

London Gatwick Airport Water Quality Management Action Plan

2009-2011



www.gatwickairport.com

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Introduction

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Position

Gatwick Airport is the world's busiest single runway airport and, in the UK, second only to Heathrow in terms of passenger throughput, which was close to 35 million in 2008. The airport is also an important public transport hub, with frequent rail services to London, and direct or connecting rail or coach services to many towns in South East England and elsewhere in the UK.

Passenger numbers are currently forecast to increase to around 40 million in 2018, in line with government policy to make full use of existing airport runways. The Gatwick Airport Interim Master Plan (October 2006) explains the character and implications of Gatwick's growth as a single runway airport over the period to 2015 and, for 2030, outlines scenarios with either one or two runways.

The scale of existing and future activity at the airport brings appreciable benefits to the local, regional and national economies, but also has environmental impacts that need to be mitigated and/or managed.

Our environmental policy

The scale of existing and future activity at the airport brings appreciable benefits to the local, regional and national economies, but we also recognise that our operation has impacts on the environment, and that the growth of activity at the airport has the potential to increase those impacts. Our environmental policy states that:

We are committed to minimising the impacts of our growing business on the environment and local communities, through the continuous improvement of its environmental performance. We will strive to act as responsible stewards of the environment at all times.

This commitment is formalised in an agreement between Crawley Borough Council, West Sussex County Council and GAL. This agreement sets out the GAL's approach to our environmental management and stewardship in a series of objectives and commitments.

A proportion of the identified commitments take the form of 'obligations' in a legal agreement between GAL, Crawley Borough Council and West Sussex County Council. This was signed in December 2008, and covers the period until 2015. The obligations within the Agreement, among other targets, relate to the production, auditing and periodic review of a number of Action Plans, of which this is one example.

This document is the Water Quality Action Plan and covers the years 2009-2011. It is important that activities at airports do not contaminate surface water run-off or materially alter the risk of flooding. This is because flooding can result in potentially serious consequences for biodiversity, the aquatic environment and property. The water environment is subject to statutory controls, and the Environment Agency, as the statutory body responsible for the water environment, issues discharge consents that control the volume and quality of discharges to 'controlled waters', which include rivers and streams. Discharge consents have legally-binding terms and conditions regarding the quality and quantity of effluent discharged to controlled waters.

Our water quality objective is to 'manage airport assets and activities to mitigate Gatwick Airport's impact on the water environment.'

This objective is supported by 3 of the commitments resulting from the agreement between us, West Sussex County Council and Crawley Borough Council and forms the basis of this action plan:

We will publish a water quality action plan and will review it no less frequently than every three years. The action plan will describe our approach to the management of the airport surface and foul water assets in order to ensure compliance with discharge consents and other regulatory requirements.

We will maintain regular dialogue with the Environment Agency, Thames Water and other key stakeholders and to ensure mutual understanding of drainage, flood risk and water quality issues occurring within, or potentially emanating from the airport.

Gatwick Airport will monitor and report annually on:

- a water chemistry monitoring programme (including Biological Oxygen Demand and Chemical Oxygen Demand);
- biological monitoring;
- compliance with relevant water quality management MDIs and legislative requirements; and
- discharge rates from the airport's main pond (Pond D).

01 Introduction

The content of the Action Plan is as below:

This Water Quality Management Action Plan is structured as follows:

Section 2 Summarises the legislative, regulatory and policy context concerning utility consumption.

Section 3 Explains how the actions set out in this plan have been developed and agreed.

Section 4 Records the actions GAL is proposing to undertake

Section 5 Details the means by which the action plan is to be implemented.

Section 6 Glossary.

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Legislative, regulatory and policy context

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02 Legislative, regulatory and policy context

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This section summarises the principal legislation, policies and regulations relating to the management and the protection of water resources and water quality, both regionally and within the UK and EU context. Legislative requirements concerning the protection of the water environment include the Environmental Protection Act, the Water Resources Act and Groundwater Regulations in England and Wales, and the Water Framework Directive in European legislation.

European regulatory framework

Water Framework Directive

The EU Water Framework Directive (WFD) 2000/60/EC is focused on delivering an integrated approach to the protection and sustainable use of the water environment on a river basin scale. The principal objectives within the WFD are: no deterioration in status and 'good status' in terms of both ecology and water quality for surface waters, and in terms of both quantity and quality for groundwater by 2015.

It is designed to:

- enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands, which depend on the aquatic ecosystems
- promote the sustainable use of water
- reduce pollution of water, especially by 'priority' and 'priority hazardous' substances (through Daughter Directives)
- ensure progressive reduction of groundwater pollution.

More detail of the Water Framework Directive can be found on the Defra and Environment Agency websites:

www.defra.gov.uk/Environment/water/wfd

www.environment-agency.gov.uk/subjects/waterquality/955573/

Urban Wastewater Treatment Directive

Another EC Directive that applies to the wastewater and discharges generated from the airport is the Urban Wastewater Treatment Directive, which was adopted by member states in May 1991 and transposed into legislation across the UK by the end of January 1995. Its objective is to protect the environment from the adverse effects of sewage discharges. It sets treatment levels on the basis of sizes of sewage discharges and the sensitivity of waters receiving the discharges.

More details can be found on:

www.defra.gov.uk/Environment/water/quality/uwwtd/default.htm

Freshwater Fish Directive

The EC Directive on Freshwater Fish is designed to protect and improve the quality of rivers and lakes to encourage healthy fish populations. It sets water quality standards and monitoring requirements for areas of water which are chosen, or 'designated' by Defra.

In 2013, this directive will be repealed under the Water Framework Directive.

Floods Directive

The European Directive on the Assessment and Management of Flood Risks (2007/60/EC of 23 October 2007) (the Floods Directive) is designed to help member states prevent and limit floods and their damaging effects on human health, the environment, infrastructure and property. This will be brought into force by September 2009. More information is available on:

www.defra.gov.uk/enviro/fcd/eufldir/default.htm

UK regulatory framework

Environmental Protection Act

The Environmental Protection Act 1990 introduces the concept of integrated pollution control to prevent pollution from emissions to air, land or water. Regulations also place a 'duty of care' on those involved in the management of waste, be it collecting, disposing or treating controlled waste which is subject to licensing.

Water Resources Act

The Water Resources Act 1991 (amended in 1999 and by the Water Act in 2003) sets out regulatory controls for water abstraction, discharge to water bodies, water impoundment and protection of water resources. Under the Act it is an offence 'to cause or knowingly permit':

- Poisonous, noxious or polluting matter, or any solid waste matter, to enter controlled waters;
- Any matter to enter controlled waters so as to cause or aggravate pollution by impeding flow;
- Matter, other than permitted trade or sewage effluent, to be discharged to a sewer.

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02 Legislative, regulatory and policy context

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Groundwater Regulations

The existing Groundwater Directive (80/68/EEC) aims to protect groundwater from pollution by controlling discharges and disposals of certain dangerous substances to groundwater. In the UK, the Directive is implemented through the Groundwater Regulations 1998, which require the prevention of List I substances entering groundwater and the control of List II substances to avoid pollution of groundwater. Within the context of the WFD, legislation will be enacted in due course to introduce the Groundwater Daughter Directive which will seek to prevent deterioration in groundwater quality; the WFD will replace the existing Groundwater Regulations.

Land Drainage Act

The Land Drainage Act 1991 and 1994 places responsibility for maintaining flows in watercourses on landowners. The Act gives the local authorities powers to serve a notice on landowners to ensure works are carried out to maintain flow of watercourses.

Flood Risk Policy (Planning Policy Statement 25: Development and Flood Risk)

PPS25 sets out the government policy relating to development and flood risk. Its aims are to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, to direct development away from the areas of highest risk, and to prevent new development increasing flood risk elsewhere. PPS25 should be considered with regard to the potential operation of a second runway or any other extension to the airport and its activities.

In response to the floods of 2007, and the following Pitt Report on the events leading up to the flooding, the government are updating flooding legislation into one unifying Act of Parliament, as recommended by Sir Michael Pitt. The draft Floods and Water Bill is due for consultation in spring 2009, and will cover all sources of flooding, clarifying responsibility for each flooding source and facilitating appropriate flood risk management. The Bill will also incorporate guidance from the DEFRA publications *Making Space for Water and Future Water*.

Planning Policy Statement 23: Planning and Pollution Control

PPS23 is intended to complement the pollution control framework under the Pollution Prevention and Control Act 1999 and the PPC Regulations 2000. It advises that any consideration of the quality of land, air or water and potential impacts arising from development, is

capable of being a material planning consideration, that the planning system plays a key role in determining the location of development which may give rise to pollution, either directly or indirectly, and that where pollution issues are likely to arise, developers should hold informal pre-application discussions with the LPA, the relevant pollution control authority and/or the environmental health departments of local authorities.

Regional policies

There are many pieces of regional policy which seek to manage water resources and water quality and reduce any impacts from the discharges of pollutants into the water environment.

Regional Spatial Strategy (RSS) for the South East (Regional Planning Guidance 9)

The current adopted regional planning policy for the South East region is Regional Planning Guidance 9 (RPG9) – the current Regional Spatial Strategy for the South East. This was published in March 2001 and covers the period up to 2015. However this policy is to be replaced shortly by the South East Plan - which is a full revision of RPG9 – to cover the period to 2026.

The current RSS encourages greater consideration when planning new development to avoid areas at risk from flooding and take into account the availability of water resources. The RSS sets out policies specifically referring to managing flood risk and considering the water cycle when planning for development¹. Water efficiency measures and the minimisation of adverse impacts upon water resources, quality, regime, ecology and groundwater are also encouraged.

The South East Plan places considerable emphasis on increasing the efficiency of resource use, especially natural resources such as water². The Plan provides detailed policy guidance for the sustainable management of natural resources. It also includes policies requiring water supply and quality to be protected, maintained and enhanced and also for demand to be managed (NRM1 and NRM2); water resource development to be pursued (NRM3); and to ensure sustainable flood risk management is achieved (NRM4). In particular, policy NRM1 states that LPAs should direct new development to areas where adequate water supply can be guaranteed from existing and potential water supply infrastructure.

West Sussex Structure Plan 2001-2016

Protecting the environment and using natural resources and assets wisely is one of the core aims of this Plan. Policy

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¹ Policy INF1 states that development should be guided away from areas at risk or likely to be at risk in future from flooding, or where it would increase the risk of flood damage elsewhere. Policy INF2 requires new development to be located and its implementation

planned in a way which allows for sustainable provision of water services and enables timely investment in sewage treatment and discharge systems to maintain the appropriate standard of water quality.

² Policies CC1 and CC3 outline the need to address resource use in the South East and making this a sustainable development priority. Policy CC2 details climate change adaptation measures which include guiding strategic development to locations not at risk

from flooding and water shortages; including sustainable drainage measures and high standards of water efficiency in new and existing buildings; and increasing flood storage and developing sustainable new water resources.

02 Legislative, regulatory and policy context

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ERA4 states that no development should be permitted in areas at high risk of flooding, and that measures must be provided to manage surface water runoff and reduce flood risk, where appropriate, through sustainable drainage solutions. Policy ERA5 states that development should not be permitted unless the quality of, and where appropriate the quantity of water resources of the County will be protected and, where possible, enhanced. In seeking to protect water, local authorities should continue to monitor existing and potential water pollution.

Local policies

Crawley Borough Local Development Framework Core Strategy (adopted November 2007)

The Local Development Framework encourages water conservation, promotes the re-use of wastewater and protection of natural resources by setting out a number of environmental objectives, such as to protect and enhance designated sites, increase the biodiversity and range of natural habitats, enhance the value of the Borough's natural assets and ensure all new development respects the distinctive quality of Crawley's built and natural environment.

Environment Agency Pollution Prevention Guidance

The Environmental Agency has produced a range of Pollution Prevention Guidance Notes (PPGs), with each PPG targeted at a particular industrial sector or activity and giving advice on the law and good environmental practice. The most relevant PPGs to the airport activities are:

PPG 1 – General guide to the prevention of water pollution

PPG 2 – Above ground oil storage tanks

PPG 3 – Use and design of oil separators in surface water drainage systems

PPG 4 – Disposal of sewage where no mains drainage is available

PPG 5 – Works in, near or liable to affect watercourses

PPG 6 – Working at construction and demolition sites

PPG 8 – Safe storage and disposal of used oils

PPG 21 – Pollution incident response planning

Local water quality management

For Gatwick Airport, the affected controlled waters are Crawters Brook, Gatwick Stream and the River Mole. There are no groundwater sources that classify

as controlled waters which are affected by the Gatwick Airport site. However, there are local, isolated pockets of groundwater which may provide pathways for contaminants to migrate within the site boundary, and the effects of these might be important when considering the mobility of land contamination sources.

There are two categories of drainage system at the Airport:

Surface water drains, including land drains and most road drains and drains from most car parking areas and external paved areas. These lead to controlled waters, i.e. a local river or stream. They may discharge directly to the controlled water, or they may travel there via an intermediate step involving a balancing pond or soakaway. Discharges to the controlled waters must be within the constraints of the discharge consents held by Gatwick Airport Limited. In the case of drains that lead directly to controlled waters without intermediate balancing, we must ensure that any potential pollutants must be minimised and managed so that they cannot enter the controlled water.

Foul sewer drains which lead to an isolated septic tank or to the sewage treatment works. Foul sewer drains that lead to remote cess pits need to be periodically emptied for disposal off-site by a licensed waste management contractor, and Waste Duty of Care Regulations apply (see Waste Action Plan). Discharges to those that lead to sewage treatment works must be within the constraints of the trade effluent consents held by Gatwick Airport Limited or its tenants.

Discharges to controlled waters (surface water drainage) – discharge consents

The Environment Agency issue consents to regulate the discharge of effluent into controlled waters. It is the responsibility of the company holding the discharge consent to make sure that effluent type, concentration and volume is within the limits of the discharge consent at all times, and that they can provide evidence of compliance. These concentrations and total volumes of pollutants may depend on the flow conditions (e.g. height of river flow) of the controlled water that they enter.

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02 Legislative, regulatory and policy context

Discharges to foul sewers – trade effluent consents

All discharges to foul sewer (with the exception of discharges from terminal buildings' toilets, hotels and airfield sanitation blocks, all of which classify as domestic-quality sewage) require a trade effluent consent, which is agreed with the local sewerage provider (Thames Water). An application for this must be made to the sewerage undertaker. It is the responsibility of the company that carries out the activity – and thus produces the effluent – to ensure that they obtain a trade effluent consent that permits them to discharge the types, concentrations and volumes of effluent involved. They should also monitor their effluent streams to verify that what they are actually producing remains within the constraints of type, concentration and volume as stated within the trade effluent consent.

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Development of the action plan

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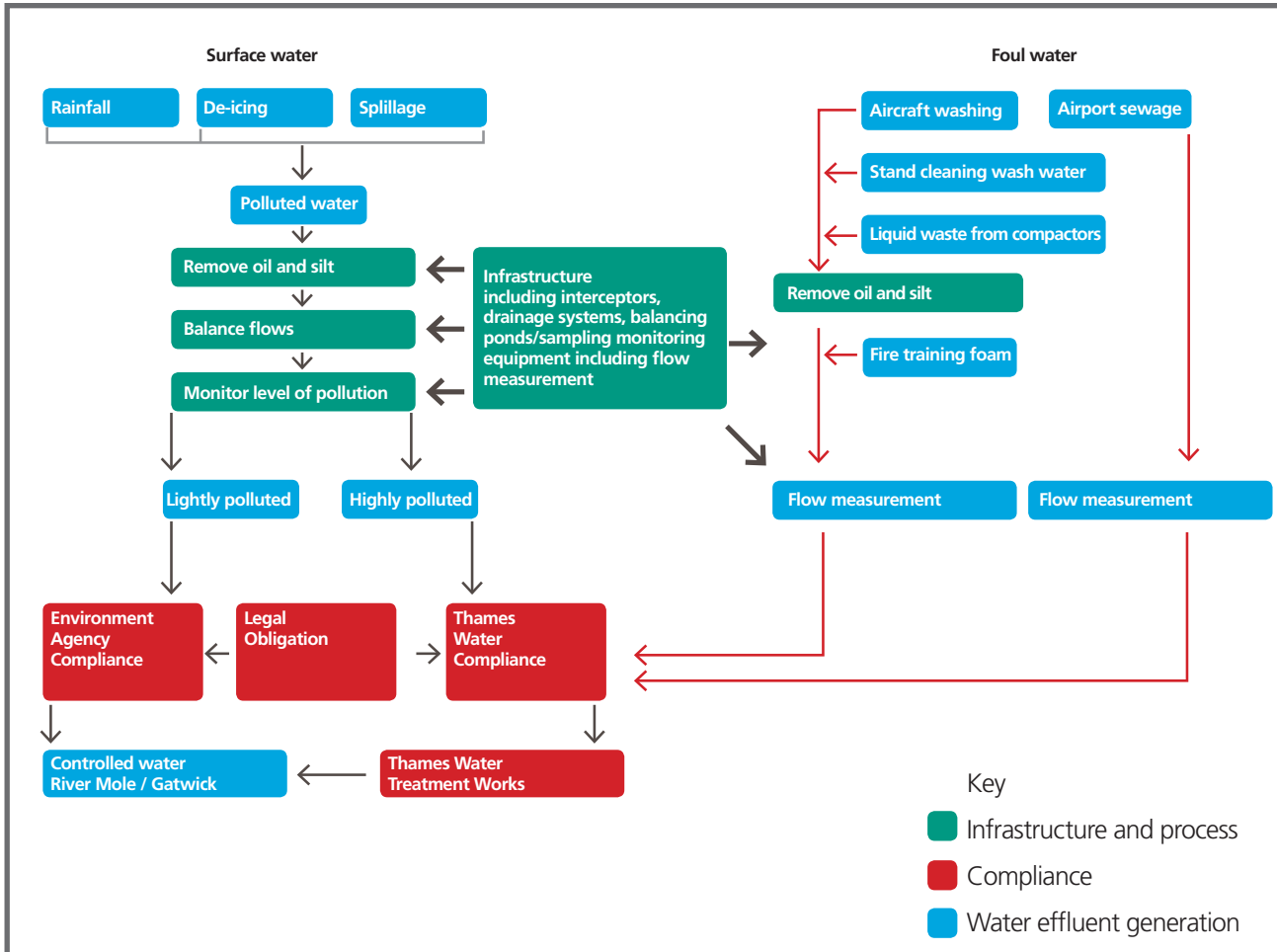
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03 Development of the action plan

The diagram below describes how water and various liquids come to arrive in our water quality management system, which activities and routes give rise to them and the routes for management of the effluents which arise.

Fig 1. Water drainage map



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Rainfall and surface water run-off

Given the large areas of hard-standing at Gatwick Airport, the rate of run-off is magnified during periods of rainfall. A number of balancing ponds are present which allow the rates of discharge flow to controlled waters to be reduced as well as providing the space in which to control the quality of this discharge water. In all cases, the discharge consents for discharge from the balancing ponds stipulate that the effluent should be 'non-injurious to fish.' Balancing ponds do provide a flood mitigation function.

Aircraft washing

Cadmium is present on various aircraft components and small quantities are found in waste water during washing activities. Aircraft washing currently occurs on-site at the 170s stands; we now treat cadmium discharges in the waste water on-site. A comprehensive suite of sampling has been put in place to gain accurate readings of cadmium levels in waste water and to understand under what conditions of aircraft washing the elevated levels of cadmium occur.

Spillages

The largest potential for spillages is of fuel, both aviation fuel on the airfield and ground vehicle fuel at various bulk storage sites landside and airside. Protection systems in place to prevent spillages include spillage bunds around the main tanks, pressure-trip systems on the distribution mains, inspections of the fuel hydrant wells and fast stop valves on the hydrants. The most common source of aviation fuel spillages is venting from the aircraft fuel tanks, when a rapid thermal expansion of the fuel in the wing tanks due to a change in ambient solar conditions leads to a venting from the wing tanks.

Stand cleaning

Aircraft stands are cleaned regularly using detergent in order to remove oil deposits and any loose debris which would otherwise cause damage to aircraft.

Waste management

Compactors are situated at landside locations in the South and North Terminals, and airside in the South Terminal. There are two general waste compactors on the airfield, at the Central Recycling Point (CRP) and at the North Terminal Sanitation Block. Where compactors are sited, the drainage from these areas should be to foul sewer under a trade effluent consent.

De-icer application

De-icer and anti-icer compounds are applied to the surfaces of aircraft and to hard-standing areas both landside and airside during periods where the formation of ice would create hazardous conditions. The containment and management of the effluent from these de-icer application activities is important as de-icer and anti-icer compounds tend to have a high biological oxygen demand (BOD) as they biodegrade. It is important that:

- the BOD load of the operations is minimised, by careful choice of permitted de-icing compounds and efficient application of de-icer only where it is required;
- wherever possible the de-icer effluent is usefully recovered;
- the remaining effluent is fully contained and treated in accordance with discharge consents.

Others

All workshop activities and other industrial/commercial activities not listed above require drainage to foul sewer and a corresponding trade effluent consent.

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The actions

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04 The actions

This action plan covers those activities to be completed over the next 2-3 years. The actions have been identified through a series of internal scoping exercises and consultation with our key external stakeholders.

Table of actions

Complete by year end Ongoing

Detail of Action	Year			
	2009	2010	2011	
Action completed or commissioned in 2008	We will track progress against our annual targets for water consumption on a monthly basis via our governance groups within the airport.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	We will work with our airport business partners who operate at Gatwick Airport to reduce their impact on the environment – water quality being an important topic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	We will implement a series of works and develop protocols (which consider the recommendations of the Strategic Flood Risk Assessment) to reduce flood vulnerability to Gatwick and our neighbouring Boroughs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	We will undertake a series of measures to minimise pollutant loads of effluent streams through improving process efficiency.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	We will conduct environmental assessments on development projects to ensure water quality issues are considered and addressed where applicable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	We will develop an accurate map of drainage routes and interceptors, and produce plans for drainage maintenance.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Actions 2009 – 2011	We will assess the surface water attenuation currently existing on the airport and feed the findings into our flood resilience and management work.	<input checked="" type="checkbox"/>		
	We will develop a series of robust procedures for spill response including training needs and spill reporting.	<input checked="" type="checkbox"/>		
	We will review, upgrade and produce contingency plans for flood response and contamination of foul and surface water systems.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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04 The actions

Detail of Action	Year			
	2009	2010	2011	
Actions 2009 – 2011	We will develop and maintain a site wide oil and chemical storage register and annually update.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	We will develop and maintain a de-icing code of practice guide.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	We will develop a Flood Resilience Strategy for the airport, detailing the required levels of flood resilience for each area of the airport and identifying the protection measures required for specific business-critical assets.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	We will develop guidance for development managers on designing for flood resilience and site surface water attenuation in both major projects and those projects which do not require planning consent (as applicable).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	We will implement a plan to identify, record and maintain water quality critical assets.		<input checked="" type="checkbox"/>	

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Implementing the action plan

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05 Implementing the action plan

It is important to ensure that the action plan is effective and that it remains a “live” document, responsive to the dynamic airport environment and changing legislation.

For this reason, this action plan will be reviewed internally on at least a three year basis. The review will involve engagement with the following stakeholder groups:

- Crawley Borough Council
- The Environment Agency
- The local sewerage company (currently Thames Water)

The aim of the review will be to critically assess the residual environmental risk to water quality in all of the areas of the risk matrix. It will also be to review the scope of legislative requirements and add any new requirements, and associated actions, to the action plan.

Action Plans will be audited as set out in the Action Planning obligation.

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Glossary

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06 Glossary

EC	European Commission
WFD	Water Framework Directive
PPS	Planning Policy Statement
RPG	Regional Planning Guidance
RSS	Regional Spatial Strategy
NRM	National Resource Management
LPA	Local Planning Authority
DEFRA	Department for Environment, Food and Rural Affairs
PPG	Pollution Prevention Guidance
CRP	Central recycling point
BOD	Biological Oxygen Demand

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