on opportunities to cross fertilise our unique range of skills and technologies that add value and are socially and environmentally sustainable.
Greater focus will be placed on managing and developing our land assets in a responsible and sustainable manner. Our award winning initiatives at Lough Boora (Co. Offaly) and Oweninny (Co Mayo), provide shining examples of what can be achieved

Group Mission

We conduct our affairs with openness, honesty and integrity.
We are Ireland's leading environmentally responsible integrated utility service provider encompassing electricity, heating solutions, resource recovery, water, horticulture and related services.
We capitalise on international opportunities where we have a competitive advantage.
We achieve continuing growth through superior customer service, outstanding quality and innovation delivered through the excellence and commitment of our people.
We engage in sustainable profitable business in the communities we serve, which is rewarding and challenging for employees and other stakeholders.

Contents:

1.0 Introduction

1.1. Report Period

This Annual Environmental Report covers the period of 01/01/10 to 31/12/10 for the Srahmore Peat Repository at Attavally, Bangor-Erris, Co Mayo.
This is the sixth Annual Environmental Report for Bord na Mona's Peat Repository at Srahmore, Attavally, Bangor-Erris, Co Mayo. The structure and contents of this report are based on the requirements of Schedule D Reports & AER Content.
During 2009, an application for a review of this licence was submitted to the Agency to allow acceptance of up to 75,000 tonnes of peat from the new gas pipeline route. In July 2010, a new waste licence (WL199-02) was issued and supercedes the WL199-01 licence.

1.2. Waste Licence Register Number - W199-02

1.3. Operator & Address of Facility.

Bord na Mona Energy Ltd
Srahmore,
Attavally
Bangor-Erris
Co Mayo

1.4. Environmental Policy (attached on next page)

BORD NA MÓNA

BORD NA MÓNA ENERGY LIMITED

Environmental Policy Statement

Bord Na Mona Energy Limited is a commercial semi-state body with responsibility to develop Ireland's peat resources in the national interest.

Bord Na Mona Energy Limited is committed to gather and make available information on all aspects of its environmental impact and to help improve understanding among the public generally of its role and of the importance of Irish peatlands.

Bord Na Mona Energy Limited recognises the importance of peatland conservation.

Bord Na Mona Energy Limited will leave behind all areas it owns as either an economically or socially integrated resource of high environmental value.

Bord Na Mona Energy Limited seeks to conduct all aspects of its business in an environmentally sensitive manner.

Bord Na Mona Energy Limited operates an environmental management system specifically addressing the following impacts:

- Discharges to water
- Emissions to atmosphere
- Waste disposal
- Use of natural resources
- Noise, vibration, odour, dust and visual effects
- Natural environmental and eco-system

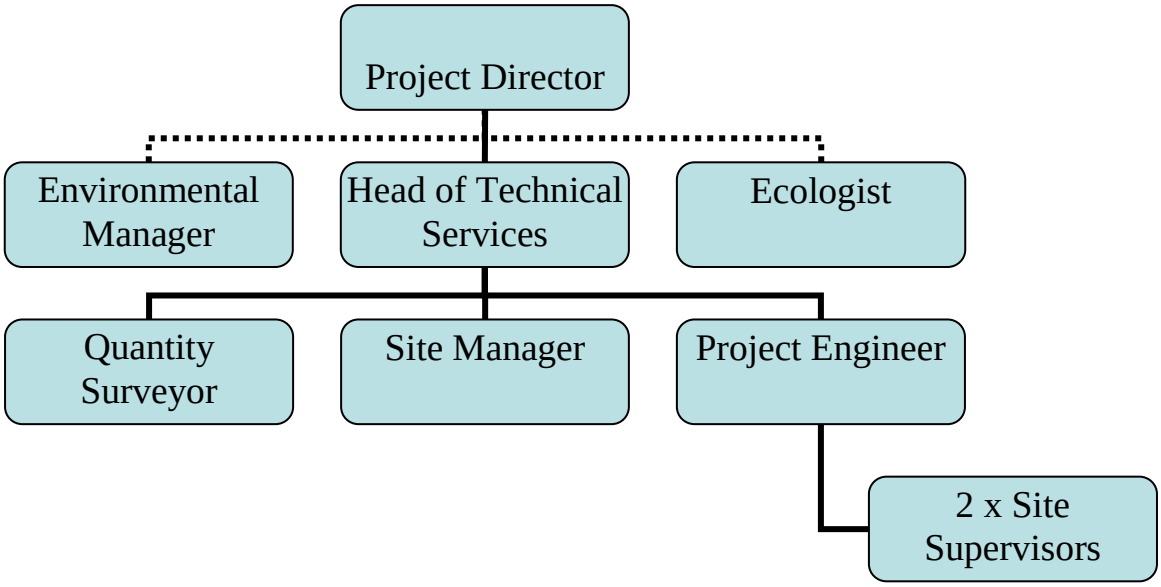
The environmental management system will be monitored, maintained and continually improved.

A system of regular environmental audits will be put in place.

Bord Na Mona Energy Limited will continue research and development (R&D) into all aspects of its environmental impact.

This statement is published and is available at all locations within the section and its contents are brought to the attention of all employees.

1.5. Current Management Structure



2.0 Waste Management Report

2.1 Site Description

The site is situated approximately 1km northwest of the village Bangor-Erris and comprises cutover peatland in the Oweninny bog complex. This consists of eight separate areas of cutover peatland, numbered 1 – 8, each of which was assessed for suitability for the development. Area 5 was selected as the peat reception area. Area 6 was selected for the actual deposition of peat and a section of Area 7 is utilised as a "controlled overflow area" in the event of exceedance of the design rainfall. The peat reception area is utilised for off-loading of the peat is the closest area to the public road.

The site is a peat disposal area for the placement of c. 450,000m³ of peat waste excavated from the development of the Shell Corrib Gas Field Terminal at the nearby Bellanaboy Bridge site. The peat, which is from a 3000 to 5000 year old Atlantic Blanket Bog, is transported by road in trucks to the Srahmore deposit area. It was originally anticipated that peat transport and deposit would take place over a 6 month period, spread out over two seasons. However, peat transport and deposit ceased on the 4th July 2005, and as of that date**,** 112,937tonnes were transported to and deposited at the site.

Peat deposition at the site did not resume during 2006. Peat deposition did recommence on the 2nd of April 2007 and completed the deposition of peat on the 29th June 2007.

As the volumes of peat deposited had reached the licensed limit in June 2007, no more peat was accepted in 2008 or 2009.

Since then, decommissioning of plant and equipment has taken place in accordance with Condition 9.1 of the Waste Licence.

During 2009, an application for a review of this licence was submitted to the Agency to allow acceptance of up to 75,000 tonnes of peat from the new gas pipeline route.

In July 2010, a new waste licence (WL199-02) was issued and supercedes the WL199-01 licence.

As of this AER, the volume of peat deposited in Srahmore is 448,049m³.

A map detailing the final deposition is included in Appendix 1

3.0 Environmental Emissions of the Activity

3.1 Emissions to Atmosphere Summary

The only potential emissions to the atmosphere from the activities on site are dust. As required by Condition 8.8.1, locations for dust monitoring around the site were agreed with the Agency, and Bergerhoff Dust gauges were installed.
As there was no peat deposition operations at the site during 2010, there was no requirement to monitor for dust, as was the case in 2007, 2008 and 2010.

3.2 Emissions to Water Summary

Emissions to water from the site takes place at 3 locations:

Licence Emission Ref. No	SW No
S5-1	SW100
S5-2	SW101
Location 7 (combined from Area 5/6)	SW4

As required by Schedule C (2.2) the following parameters were monitored during peat deposition, from January to December 10

	Continuous	Daily	Weekly	Monthly	Quarterly
Flow	**SW4**				
pH			**SW4**	**SW 100 & 101**	
Conductivity	**SW4**		**SW100 & 101**		
COD			**SW4, 100 & 101**		
BOD					**SW4**
Suspended Solids		**SW4**	**SW 100 & 101**		
TDS			**SW4**		
Nitrite (as N)				**SW4**	
Nitrate (as N)				**SW4**	
Ammonia (as N)			**SW4, 100 & 101**		
Total Phosphorus				**SW4**	
Oils, fats & greases					**SW4**

Emissions from SW4 are monitored using a flow proportional composite sampler, which operates on a continuous basis. Two x 2 litre sample bottles are filled over a 24 hour period, with 1 litre sent to Complete Laboratory Services for analysis and the remaining 3 litres retained on site for sampling by the EPA.

The compliance requirements at SW4 are as follows:

> [1]*8/10 consecutive results, calculated as daily mean concentration or mass emission values on the basis of flow proportional composite sampling, shall not exceed the emission limit value. No individual result similarly calculated shall exceed 1.2 times the emission limit value*

Emissions from SW100 & 101 are sampled by grab sample on a weekly basis and sent to the lab for analysis. The compliance requirements at SW100 & 101 are as follows:

> *No grab sample value shall exceed 1.2 times the emission limit value.*

The emission limit value (ELV) attached to emissions to water from the site is 35mg/l suspended solids.

Results for the 3 emission points are in Appendix 2.

Non-compliances:

Monitoring Point	Emission (SS mg/l)	ELV (mg/l)	Corrective Action
SW4 (Location 7)	**None**	42mg/l	n/a
SW100	**One**	42mg/l	SR-CA/018
SW101	**None**	35mg/l	n/a

This represents an over compliance level of 100% at Sw4 and 101, the two main emission points from the sites, and 98% at Sw100
The 2007 - 2010 results for these three emission points are graphed in Appendix 2. These trends over the 4 year period show a gradual drop in the suspended solids from the site, from an average of 10.8 mg/l in 2007, to 4.5 mg/l in 2010 at the main emission point from the site, Location 7 (SW4).

This is also the case with Sw100 where the SS reduced, while the SS increased at Sw101 over the same period, but was still within the ELV of 35mg/l

Year	SW4(Location 7) SS (mg/l)	Sw100 SS (mg/l)	Sw101 SS (mg/l)
2007	10.8	4.08	4.18
2008	5.6	2.74	2.66
2009	4.4	1.9	2.36
2010	4.5	2.9	5.0

3.3 Ambient Monitoring.

River-water Monitoring:

Schedule C (6) requires monthly monitoring for Suspended Solids and Ammonia at two locations on the Munhin River, upstream and down stream of the discharge from Location 7 (SW4). The average suspended solids upstream and downstream of the discharge from the site were 5.4mg/l and 35.7mg/l respectively.

The average ammonia levels upstream of the discharge are 0.016 mg/l and 0.03 mg/l downstream. These results would be typical of levels found in peatland catchments and are well below the Maximum Allowable Concentration (0.23 mg/l)

These results would indicate that the Srahmore Peat Repository activities had no negative effect on the suspended solids content of the river during 2010.

Results of the analysis are attached in Appendix 3.

Biological monitoring:

Biological Quality (Q) rating/Q index is required annually.
This was carried out, in agreement with the Agency, in early September 2010, by AMGC Environmental Agricultural Consultancy. Assessment was carried out upstream and downstream of the discharge from the site, to establish a Q index for both locations and identify any change in water quality.

Biological Quality rating carried out upstream and downstream of the activity indicated that there was an improvement in water quality downstream of the main outlet from SW4 (Location 7), since 2007. The upstream site at the Munhin Bridge on the R313 was classed as a Q 3-4 site or Class B site with a BBI of 8, while downstream had a Q index of Q4 and a BBI of 8-9 which classed it a unpolluted. This classifies both locations as slightly polluted, which under the Irish System, means the river is classified as Class B Slightly Polluted upstream and Class A unpolluted downstream.

Groundwater Monitoring:

Condition 8.10 required the installation of a groundwater monitoring network at the site, in accordance with Agency guidelines. This required one up-hydraulic gradient, one down gradient of the peat reception area, and two down gradient of the peat deposition area.
Groundwater sampling was conducted in April and August 2010.

Diesel Range Organics were all clear.

Conductivity levels ranged from 177µS/cm at BH4-S to 674µS/cm at BH1-S, therefore not exceeding the Interim Guideline Value of 1000 µS/cm for groundwater.

COD concentrations exhibit normal levels for groundwater across the site ranging from 5 mg/l at BH2-S to 146 mg/l at BH1-D.

Nitrate levels were found to be below the limit of detection (<0.2 mg/l) and therefore remained within the Interim Guideline Value for Nitrate as N (5.65 mg/l –N) as set out in the Interim Report “Towards Setting Guideline Values for the Protection of Groundwater in Ireland” 2004.

Ammonia levels, (NH3-N) ranged from <0.02 mg/l at GW-4S to 3.74 mg/l at BH-2D. All ammonia results with the exception of BH-4S remain elevated and are above their

IGV limit of (0.12mg/l as N).. The results are consistent with previous trends, displaying slight fluctuations. These fluctuations are due to natural processes in the peatland as there was no activity at the site in 2010.

The Srahmore Facility is located within a cut-away peat land. Groundwaters beneath peatland's have been found to be naturally high in nitrogen and due to the nature of the peatland's reducing conditions; the nitrogen is present in the form of ammonia. The ammonia levels remain elevated as it is not oxidised to nitrite or nitrate.
BH-4 is downgradient of the reception area and BH's 1 and 2 are downgradient of the deposition area. Results of all sampling during the period of investigation and the groundwater contour map are attached in appendix 4.

3.4 Noise Monitoring Report.

Condition 8.11 of the licence requires a noise survey to be carried out during weeks 2, 6 & 12 at the following locations:

NRA – At site entrance from the R313.
NRB – North/West of the site on the R313 at a dwelling.
NRC – West of the site, close to Bangor-Erris Village

Due to the absence of any peat deposition activity at the site during 2009, noise monitoring was not required.

A map of the Waste Licence Emission & Monitoring Points is included in Appendix 5.

3.5 Resource & Energy Consumption

Resource and Energy Consumption for the Facility was as follows:

Marked gas oil for all machine operations	-	1950 litres
Electricity usage	-	2938 kWh

Due to the completion of deposition at the site during 2007, there was little energy and resource consumption at the site during 2010.

4.0 Environmental Management System

4.1 Management & Reporting Structure

This is included in section 1.5 and details the current management & reporting structure.

4.2 Schedule of Environmental Objectives & Targets

This sets out the schedule of objectives as proposed by Condition 2.2.2.2.

Objective	Target
1. Minimisation of suspended solids	Assessment of suspended solids generation during peat deposition during the first two months and setting a programme for its reduction
2. Reduction of fugitive dust	Establish the levels of dust generation during peat deposition during the first two months and setting a programme for its reduction.
3. Protection of dust sensitive areas	Establish the levels of dust nuisance at the three dust sensitive locations during the first two months of monitoring and setting a programme for the protection of these areas
4. Reuse of silt pond waste	Monitor the levels of silt pond waste cleanings at the 7 silt ponds and swale locations over the peat deposition period and establish a reuse option.
5. Effective spill leak management of Mobile fuelling units	Comply with all of the condition of the licence in relation to operation and maintenance of all mobile fuelling operations, and assess its effectiveness after 3 months operation.
6. Management of dangerous substances	Comply with the conditions of licence relating to oil and diesel storage, bunding and recycling and review after 2 months operation
7. Management of silt pond flow discharges	Comply with the conditions of the licence in relation to the management of silt pond flow discharges during high rainfall events and assess its effectiveness after two months operation.
8. Reuse of stone used in internal haul-road construction	Investigate any potential re-uses for the geotextile and stone used in the construction of the internal; haul-roads, either on site or in the locality.

4.3 Environmental Management Programme Report.

Minimisation of Suspended Solids (EMP1)

Activity/Emission	Objective	Target Date	Target	Persons Responsible
OT1 Emission of suspended Solids	Minimisation of suspended Solids	On-going programme during the life of the project and as part of aftercare & maintenance.	To comply with Conditions 8.9.1, 8.9.3 & 8.9.4. a programme of weekly inspections of all drainage and subsequent waste treatments systems, daily inspections of discharges to receiving waters and the regulation and monitoring of all silt generating activities will be put in-place. This will be used for establishing the cleaning roster. These systems will be assessed on an ongoing basis for the first two months of peat deposition, to assess the degree of suspended solids generation, and this along with the daily results for SS from the Composite Sampler will be used to establish targets for the reduction of Suspended Solids **Status: The inspections and monitoring of these emissions were continued during 2010 and are retained on site for inspection.**	Site Manager & Environmental Manager

Reduction of fugitive dust (EMP2)

Activity/Emission	Objective	Target Date	Target	Person Responsible
OT2 Fugitive dust emissions	Reduction of fugitive dust emissions during all operations	On-going programme during the life of the project.	This programme will establish the degree of dust generation during the first two months of peat deposition. Peat delivery, tipping on the peat reception area, loading into the trailers and deposition into the bays will be examined along with any dust suppression methods employed and the appropriate Dust Handling Procedure. This will include the first two months of dust monitoring. The results of these assessments will be used to establish targets for reduction of fugitive dust emissions. **Status: Due to the absence of any peat deposition activities on site during the reporting period, this was programme was not required.**	Site Manager & Environmental Manager

Protection of dust sensitive areas. (EMP3)

Activity/Emission	Objective	Target Date	Target	Person Responsible
OT3 Fugitive dust emissions	Protection of Dust sensitive areas.	On-going programme during the life of the project.	Based of the results of the initial two months dust monitoring at the five dust sensitive locations, a programme of protection of dust sensitive locations will be examined. This will address any measures to be put in-place, such as the planting of trees, or any special measures to be put in place to protect any areas that exceed the ELV of 350 mg/m²/day. **Status: There were no complaints regarding dust received at the site during 2010, due the inactivity at the site, so this programme was suspended.**	Site Manager & Environmental Manager

Reuse of silt pond wastes (EMP4)

Activity/Emission	Objective	Target Date	Target	Person Responsible
OT4 Reuse of Silt Pond Waste	The reuse of all silt pond wastes.	On-going programme during the life of the project.	As the silt wastes generated form the cleaning and maintenance of silt ponds S5-1, S5-2, Area 5 & Area 6 silt ponds are directly as a result of peat deposition, they will either be used in the Bog & Peat Deposition Area rehabilitation & aftercare, or will be incorporated into the existing bays once deposition is complete. **Status: As all peat wastes accepted and generated at the site are for landfilling purposes, there is no further use for the silt pond cleanings. These will be incorporated into the peat deposited or if off benefit will be used in the final rehabilitation.**	Site Manager & Environmental Manager Site Manager & Environmental Manager

Management of mobile fuelling wagons (EMP5)

Activity/Emission	Objective	Target Date	Target	Person Responsible
OT5 Management of mobile Fuelling units	Effective spill/leak management of mobile fuelling units.	On-going programme during the life of the project.	To comply with conditions 3.17, 3.19 and 3.20, the two mobile fuelling units are stored in a bunded location, with an oil spill kit in-place. Fuelling nozzles will be fitted with overflow shut-off mechanisms and auto fill clips will be disabled. All personnel will be made aware through training, of the Oil/Diesel Loading Procedure & the Emergency Response Procedure. Shortened versions of the procedures are posted on the tanks and at the bunded storage location. All service wagons have been inspected before use and bi-annually there after. Leaks, flaws, necessary repair etc, will be reported to the Site Manager. All the above will be in-place before peat deposition re-commences, and will be re-assessed as to their effectiveness every 3 months. The out come of these assessments will determine any improvements to be made and target dates to achieve them. **Status: There is one double-skinned tank retained on-site for re-fuelling excavators etc which is stored in the Bangor Workshop.**	Site Manager & Environmental Manager

Management of dangerous substances (EMP6)

Activity/Emission	Objective	Target Date	Target	Person Responsible
OT6 Management of dangerous substances List I & List II	To manage of any dangerous substances as listed in I & II of the Dangerous Substances Directive 80/68/EEC	On-going programme during the life of the project.	The only substances from Lists I & II of the Dangerous Substances Directive (76/464/EEC and 80/68/EEC and amendments) are List I (7) Mineral Oils and Hydrocarbons. The management of these will include: (1). **Pollution Prevention** as required by Conditions 3.13 – 3.21. This includes the safe storage of diesels/oil/Filters and protection of ground and surface water during fuelling operations. (2). **Pollution Control**: Maintenance of diesel/oil interceptors as required by Conditions 8.9.1 & 8.9.2 All of these measures will be in-place before peat deposition commences. A review will be carried out after the first two months operation and every 3 months thereafter, to assess the effectiveness of programme OT6. A programme of improvement will be implemented once the operational performance of the management of diesels & oils has been assessed.	Site Manager & Environmental Manager

			Status: The oil interceptors installed at the site include 3 Klargester units. These units are installed downstream of the grit trap and are operating successfully. They have also been fitted with alarms, which indicate when they require cleaning. The operation and maintenance of these units is on-going. They were inspected during this time and are on record. Sampling for COD at SW2 during the year showed an average of 49 mg/l. There was no requirement to clean the unit during 2010. **_____**	

Management of silt pond flow discharges (EMP7)

Activity/Emission	Objective	Target Date	Target	Person Responsible
OT7 Effective management of Silt pond flow discharges	Effective management of flow discharges during periods of high precipitation and flooding.	On-going programme during the life of the project.	As is required by Conditions 3.11 & 3.12, all silt ponds must achieve specific design criteria i.e. max flow velocity <10 cm^{-1} and min. 75m^3/nett ha of bog. Flow regulators must also be fitted to ensure the design flow capacity is not exceeded. The drainage system has been designed to a rainfall event of 31 mm, which equates to a 100 year storm event of 1 hours rainfall. As the preferred option for the drainage management was the controlled discharge of water from the drains to the swale to the silt ponds, appropriate flow regulators will be in-place to ensure the design flow of each of the silt ponds is not exceeded during heavy rainfall and that any excess runoff generated is discharged to the overflow area (Area 7). Condition 3.4 requires a construction quality assurance validation to be completed on the surface water drainage/control/treatment works. This will include an assessment of the performance of the silt ponds and will assess its compliance with the stated maximum flow velocity < 10 cms^{-1}	Site Manager & Environmental Manager

			Status. **This was achieved by installing overflow pumps to pump this excess runoff from the swale to this overflow area during 2007. It was further improved by the installation of an automatic gravity overflow to areas 7 which removed the requirement for operator intervention during heavy rainfall and subsequent high discharge rates. This has been set to provide adequate drainage levels to the lowest deposition bay but also to allow overflow into area 7 during periods of high rainfall. This was maintained during 2010, with flow directed to the controlled overflow area during periods of heavy rain.**	

Reuse of road building materials (EMP8)

Activity/Emission	Objective	Target Date	Target	Person Responsible
OT8 Road materials re-use	Reuse of stone used in internal haul-road construction.	As stated in the EIS, the decommissioning plan for the internal haul road network would envisage it occurring at the end of the stabilisation period (5 yrs after deposition has been completed). There may also be a requirement to leave these roads in-place as part of the after use of the deposition area.	All materials used in the internal haul road construction will be either recycled or reused. The Geotextile will be collected for reuse within BNM for under rail lines, or recycled through a licensed contractor. The 300mm of crushed stone will be recycled through one of the following: 1. As internal service roads to a Proposed Wind Farm Development at Oweninny. 2. As construction material on an alternative site. 3. Through an appropriate recycling contractor. 4. Placement at the base of the toe drains to assist in drainage. **Status: Peat deposition will resume in 2011 so the existing haul roads will be retained during this year and next.** **The stone peat haulage roads will have to be retained on site for 3 – 5 years so that access can be maintained to the bays for maintenance of drainage, monitoring and assessment.** **Given the current condition of the roads, it is not envisaged that recycling of the road material will be possible due to**	Site Manager & Environmental Manager

			encroachment of the deposited peat, flooding and degradation of the road surface and weed growth. Excavation and cleaning/screening of the road materials for reuse would be time and energy intensive and the energy and material offset for another site reuse would be negative. This is still the case in 2010.	

4.4 Environmental Management Programme Proposal.

The proposal for 2011 is to continue with projects EMP 1 - 8 due to the expected resumption of peat deposition in 2011.

4.5 Silt Pond Inspection & Desilting Report.

Inspections of the silt ponds are carried out weekly. A full log of all inspections is maintained at the site office and this along with SS results obtained from the silt ponds form the basis for the cleaning roster.

The silt ponds servicing the Srahmore site were all cleaned during 2010 as follows:

Silt Pond	**Date Cleaned**
S5-1	October 2010
S5-2	October 2010
SP1	October 2010
SP2a/b	October 2010
SP3a/b	October 2010
SW4	October 2010

5.0 Site Development Works.

5.1 Summary of main changes/developments/works carried out in 2010

- Cleaning of silt ponds and maintenance of ponds inlet and outlet weirs.
- Maintenance/ Repair of gravel roads.
- Upgrade of access road to composite sampler SW 4.
- Cleaning of drainage channels in bays 2, 3 & 4.
- Cleaning of swale drain.
- Freed blockage in swale drain.
- Erection of safety fence at outlet of ponds 3/3a and at toe drain at South East corner of bay 5.
- General site clean up.
- Water diverted from entering stream between SW4 & SW104. Upgrade cross drains in bays 3 & 4.

5.2 Summary of Planned Works for 2011 (Pre Peat Deposition 2011)

- Lay Bog Mat Road across Bays 3 & 4. Construct stone ramps into each Bay. Create stone haul road in Bay 2 to facilitate peat deposition. Lay Bog Mat Road in Bay 2 if required.
- Supply & install wheelwash and water recycling tanks.
- Supply and install mobile weighbridge.
- Clean out existing grit trap and service petrol interceptor as required.
- Clean out silt ponds and clear drains as necessary.
- Upgrade and maintain existing haul roads.
- Remove old rail tracks at southern end of Bays 2 & 3.
- Install new wireless CCTV system on site.
- Supply and install new water monitoring & control equipment.

- Maintain and upgrade existing weirs, samplers etc.
- Carry out Integrity testing on existing drainage system.
- Grade and sort bog mats stored on Peat Reception Slab.
- Maintain line of sight at entrance. Cut back grass and bushes along entrance to site when necessary.
- Carry out repairs to roofs of portacabins on site.
- Monitor dust levels during deposition
- Carry out Bird and Fauna Surveys
- Maintain plant and equipment on site.
- Install new wind sock & entrance sign

6.0 Waste received and consigned from the Facility

6.1 Non-hazardous waste received by the facility.

		Non-Hazardous Waste Received			
Waste Description	EWC Code	On-site Disposal		On-site Recovery	
		Method	Tonnes	Method	Tonnes
		None		None	

6.2 Hazardous waste received by the facility.

		Hazardous Waste Received			
Waste Description	EWC Code	On-site Disposal		On-site Recovery	
		Method	Tonnes	Method	Tonnes
		None			

6.3 Non-hazardous waste sent off-site for Recovery/Disposal.

Waste Description	EWC Code	Tonnes	Details of Haulage Contractor	Recovery /Disposal	Name & Address of recovery/Disposal Site
Canteen/office Waste	20 01 08	0.375	G & T Loftus Recycling Ltd	Disposal	Rathroeen, Killala Rd, Ballina, Co. Mayo

6.4 Hazardous waste sent off-site for Recovery/Disposal

Consignment Note/TFS Note Number	Date of Dispatch	Description of Waste	EWC Code	Tonnes	Details of Haulage Contractor	Disposal/ Recovery	Name & Address of Recovery/ Disposal site
None during 2010, due to inactivity at the site.							

7.0 Environmental Incidents & Complaints.

7.1 Reported Incidents Summary.

Date	Nature of Incident	Cause	Corrective Action
	NONE		

7.2 Reported Complaints Summary

Date	Nature of Complaint	Cause	Corrective Action
	NONE		

8.0 Review of Nuisance Controls.

The nuisance controls at the site only include dust suppression and pest control.

Due to the completion of the project in 2007, dust suppression was not required. Pest Guard were retained for vermin control during 2010

9.0 Review of Rehabilitation Plan.

Rehabilitation at the Srahmore site is outlined in the Rehabilitation Plan for the Srahmore Peat Deposition Area and Associated Facilities (Feb 2005). The main criteria[1] defining successful rehabilitation of the Srahmore PDA and associated facility are:

(i) Stabilisation of the deposited peat[2]

(ii) Mitigation of silt run-off

Natural revegetation processes are outlined as the BAT for rehabilitation of the Srahmore site. Results show that vegetation established rapidly on the deposited peat; the plant roots bind the introduced peat layer, altering the peat structure to create a homogeneous peat mass thereby stabilising the peat.

Note: An update rehabilitation plan was circulated to consultees in February 2011 as part of Condition 10 of Waste Licence W199-2. The outcome will be reported through that licence.

Deposition Area

The deposition area comprises access routes on high fields, peat deposition area and drainage channels. The greater part of the deposition area has been covered with peat. The peat was deposited and levelled between high fields using long-reach excavators. The final shaping allows for run-off into drainage channels with the peat remaining undisturbed to facilitate natural revegetation processes.

Within weeks the deposited peat was colonised by a flush of soft rush *Juncus effusus* seedlings. Other plants colonising included bulbous rush *Juncus bulbosus* and sorrel *Rumex acetosella*. The soft rush tussocks form the dominant character of the vegetation with inter-tussock spaces of patchy plant cover, with shrubs such as bramble *Rubus fruticosus* and some willow *Salix* spp. emerging. The cover of this pioneer vegetation is continuous over the

[1] These are the basic criteria as identified in the consultation process for development of *The Rehabilitation Plan* for the entire Oweninny Works.

[2] Stabilisation of these areas infers revegetation. Once stabilised there will be no potential peat run-off from the site, which will cover the second criterion for successful rehabilitation.

entire area of deposited peat. The establishment of other species between the tussocks of soft rush will further bind the peat together and eventually lead to a complete cover and stabilisation of the introduced peat.

Vegetation cover in the remaining uncovered area is low and comprises patchy growth of bog cotton *Eriophorum angustifolium* and soft rush *Juncus effusus*.

Water over-spill area (Area 7)

This area was rehabilitated in line with the rehabilitation plan for the Oweninny Works, Cutaway Bog Rehabilitation (2003). This involved field drain blocking and it is anticipated that natural revegetation processes will proceed in this area and over the duration of the peat deposition activity. The overflow facility will be maintained for the duration of the peat deposition and also for a number of years following the activity to ensure that there is no build-up of water on site. When the area is no longer required, the site will be re-surveyed to determine the vegetative condition and whether further rehabilitation work is required (unlikely to be more than superficial).

Off-loading facility (Area 5)

Construction work was completed in April 2005 and the final activity on-site was in Autumn 2007. To date, there has been extensive colonisation of the surrounding bare peat, predominantly soft rush *Juncus effusus.*

Srahmore Assessment November 2010

Annual walkover surveys of the Srahmore PDA indicate that the vegetation that has established on the deposited peat is developing further as outlined in previous annual assessments. Inter-tussock spaces of the soft rush are becoming further colonised by herbs, grasses and mosses with intermittent pools. The initial pioneer vegetation is maturing and developing a denser growth pattern. There are signs of Willow shrubs *Salix* spp. throughout the

PDA with a small area of emerging Gorse *Ulex europaeus* to the north west of the PDA.
A notable feature is the emergence of *Sphagnum cuspidatum* plants throughout the deposited peat area. The plants are by no means extensive in cover but do indicate Poor Fen conditions. The spontaneous regeneration of *Sphagnum* suggests that growth of the bog-mosses could be accelerated by creation of pools throughout the deposited peat complex. The potential to carry out this work was assessed in spring 2010.

The vegetation will continue to develop over time and Bord na Móna will continue to monitor the changes in structure and composition: the site is still utilised by a number of bird species, particularly nesting Skylark (*Alauda arvensis*).

Srahmore PDA: bog pools trials (*note circulated to consultees in June 2010*)

As part of the Rehabilitation Plan that was developed for the Srahmore PDA site (*Rehabilitation Plan for the Srahmore Peat Deposition Area and Associated Facilities* February 2005) it was outlined that following stabilisation of the deposited peat, trials would be established to determine post-peat stabilisation management:
"There will also be an assessment in 5 years following the deposition of the peat to assess the scope for rewetting and/or other long-term rehabilitation measures proposed by the licensee and the consultees as detailed in Chapter 6 of the *Srahmore Peat Deposition Site Development* EIS (December 2003)".

An area of peat at the top of Bay 4 was selected as the peat was spread here in 2005 and has subsequently stabilised predominantly through natural colonisation by rushes. The work comprised digging of pools within the re-vegetated peat and inoculating with *Sphagnum* plants (bog mosses) to determine the ability of the plant to spread within the pools. This work has already been trialled at the Bellacorick site (Farrell 2001) with success.

Aims

- To determine the potential for regeneration of peat formation within the deposited peat at Srahmore
- To determine the best practical approach to accelerating re-establishment of peat-forming conditions within the Srahmore PDA.

Method

- The work was completed on May 31st 2010 following a particularly dry spell; ground conditions were excellent for operating machinery on the deposited peat.
- A long reach excavator was used to dig out pools within the Srahmore deposited peat.
- There were 10 pools marked out initially across the top of Bay 4, two rows of five and each approximately 2m*5m.
- One larger pool was created – approx. 5m*5m
- Each pool except for one was inoculated with *Sphagnum cuspidatum* taken from pools already within the Srahmore deposited peat.

Monitoring *Sphagnum* growth

- The water level in the pools will be monitored (depth measurement)
- Extent of *Sphagnum* growth within each pool will be measured at monthly intervals to determine rate of growth.

Update and progress report

- An overview of the results will be circulated to consultees after 6months (November 2010) and 12 months (May 2011) to outline changes and potential further use of this approach at the site.

February 2011 update

- The trial plots have filled with water and an estimate of *Sphagnum* cover is less than 5%. The plots will be re-assessed in April 2011 and October 2011 and scope for further trials determined.

10.0 Review of Environmental Liabilities Insurance Cover.

In Accordance with the requirements of Schedule D, Annual Environmental Report Content, a review of the Environmental Liabilities Insurance Cover is required. The initial Environmental Liabilities Risk Assessment (ELRA) was carried out in March 2005. This assessment examined 8 Potential Hazards, including, peat combustion, dust blow, sediment laden run-off and fire etc.

The ELRA was again reviewed in 2011, to reflect the new Waste Licence 199-02 and the proposed resumption of peat deposition in 2011 and 2012. This was submitted to the EPA on the 28th February 2011, and of the date of submission of this AER, further information requests from the Agency are being dealt with. The final ELRA will be submitted once these have been addressed to the satisfaction of the Agency.

Compliance Levels	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Emissions to Water	97%	100%	97%	99%	100%	99.3%
Emissions to Air	91.5%	No sampling due to suspension	100%	No sampling due to Suspension	No sampling due to Suspension	No sampling due to Suspension

The risk of peat mobilisation from the site was identified as low in the previous ELRA, and during peat deposition in 2005 and 2007 there were no indications that the status of this risk had increased.

The Licence requires the completion of a stability assessment of each bay, once it has been filled. No bays were filled during 2005, so a stability assessment was carried out in 2007, after each bay was completed.

To date, the natural re-vegetation as specified in the EIS has progressed better than expected. The continuous cover of soft rush (*Juncus effusus)* is

already well established on the deposited peat, and has progressed its stabilisation. Piezometric tubes have been installed in the deposited bays so as to enable monitoring of water levels.

11.0 Landfill Costs

Condition 12.2.1 requires the licence holder to submit a statement on the determination of charge for the disposal of waste in accordance with the requirements of S.I. No. 337 of 2002 European Communities Regulation 2002.
Following the consultation of this regulation, it is determined that as Srahmore Peat Deposition Site is only accepting waste peat from one permitted contractor, and that this charge has been agreed with the contractor prior to the commencement of the peat deposition and is applicable for the duration of the contract, the provision of this statement does not apply. The price agreed with the contractor is commercially sensitive.

12.0 Other Reports.

12.1 Fuel Bowser Testing.

Both fuel bowers were supplied by Cashes Engineering Ltd. Both of these bowers were certified and tested by the manufacturer. A copy of the conformity certificates are kept on file in Srahmore.
Both of these bowsers were designated for re-use elsewhere in Bord na Mona and have since been transferred to the midland bogs.

12.2 Placed Peat Stability Assessment.

Condition 8.7 requires a stability assessment of each bay once filled. This was carried out on the 1st of December 2007 by Tobin Consulting Engineers. Based on the site walkover survey and previous assessments in 2003/2005/2006, all works were carried out in accordance with the rehabilitation plan.

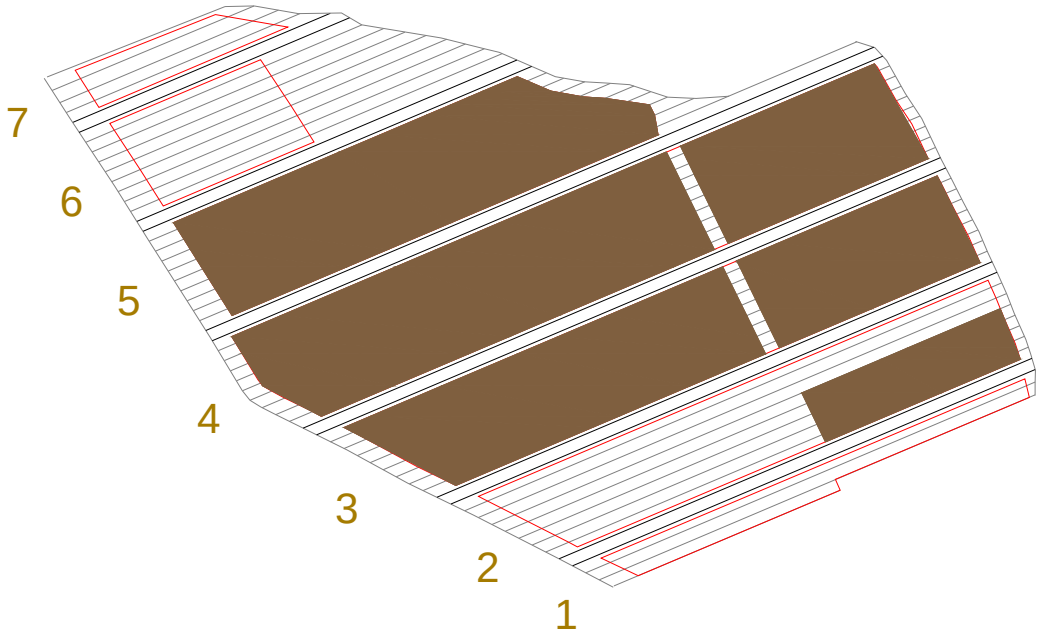
There is no indication of instability in the internal high fields, perimeter high fields, deposited peat bays or drainage system.
The deposited peat is contained within each bay. In its current condition the risk of a mass deposited peat flowing out of bays 2, 3, 4 & 5 and entering the surrounding watercourse is very low.

A copy of this Stability Assessment is retained on file at the site office.

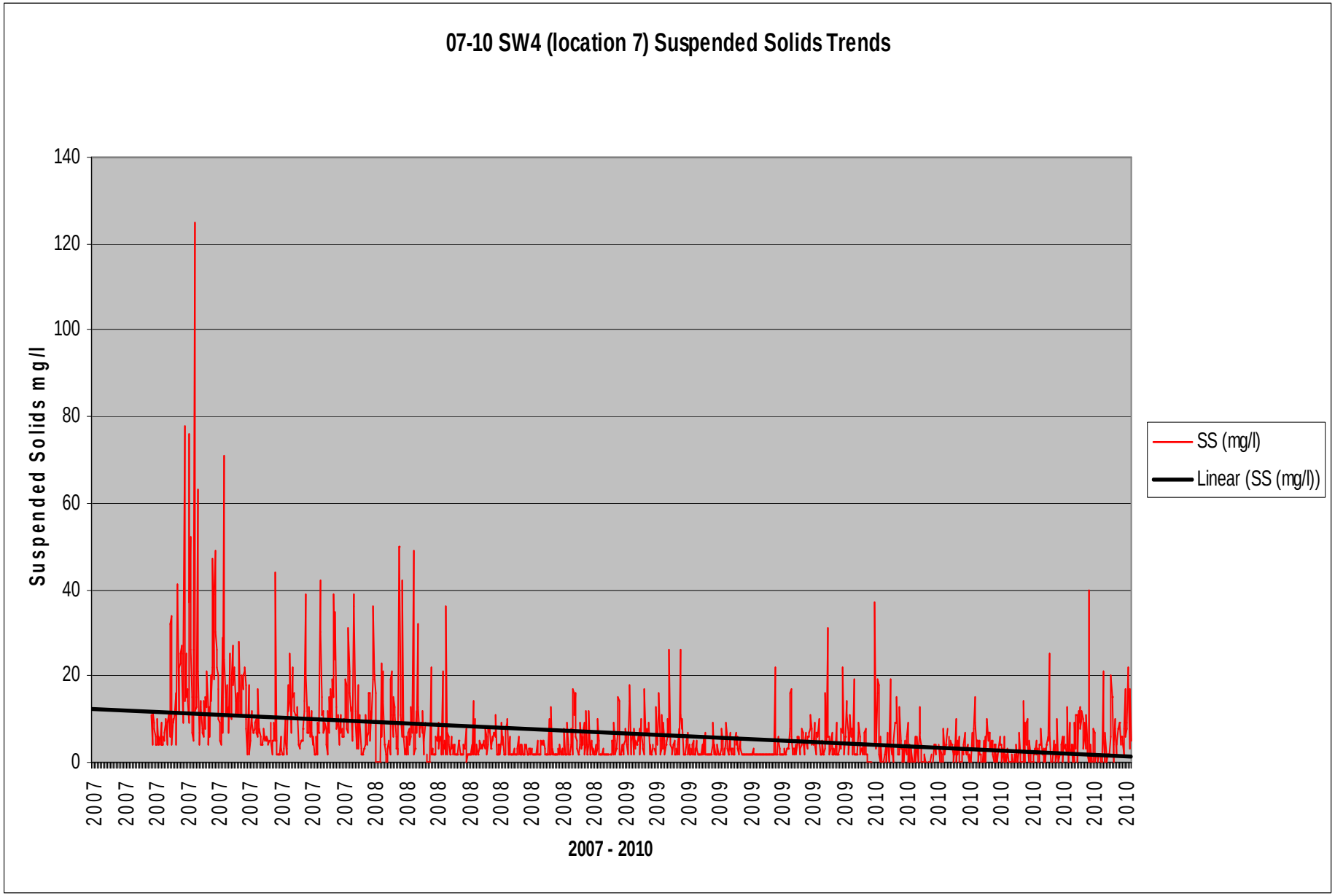
As there was not peat deposited during 2010, a stability assessment was not required.

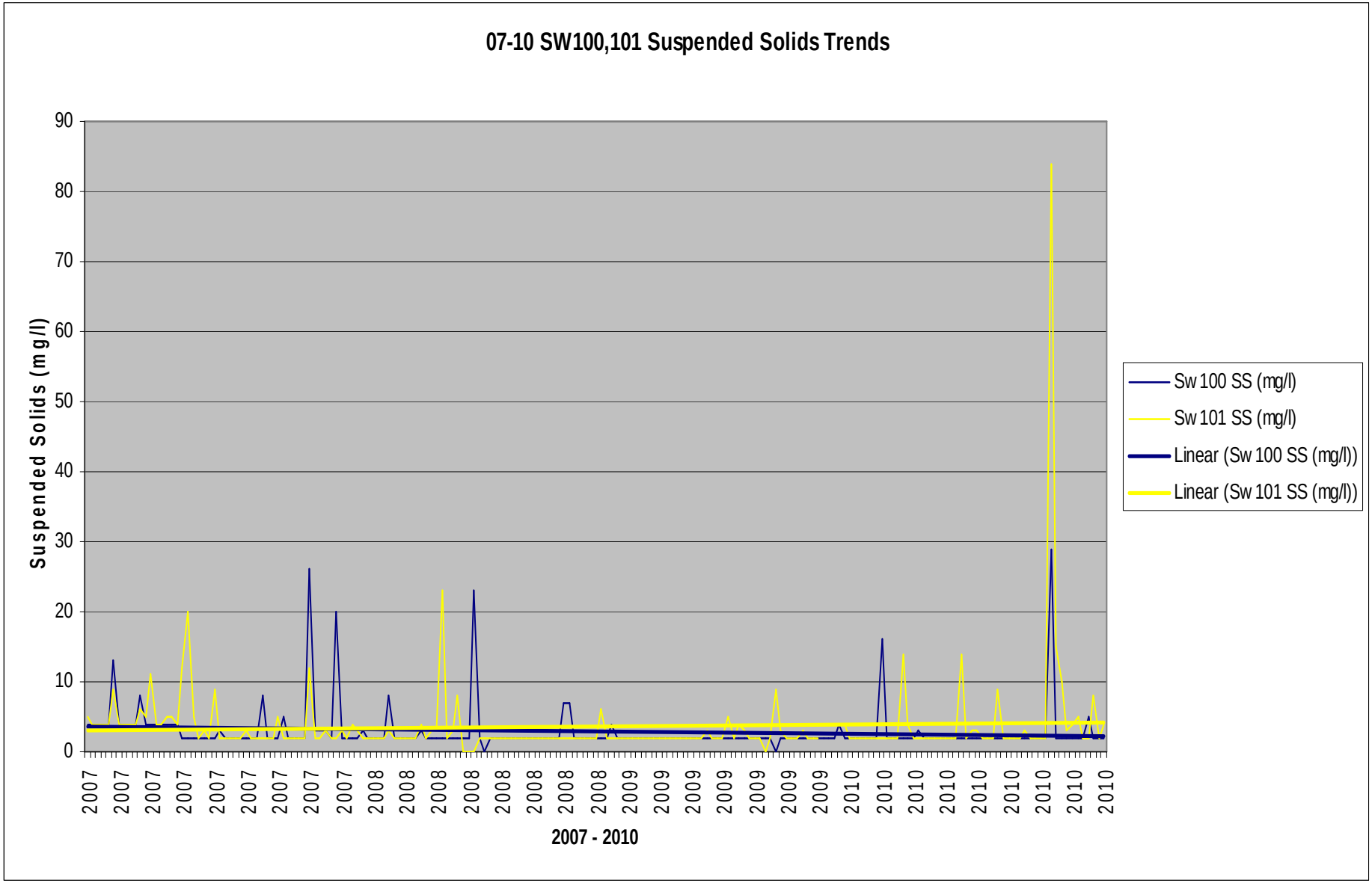
Appendix 1

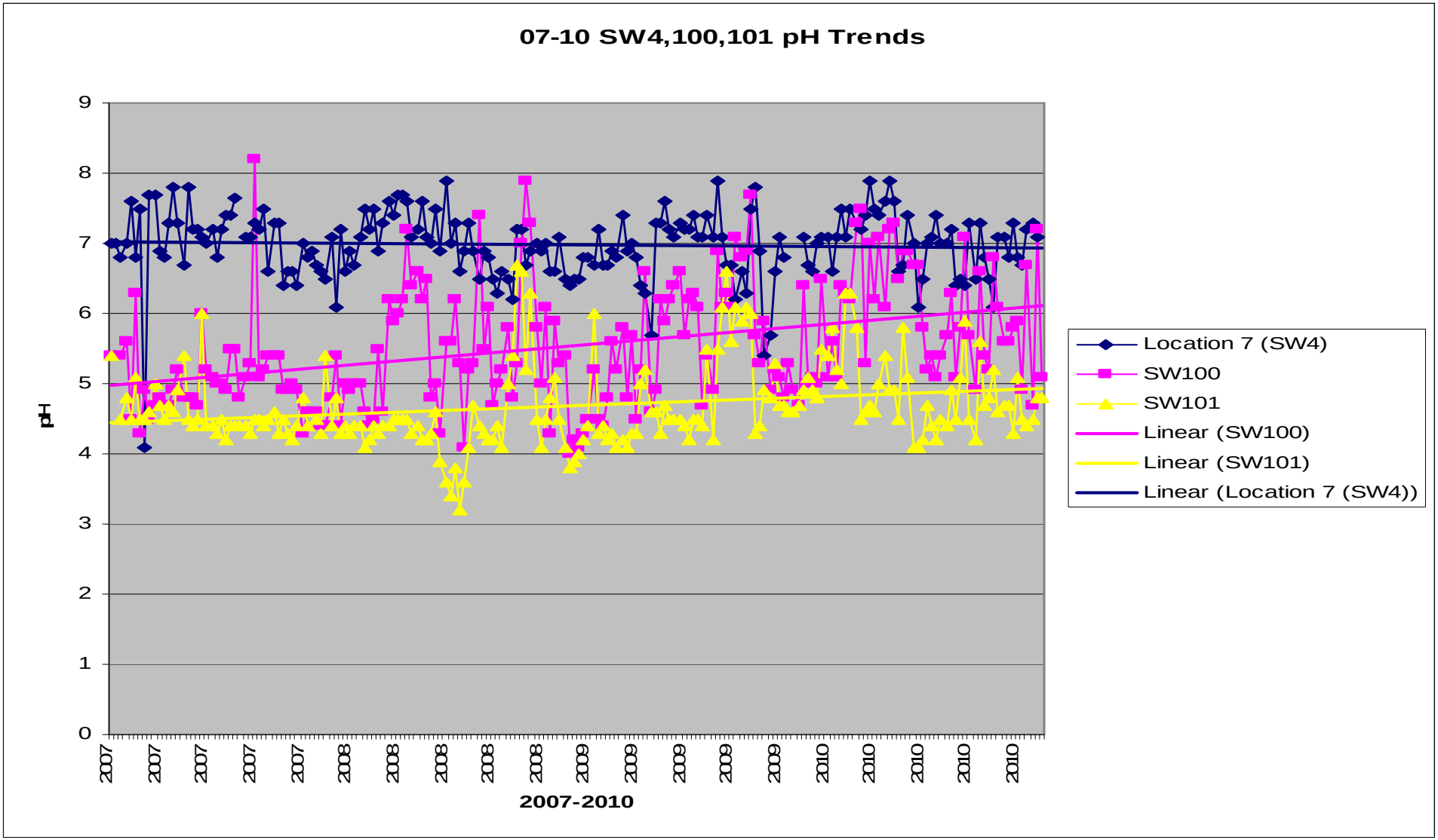
Bay	Srahmore Storage Volume	Srahmore Deposited Volume	Srahmore Remaining Volume
	(m^3)	(m^3)	(m^3)
1	15,000	0	15,000
2	80,190	30,869	49,321
3	106,974	132,764	0
4	135,802	175,048	0
5	84,856	109,368	0
6	28,806	0	28,806
7	13,372	0	13,372
Totals	**465,000**	**448,049**	**106,499**

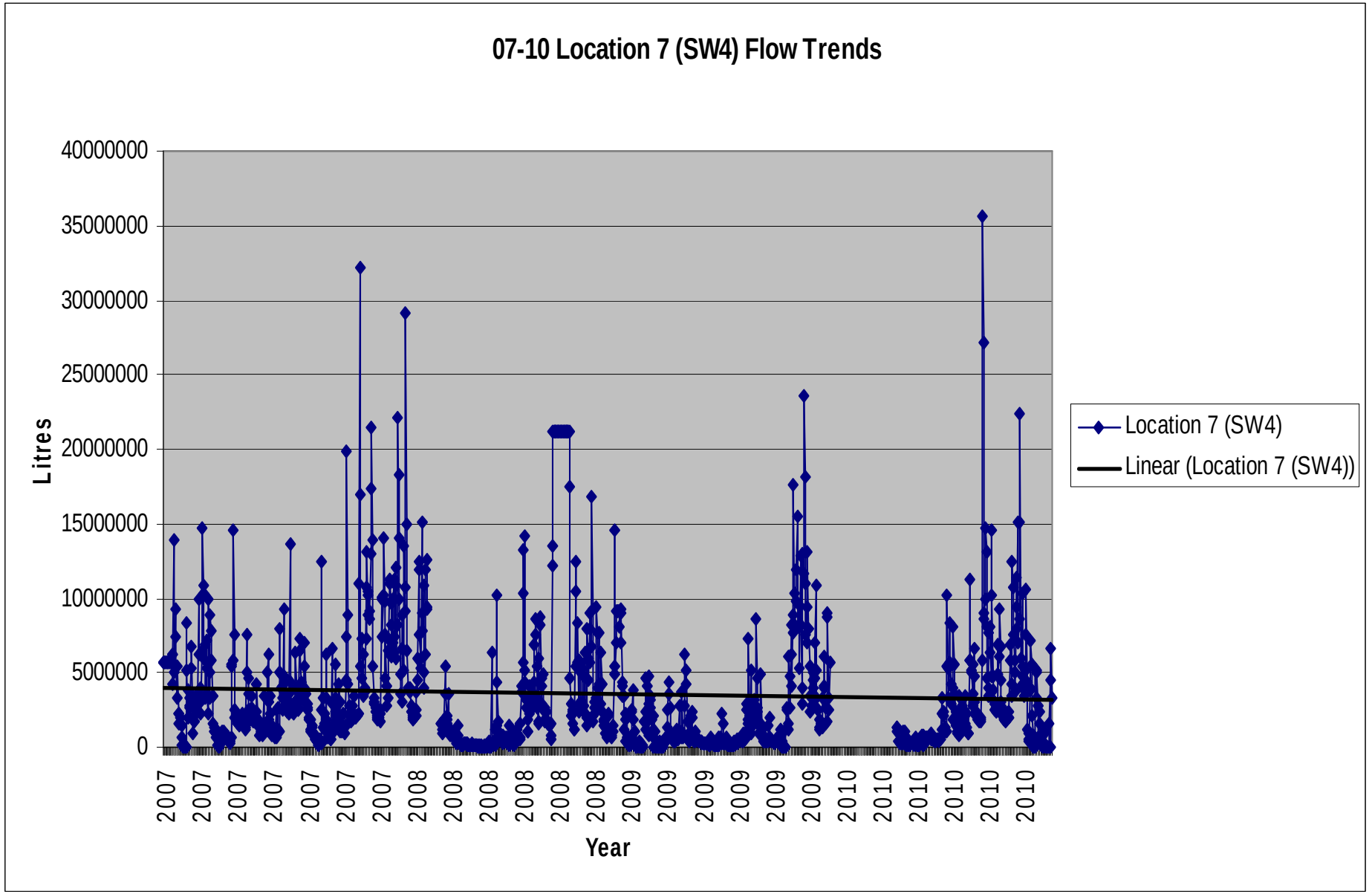


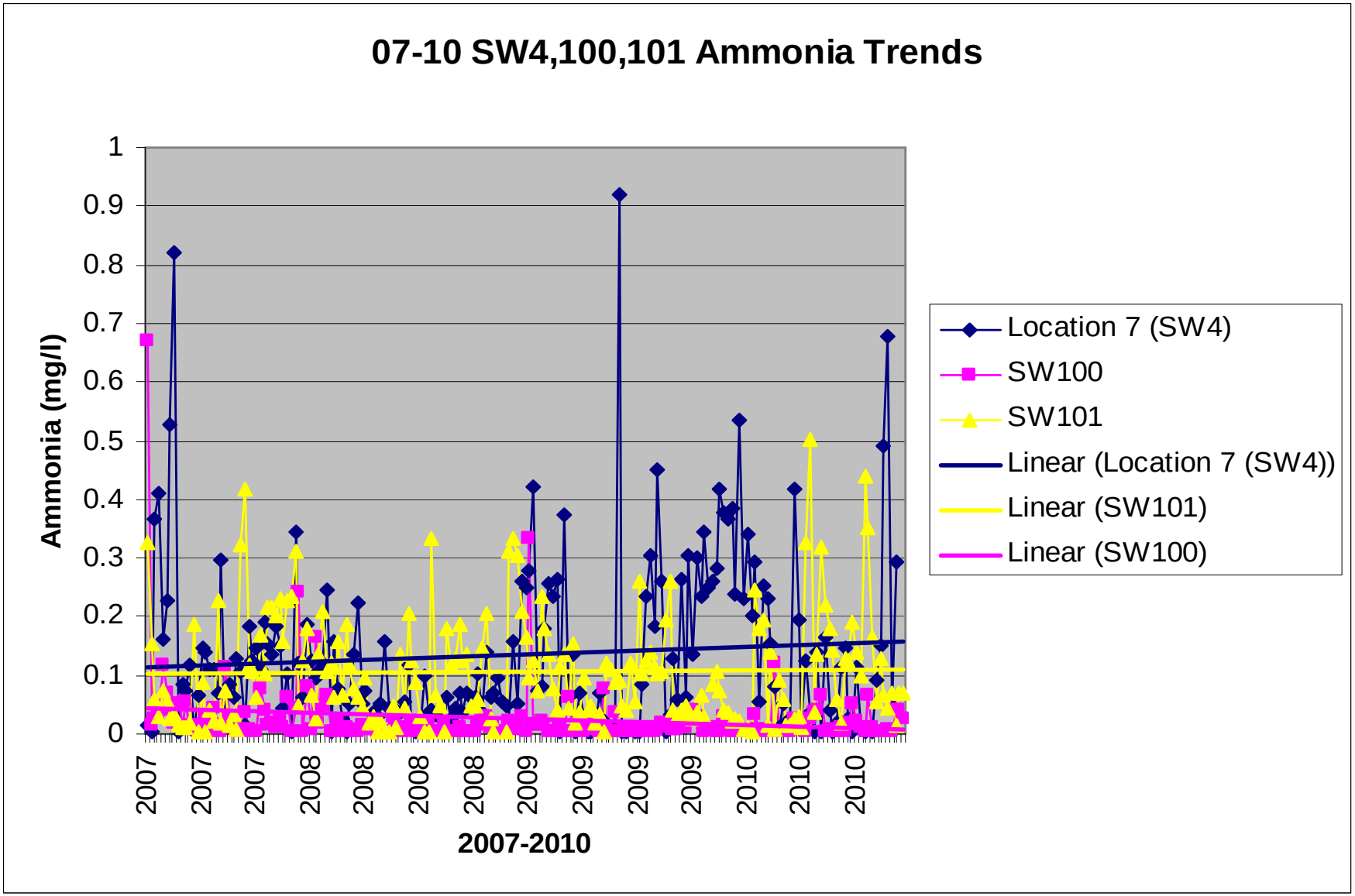
Appendix 2

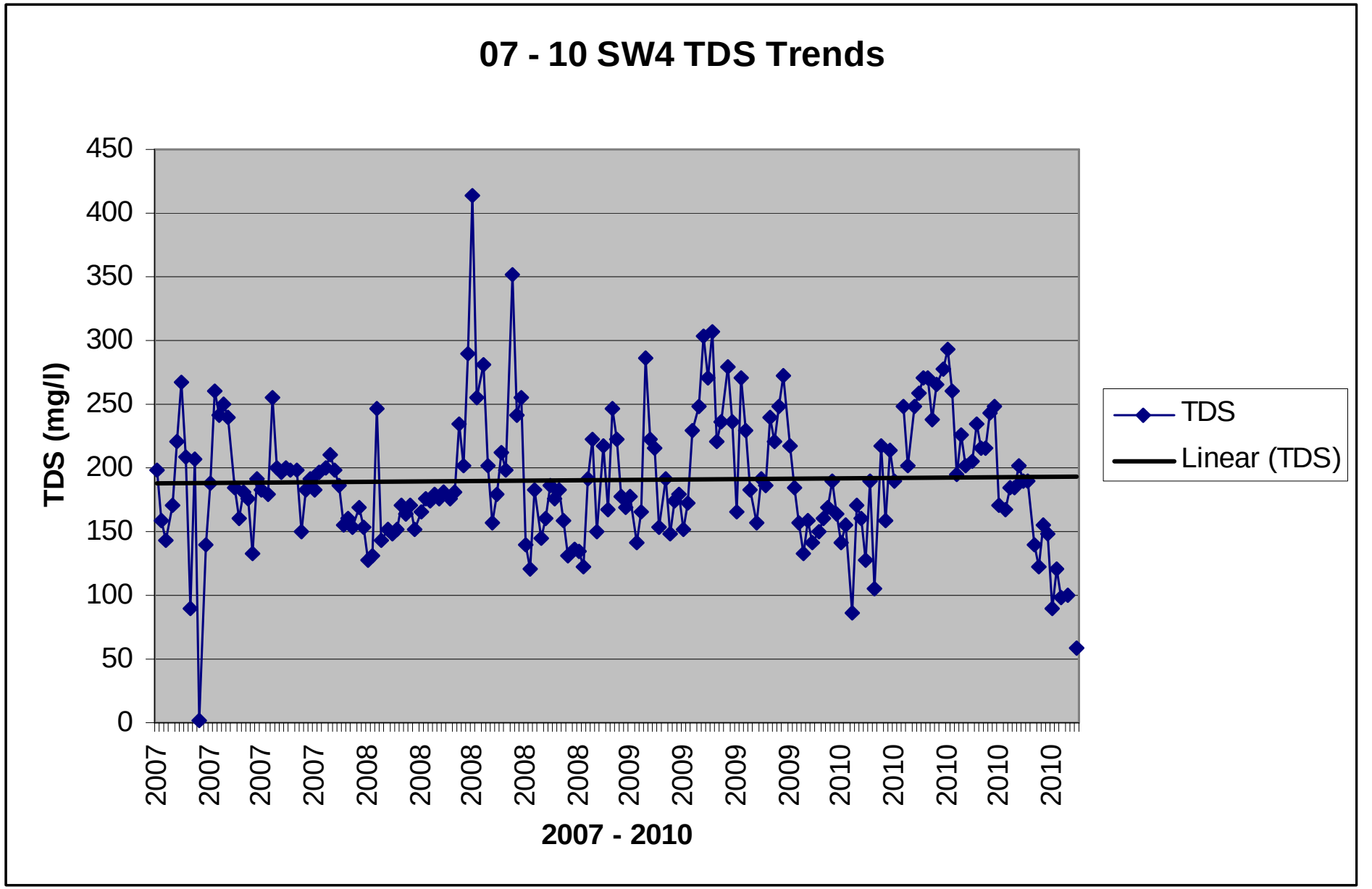

07-10 SW4 (location 7) Suspended Solids Trends
Suspended Solids mg/l
140
120
100
80
60
40
20
0
2007
2007
2007
2007
2007
2007
2007
2007
2007
2008
2008
2008
2008
2008
2008
2008
2009
2009
2009
2009
2009
2009
2009
2010
2010
2010
2010
2010
2010
2010
2010
2007 - 2010
SS (mg/l)
Linear (SS (mg/l))

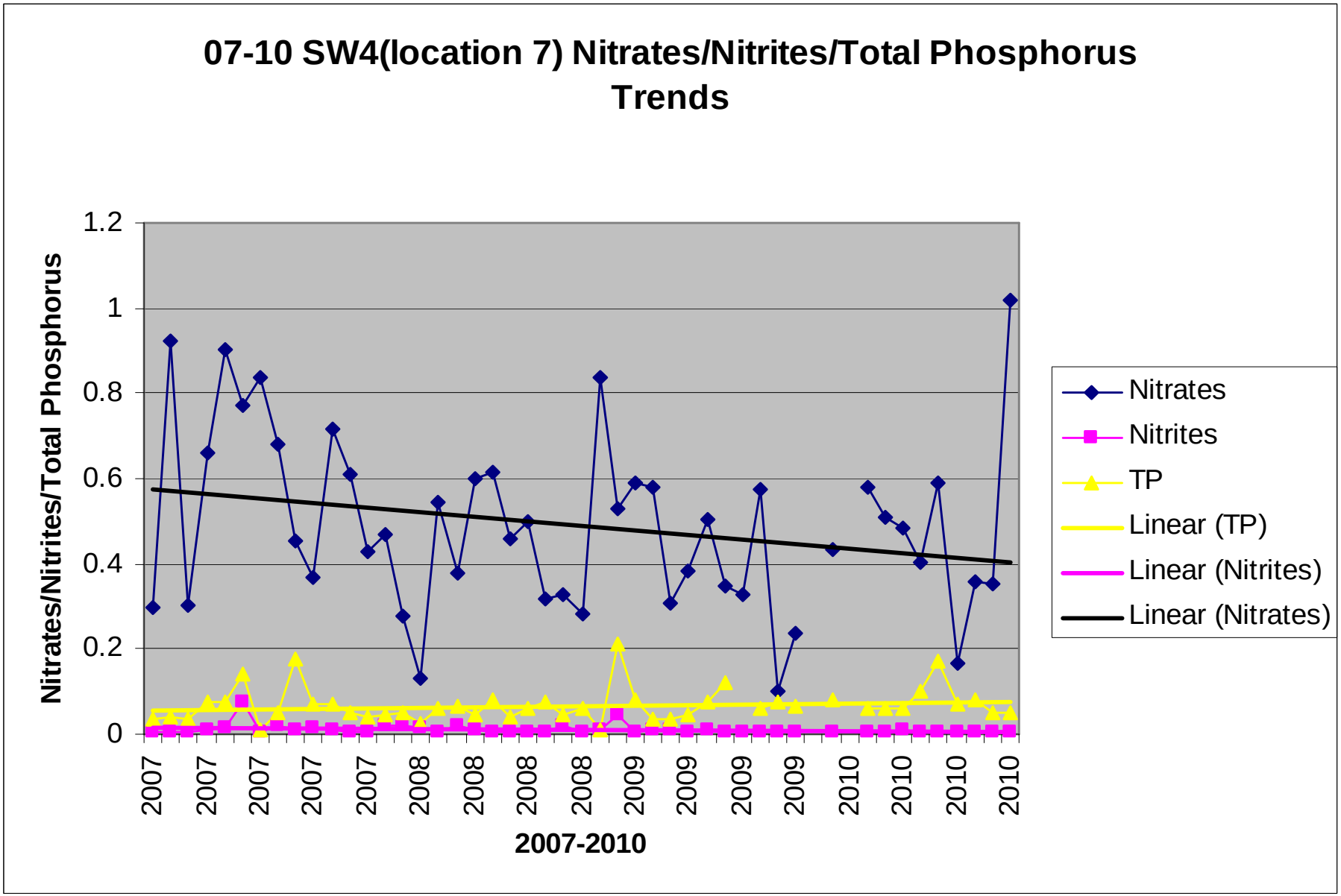

07-10 SW100,101 Suspended Solids Trends
Suspended Solids (mg/l)
90
80
70
60
50
40
30
20
10
0
2007 2007 2007 2007 2007 2007 2007 2007 2007 2008 2008 2008 2008 2008 2008 2008 2009 2009 2009 2009 2009 2009 2009 2010 2010 2010 2010 2010 2010 2010 2010 2010
2007 - 2010
Sw 100 SS (mg/l)
Sw 101 SS (mg/l)
Linear (Sw 100 SS (mg/l))
Linear (Sw 101 SS (mg/l))

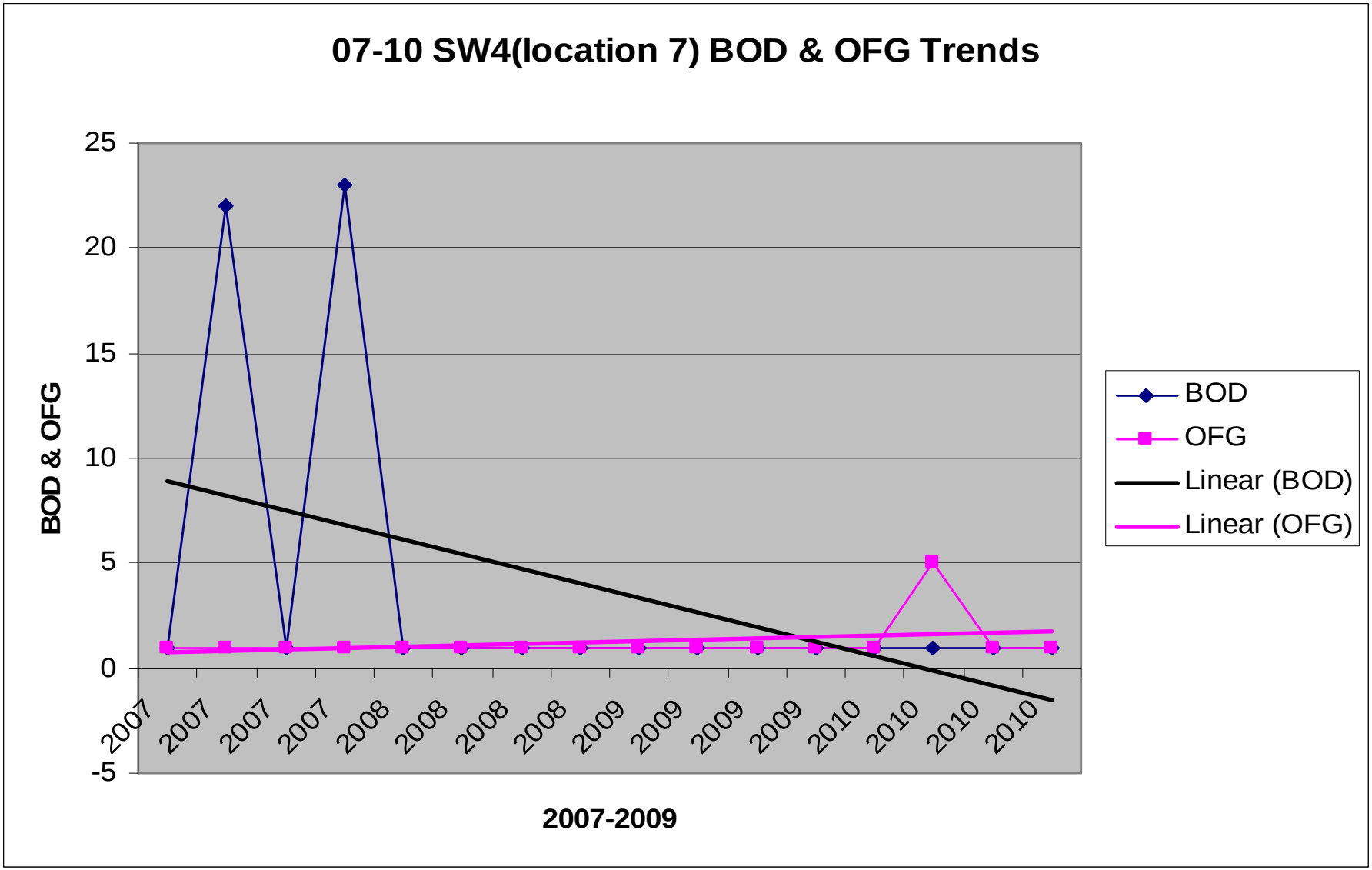

07-10 SW4,100,101 pH Trends
pH
9
8
7
6
5
4
3
2
1
0
2007
2007
2007
2007
2007
2008
2008
2008
2008
2008
2009
2009
2009
2009
2009
2010
2010
2010
2010
2010
2007-2010
Location 7 (SW4)
SW100
SW101
Linear (SW100)
Linear (SW101)
Linear (Location 7 (SW4))

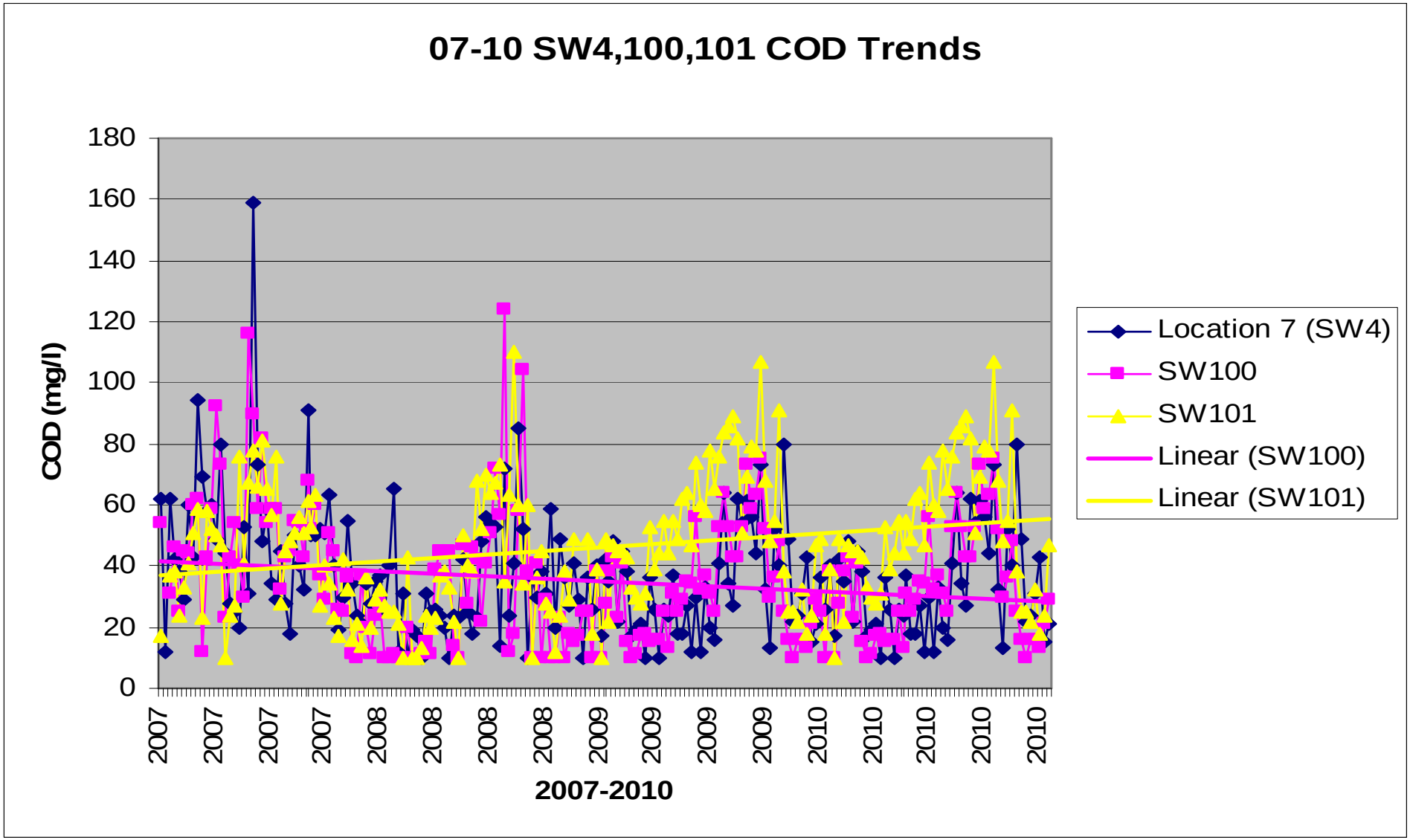

07-10 Location 7 (SW4) Flow Trends
Litres
40000000
35000000
30000000
25000000
20000000
15000000
10000000
5000000
0
2007
2007
2007
2007
2007
2007
2007
2008
2008
2008
2008
2008
2009
2009
2009
2009
2009
2010
2010
2010
2010
2010
Year
Location 7 (SW4)
Linear (Location 7 (SW4))

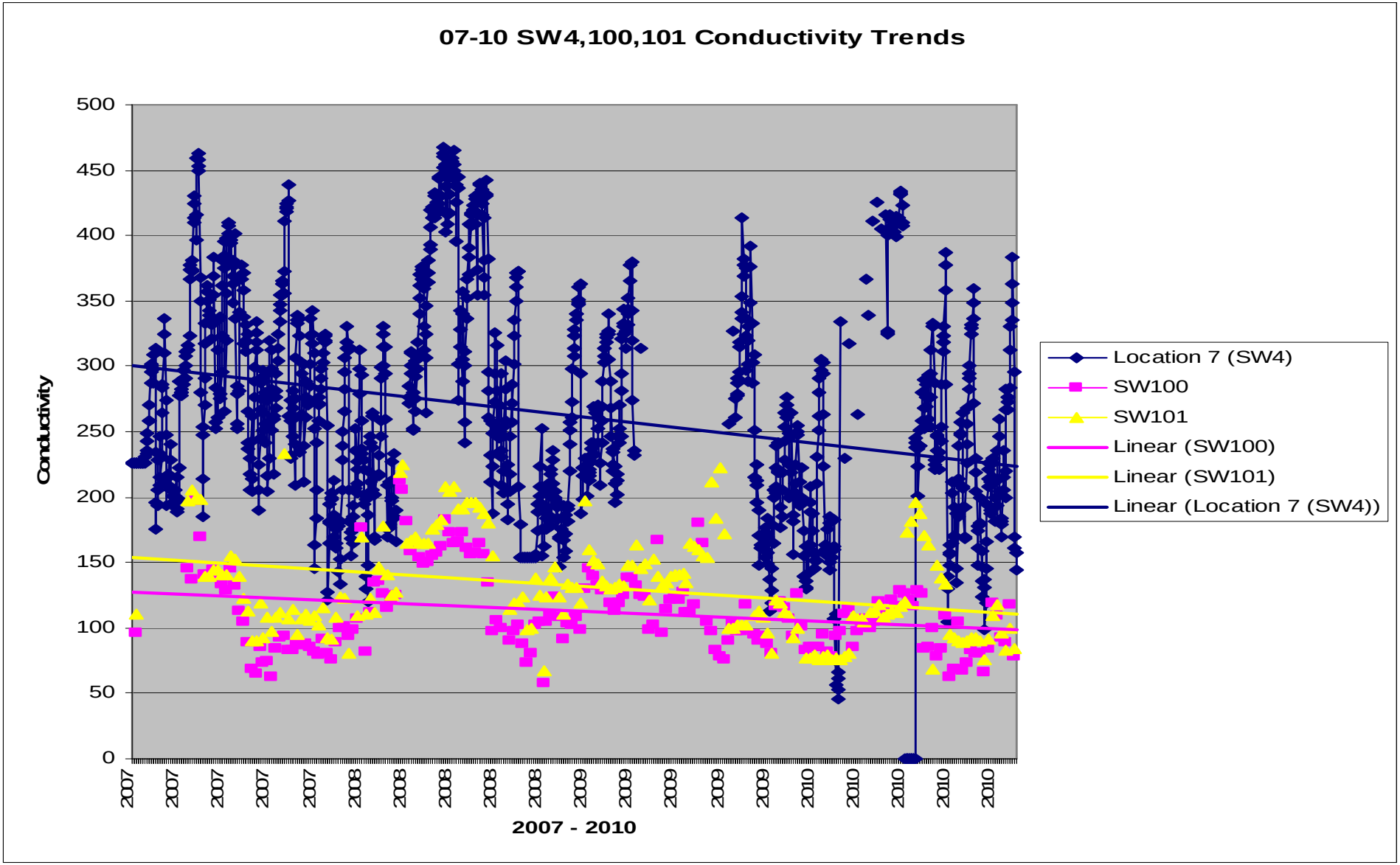

07-10 SW4,100,101 Ammonia Trends
Ammonia (mg/l)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
2007
2007
2007
2008
2008
2008
2008
2009
2009
2009
2009
2010
2010
2010
2007-2010
Location 7 (SW4)
SW100
SW101
Linear (Location 7 (SW4))
Linear (SW101)
Linear (SW100)


07 - 10 SW4 TDS Trends
TDS (mg/l)
450
400
350
300
250
200
150
100
50
0
2007
2007
2007
2007
2008
2008
2008
2008
2008
2009
2009
2009
2009
2010
2010
2010
2010
2010
2007 - 2010
TDS
Linear (TDS)

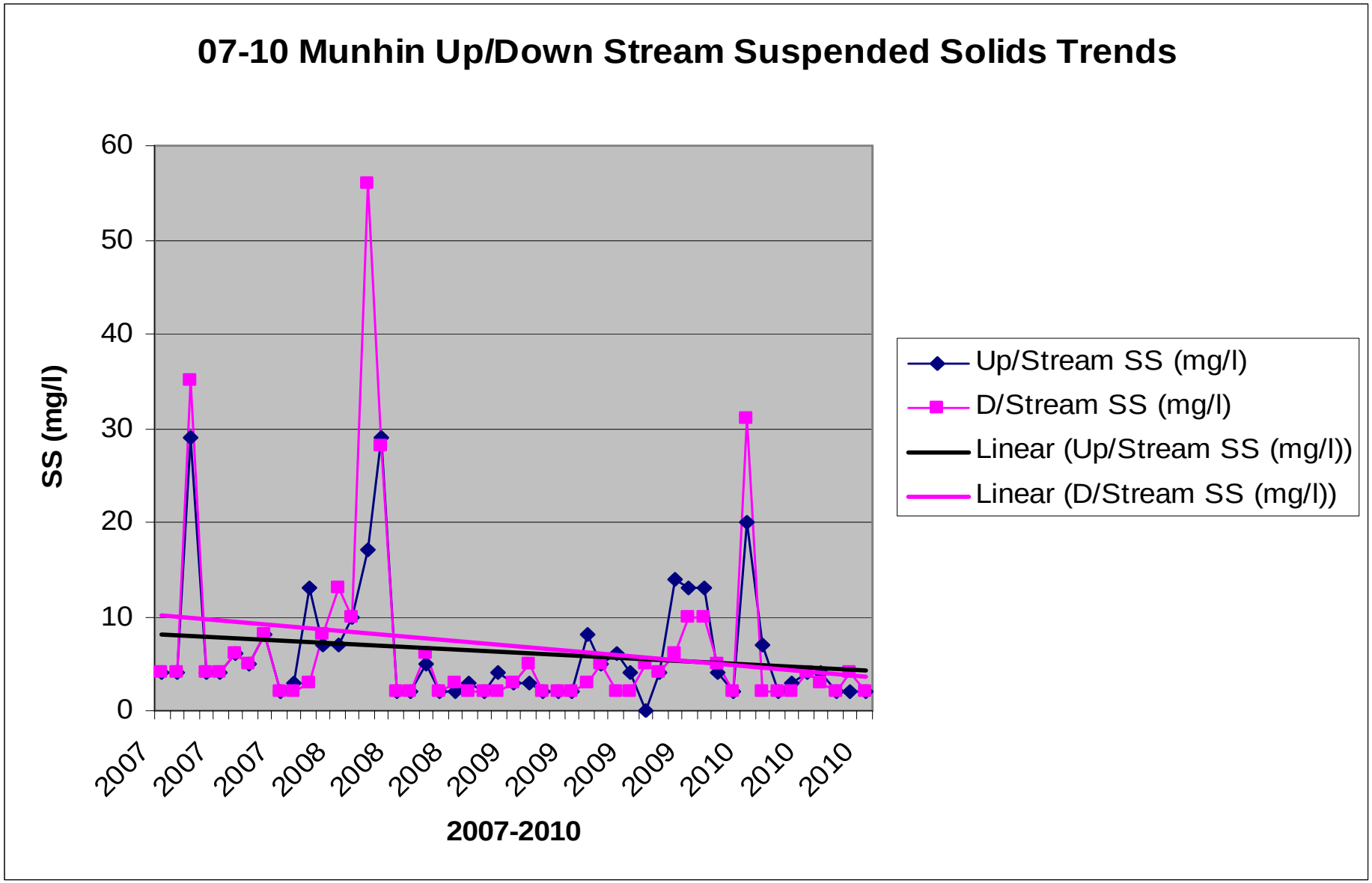

07-10 SW4(location 7) Nitrates/Nitrites/Total Phosphorus Trends
Nitrates/Nitrites/Total Phosphorus
1.2
1
0.8
0.6
0.4
0.2
0
2007
2007
2007
2007
2007
2008
2008
2008
2008
2009
2009
2009
2009
2010
2010
2010
2010
2007-2010
Nitrates
Nitrites
TP
Linear (TP)
Linear (Nitrites)
Linear (Nitrates)

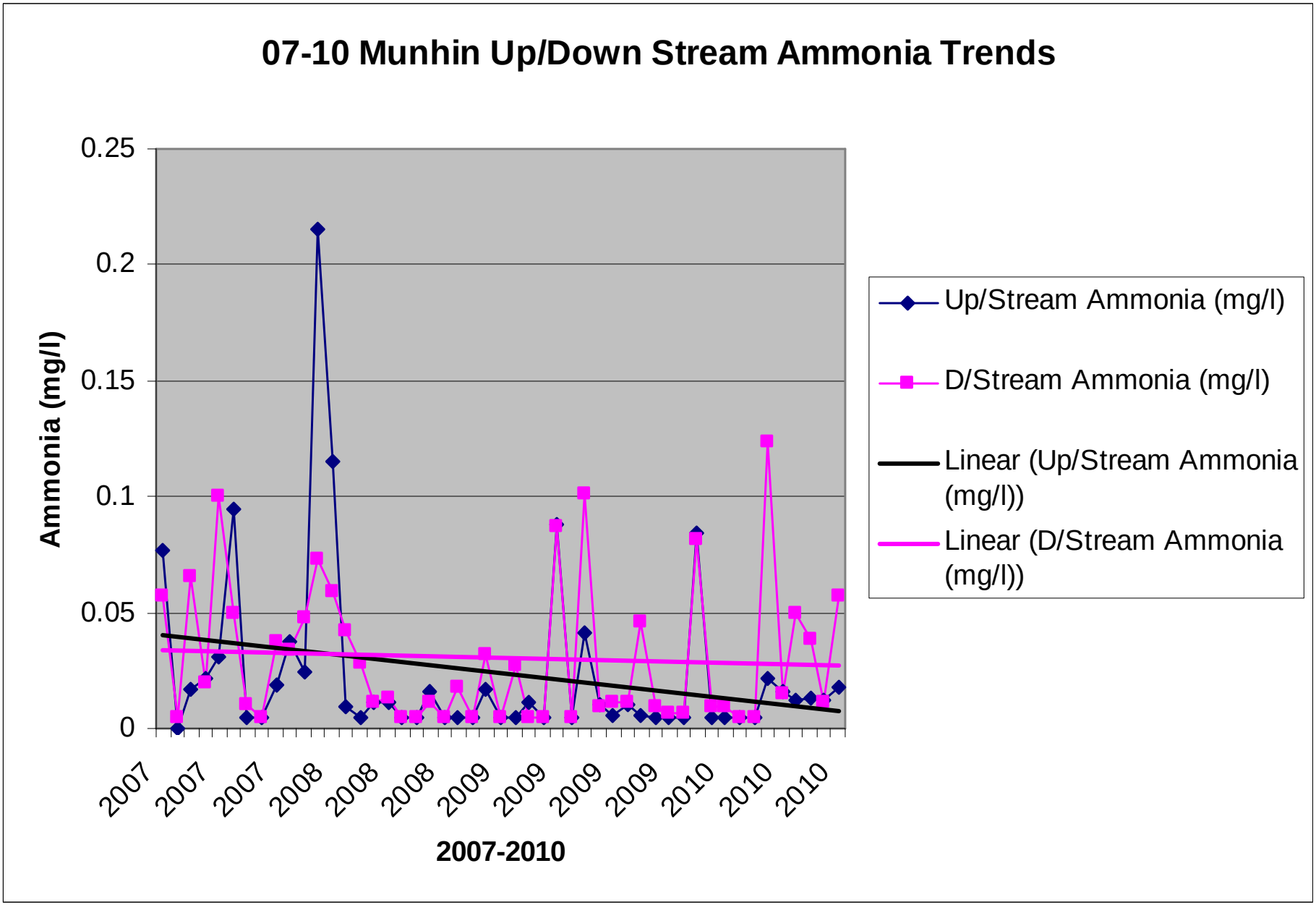

07-10 SW4(location 7) BOD & OFG Trends
BOD & OFG
25
20
15
10
5
0
-5
2007
2007
2007
2007
2008
2008
2008
2008
2009
2009
2009
2009
2010
2010
2010
2010
2007-2009
BOD
OFG
Linear (BOD)
Linear (OFG)


07-10 SW4,100,101 COD Trends
COD (mg/l)
180
160
140
120
100
80
60
40
20
0
2007
2007
2007
2007
2008
2008
2008
2008
2009
2009
2009
2009
2010
2010
2010
2010
2007-2010
Location 7 (SW4)
SW100
SW101
Linear (SW100)
Linear (SW101)

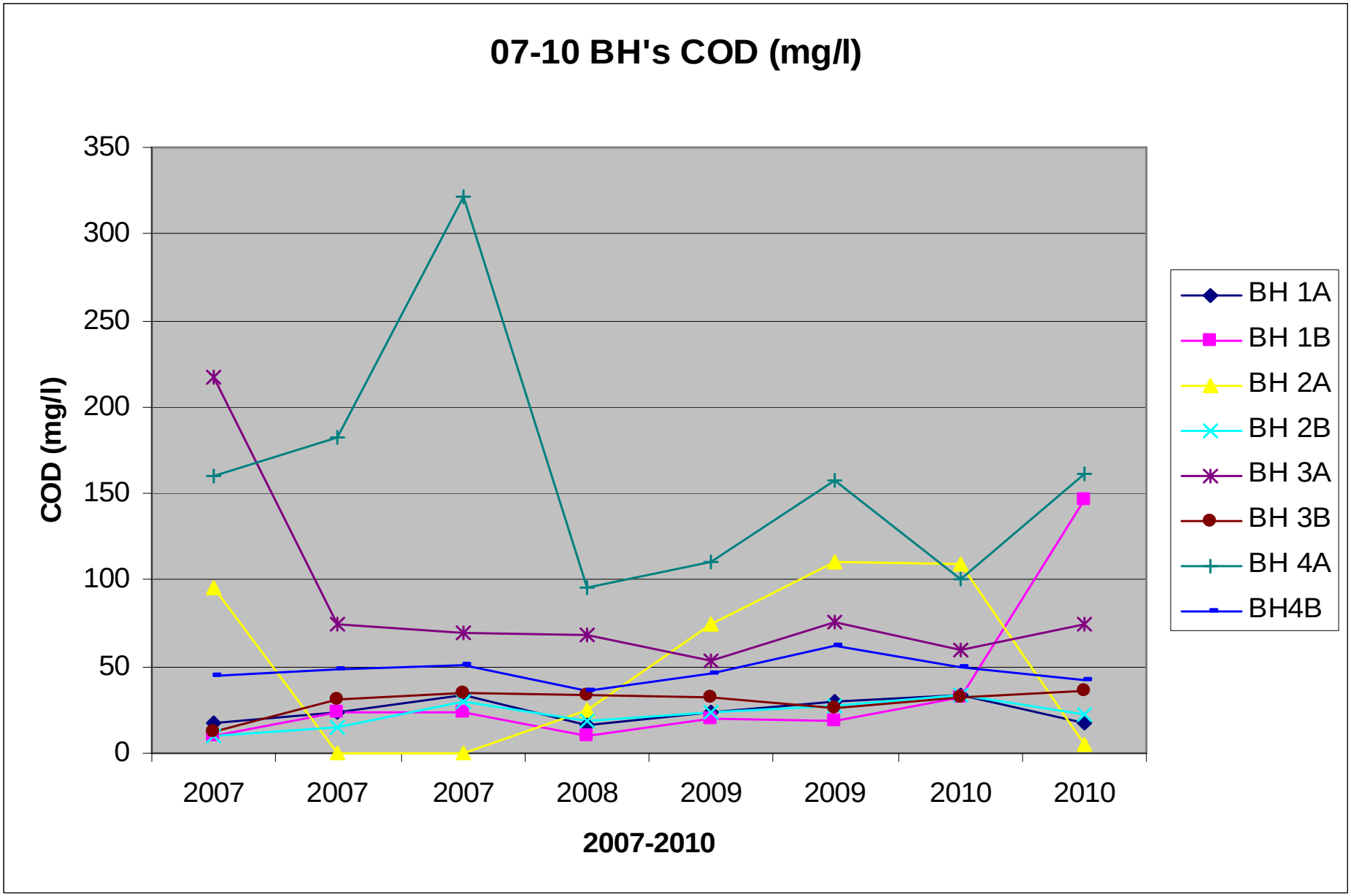

07-10 SW4,100,101 Conductivity Trends
Conductivity
500
450
400
350
300
250
200
150
100
50
0
2007
2007
2007
2007
2007
2008
2008
2008
2008
2008
2009
2009
2009
2009
2009
2010
2010
2010
2010
2010
2007 - 2010
Location 7 (SW4)
SW100
SW101
Linear (SW100)
Linear (SW101)
Linear (Location 7 (SW4))

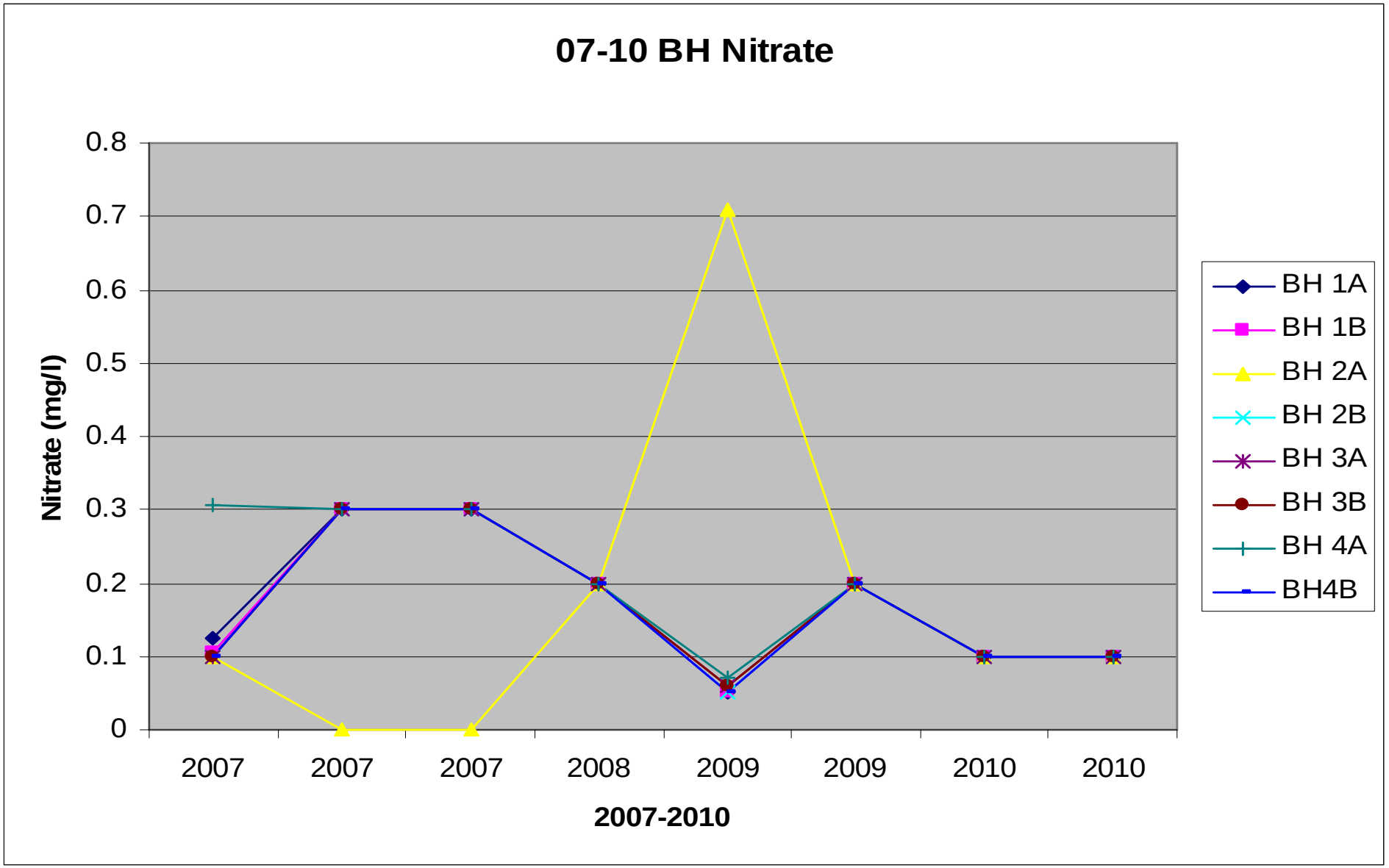
Appendix 3

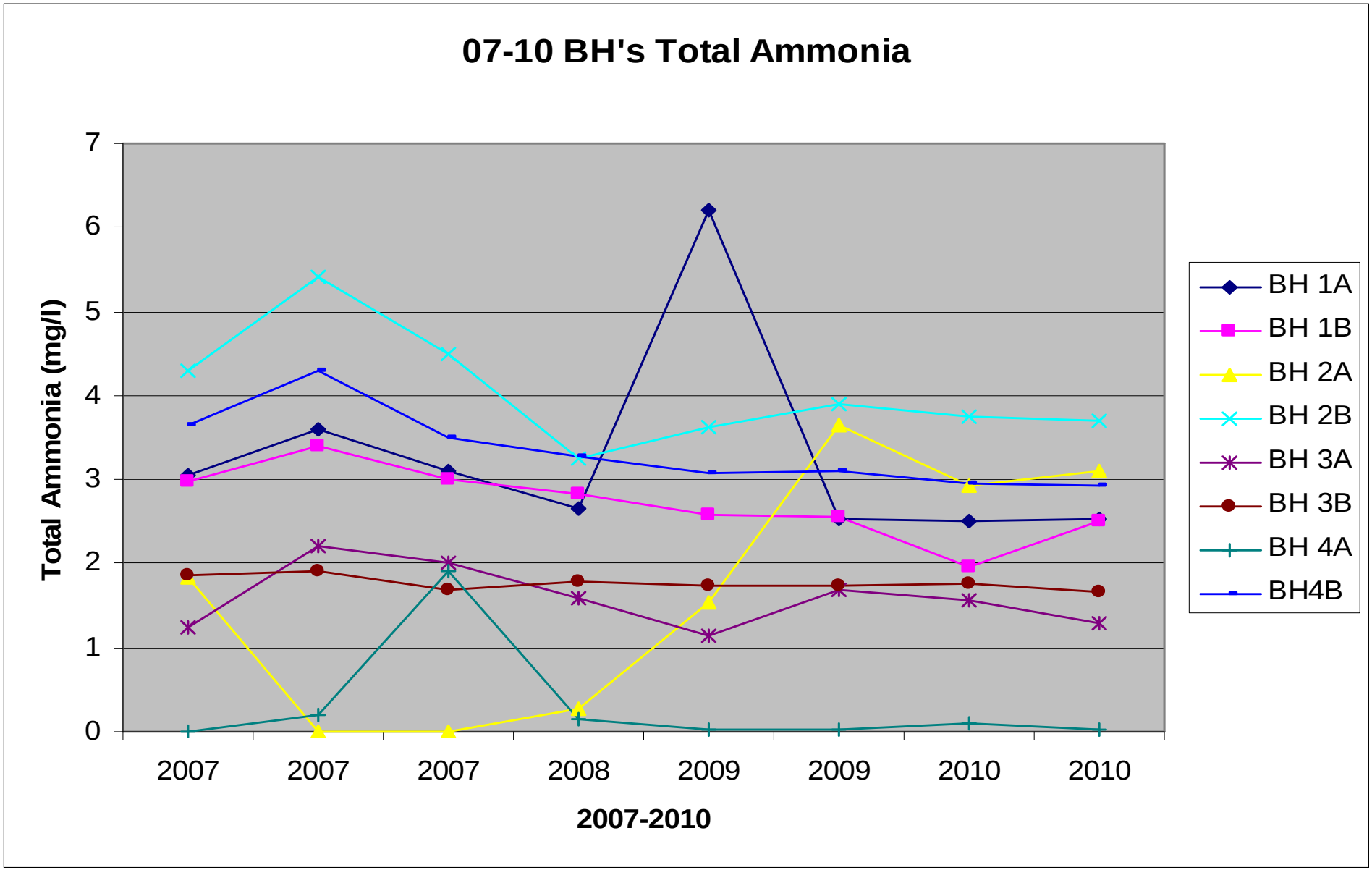

07-10 Munhin Up/Down Stream Suspended Solids Trends
SS (mg/l)
60
50
40
30
20
10
0
2007
2007
2007
2008
2008
2008
2009
2009
2009
2009
2010
2010
2010
2007-2010
Up/Stream SS (mg/l)
D/Stream SS (mg/l)
Linear (Up/Stream SS (mg/l))
Linear (D/Stream SS (mg/l))

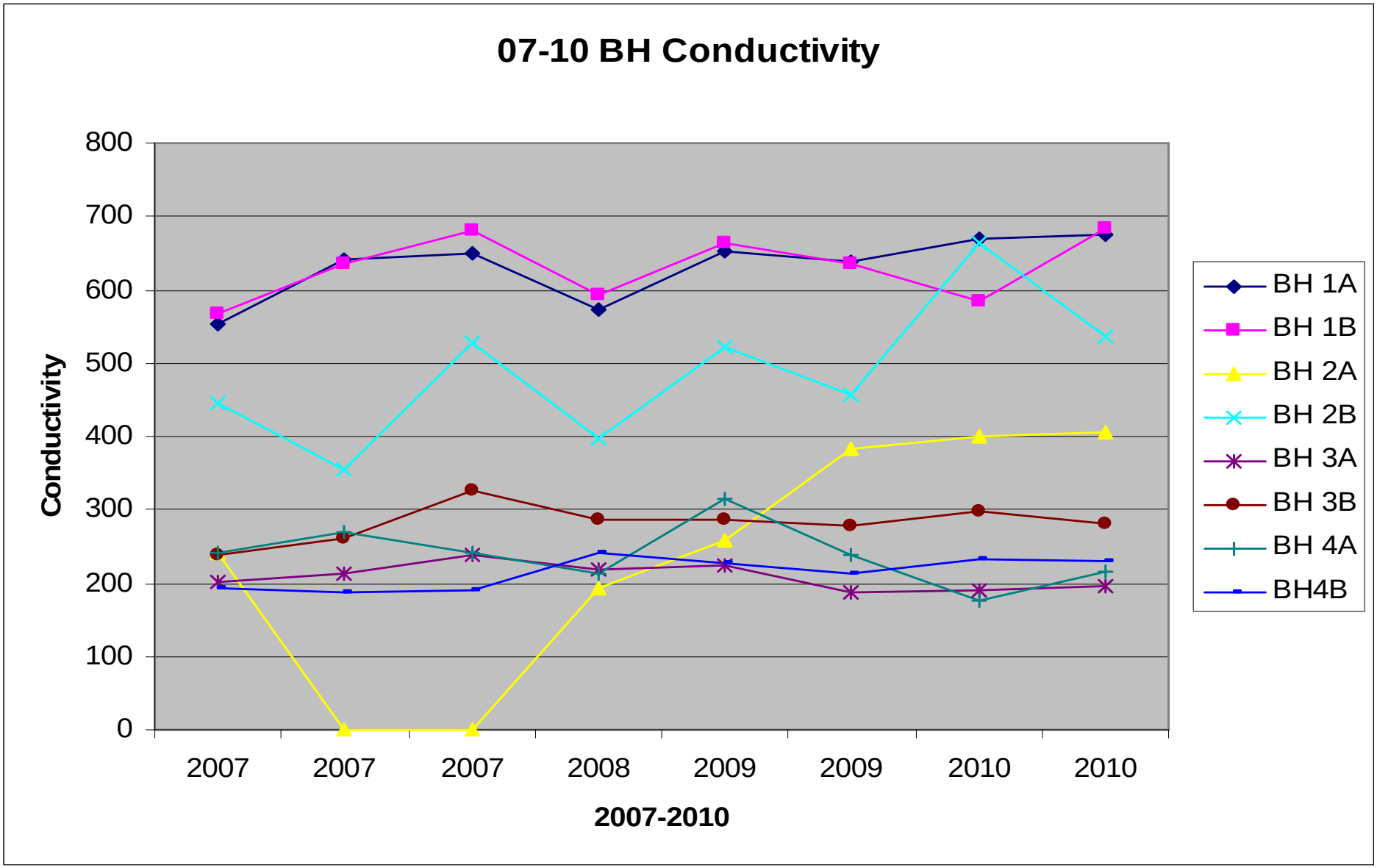

07-10 Munhin Up/Down Stream Ammonia Trends
Ammonia (mg/l)
0.25
0.2
0.15
0.1
0.05
0
2007
2007
2007
2008
2008
2008
2009
2009
2009
2009
2010
2010
2010
2007-2010
Up/Stream Ammonia (mg/l)
D/Stream Ammonia (mg/l)
Linear (Up/Stream Ammonia (mg/l))
Linear (D/Stream Ammonia (mg/l))

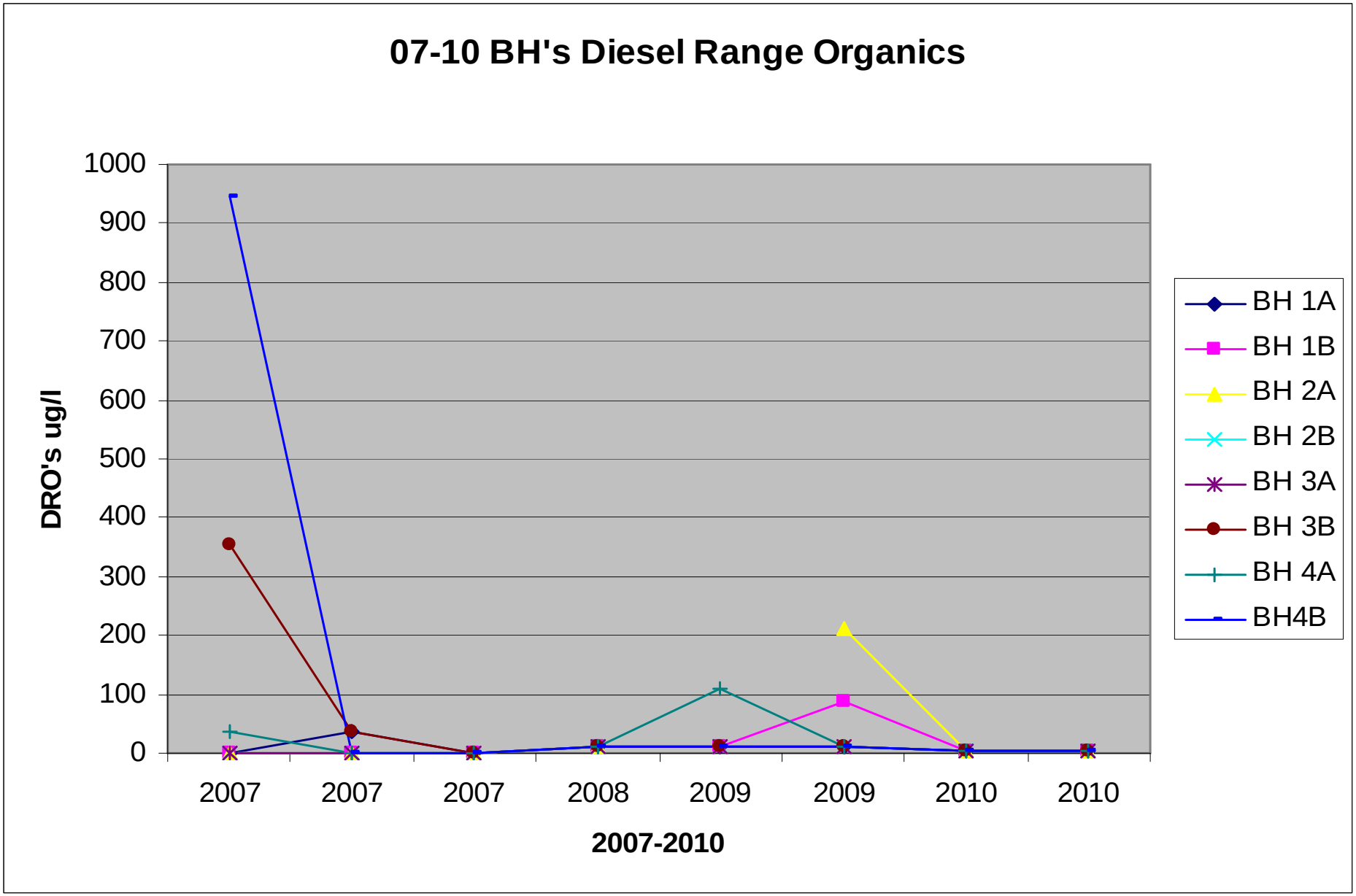
Appendix 4


07-10 BH's COD (mg/l)
COD (mg/l)
350
300
250
200
150
100
50
0
2007
2007
2007
2008
2009
2009
2010
2010
2007-2010
BH 1A
BH 1B
BH 2A
BH 2B
BH 3A
BH 3B
BH 4A
BH4B

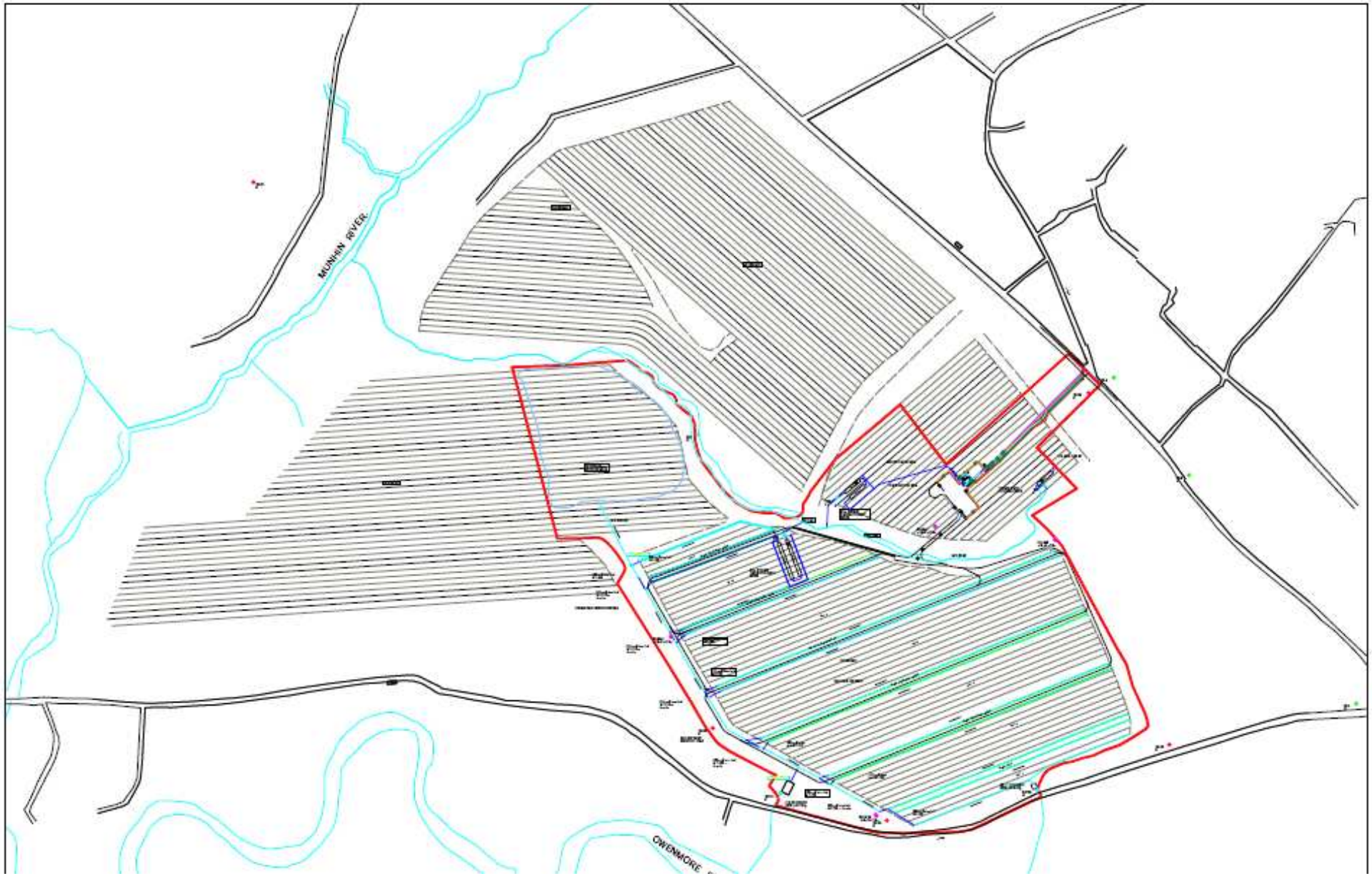

07-10 BH Nitrate
Nitrate (mg/l)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
2007
2007
2007
2008
2009
2009
2010
2010
2007-2010
BH 1A
BH 1B
BH 2A
BH 2B
BH 3A
BH 3B
BH 4A
BH4B


07-10 BH's Total Ammonia
Total Ammonia (mg/l)
0
1
2
3
4
5
6
7
2007
2007
2007
2008
2009
2009
2010
2010
2007-2010
BH 1A
BH 1B
BH 2A
BH 2B
BH 3A
BH 3B
BH 4A
BH4B


07-10 BH Conductivity
800
700
600
500
400
300
200
100
0
Conductivity
2007
2007
2007
2008
2009
2009
2010
2010
2007-2010
BH 1A
BH 1B
BH 2A
BH 2B
BH 3A
BH 3B
BH 4A
BH4B


07-10 BH's Diesel Range Organics
DRO's ug/l
1000
900
800
700
600
500
400
300
200
100
0
2007
2007
2007
2008
2009
2009
2010
2010
2007-2010
BH 1A
BH 1B
BH 2A
BH 2B
BH 3A
BH 3B
BH 4A
BH4B

Appendix 5


MUNNIN RIVER

Environmental Protection Agency

Guidance to completing the PRTR workbook

AER Returns Workbook

Version 1.1.11

REFERENCE YEAR	2010

1. FACILITY IDENTIFICATION

Parent Company Name	Bord na Mona Energy Limited
Facility Name	Srahmore Peat Deposition Site
PRTR Identification Number	W0199
Licence Number	W0199-02

Waste or IPPC Classes of Activity

No.	class_name
3.1	The initial melting or production of iron and steel
3.13	Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.
3.4	##

Address 1	Srahmore and Attavally
Address 2	Bangor-Erris
Address 3	County Mayo
Address 4	
Country	Ireland
Coordinates of Location	-9.56652 53.2663
River Basin District	IEWE
NACE Code	3821
Main Economic Activity	Treatment and disposal of non-hazardous waste
AER Returns Contact Name	Enda McDonagh
AER Returns Contact Email Address	enda.mcdonagh@bnm.ie
AER Returns Contact Position	Head of Environmental Management
AER Returns Contact Telephone Number	057 93 45911
AER Returns Contact Mobile Phone Number	086 2370816
AER Returns Contact Fax Number	057 93 45160
Production Volume	0.0
Production Volume Units	0
Number of Installations	1
Number of Operating Hours in Year	0
Number of Employees	1
User Feedback/Comments	Site inactive during 2010 Class name not correct in 2009 or 2010. Should be deposit in landfill
Web Address	www.bnm.ie

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
50.1	General
50.1	General

3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)

Is it applicable?	No
Have you been granted an exemption ?	
If applicable which activity class applies (as per Schedule 2 of the regulations) ?	
Is the reduction scheme compliance route being used ?	

4.2 RELEASES TO WATERS Link to previous years emissions data

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

Data on ambient monitoring of storm/surface water or groundwater, conducted as part of your licence requirements, should NOT be submitted under AER / PRTR Reporting as this only concerns Releases from your facility

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO WATERS					Please enter all quantities in this section in KGs					
POLLUTANT									QUANTITY	
			Method Used		Location 7 (SW4)					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	Emission Point 2	Emission Point 3	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
240	**Suspended Solids**	E	OTH	G/19 Based on APHA, 1998, 20th Edition, Method 2540D	5041.0	0.0	0.0	5041.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

Please enter all quantities on this sheet in Tonnes

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
Within the Country	20 01 08	No	0.375	biodegradable kitchen and canteen waste	D1	M	Weighed	Offsite in Ireland	G & T Loftus Recycling Ltd,CW035	Rathroen,Killina Rd,Ballina,Mayo,Ireland		

* Select a row by double-clicking the Description of Waste then click the delete button

Link to previous years waste data
Link to previous years waste summary data & percentage change