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**THE ENVIRONMENT AGENCY'S RISK
PORTFOLIO, ANNEX: REGISTER OF
RISK ASSESSMENT TOOLS**

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ENVIRONMENT AGENCY



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ANNEX: Register of Risk Assessment Tools

The Register of Risk Assessment Tools provides a listing and description of tools (i.e. techniques, models, or procedures) used or under development within the Environment Agency for risk assessment purposes. The register was initially developed based on interviews with personnel from each of the Agency's functions and more recently updated by telephone or fax. The register does not aim to cover all tools available, but rather to summarise those most frequently used. **To help keep the register updated, please advise the National Centre for Risk Analysis and Options Appraisal of any tools currently not included in this Annex.** The register is intended to inform the Agency as a whole, and the Directors of Environmental Strategy, Environmental Protection and water management in particular, on the current risk assessment capabilities of the Agency.

The tools are each described using standard proformas which specify their characteristics using key phrases. The proforma is explained below.

The order of the proformas is currently grouped according to the section of the Environment Agency from which the tool originated, (e.g. Water Resources). However, many of these tools are used by more than one function in the Agency. A reference is used to distinguish each tool, using a code structure of the initials of the Agency section plus a 3-digit number, e.g. WR012. The codes are as follows:

SR	Environmental Strategy
EIA	Environment Impact Assessment
PIR	Process Industries Regulation
RAS	Radioactive Substances Regulation
LQ	Land Quality
WQ	Water Quality
WMR	Waste Management and Regulation
FD	Flood Defence
CO	Fisheries and Conservation
RN	Recreation and Navigation
WR	Water Resources
OTH	Other tools not specific to any of the above

Table 1 of this Annex provides a brief explanation of the categories used to define the principal characteristics of those risk assessment-related tools used within the constituent parts of the Environment Agency. It is important to note that in many cases, risk assessment is an implicit rather than explicit use of the models and procedures recorded on the proformas. Table 2 lists all the tools included in this Annex and provides a brief description of the purpose of the technique, model or procedure. This is followed by, individual proformas.

Table 1: Proforma

Proforma Section Number	Contents	Description
1.	Title	The title by which the technique, model or procedure is most commonly known
	Acronym	The acronym by which the technique, model or procedure is most commonly known
2.	Model Purpose	A brief description of the primary areas in which the tool is intended to be used.
3.	Additional information	
	Users	This records who the end users of the technique, model or procedure are.
	Frequency	This section provides information on how often the model is used – i.e. whether the model is used routinely, periodically (e.g. every few weeks) or as a specialist tool (e.g. used occasionally by experts)
	Development	This identifies the state of development of the tool: there may be no plans to revise/update the model (none); the Agency may currently be discussing whether revisions are necessary (arguing revision); or it may currently be undergoing revision (being revised).
	License conditions	This identifies the license conditions of the technique, model or procedure: whether it has been developed commercially and requires license (licensed product) or whether it is freely available; if it is a licensed product, how many license holders does the Agency hold?
4.	General Assessment	This section provides an initial categorisation to identify those areas of the Environment Agency's remit to which the technique, model or procedure may be applicable.
	Media	The media to which the technique/model/procedure is, or may be, applied. Where it may be applied to waste in addition to one of the three primary media, this is also identified.
	Function	The core functions of the Environment Agency to which the technique tool may be applicable. This may reflect its current use or an area of potential use which would not require significant development work.
	Purpose	The <i>modus operandi</i> of the Environment Agency, within the functions identified above in which the model/procedure is most commonly used. Regulation includes the determination of authorisations, consents and licences. Operational includes routine environmental management as well as enforcement issues. Planning relates primarily to the planning of the Environment Agency's activities. Prioritising relates primarily to identifying those issues which pose greatest risk to the environment.
	Risk Assessment	This section identifies the risk assessment basis of the tool. This may be <u>qualitative</u> , <u>semi-quantitative</u> or <u>quantitative</u> . It may contribute to the setting of the <u>criteria</u> by which the severity of risks can be determined or it will be involved in the severity <u>assessment</u> itself. For those models recorded, the basis may be <u>deterministic</u> (i.e. a single value is used for each input parameter) or some may feature a <u>stochastic</u> (i.e. a range of values with a statistically determined distribution) simulation capability (e.g. Montecarlo). Finally, the tool may be used for either <u>risk assessment</u> or <u>determining risk management</u> option.
5.	Further Assessment	This section provides a further categorisation of the tool and in particular, focuses on the specific features provided.
	Coverage	This records whether the technique/model/procedure is used on a site-specific basis, whether it can address issues across a catchment or region in one operation, or whether it can assess risks across England and Wales in one operation.
	Type	This section records the form the technique/model/procedure takes. It will be either procedural or mathematical, statistical, and it may cover a range of potential risks/effects from physical issues such as flood water to chemical and radiochemical pollutants.
	System Base	This sets out the form in which the tool is made available to the user. It also identifies whether the model/procedure has been developed in-house or with third party support.
	Timescale	This sets out over what timescale those tools recorded can be applied.
	Resolution	This covers the spatial resolution of the technique, model or procedure
5.	Cross-Reference	
	Standards	This identifies the standards and targets against which the technique/model/procedure assesses the severity of the risk being determined.
	Databases	This identifies the databases required for the tool to operate effectively.
6.	Comments	Here any additional comments may be added.
	Contact	Provides a principal point of contact for further information on the use or further development of the technique/model/procedure. Many of the contacts noted have developed a particular expertise and level of experience in the use of that specific tool.

Table 2: Environment Agency Register of Risk Assessment Tools: Summary Table

TITLE	FORM REF.	ACRONYM	MODEL PURPOSE
Environmental Impact Assessment	EIA 001	EIA	Agency technical guidance on scoping and detailed guidance notes for a comprehensive range of development types primarily assist external developers and their consultants on how to assess the environmental impact of projects and schemes, how to reduce risks to the environment from such schemes, and how best to develop mitigating measures. Also for Agency staff and local Planning Authorities.
Environmental Impact Assessment, Works & Activities	EIA 002	EIA/External	To establish minimum national standards for the environmental impact assessment at an appropriate level of all Agency works and activities. To ensure the Agency meets the statutory requirements of European and UK EIA legislation and the Environment Act.
Strategic Risk Assessment Methodology	SR 001	SRAM	This methodology has been developed to enable comparative assessments of environmental impacts at the strategic level.
R&D Prioritisation spreadsheet	OTH 001		To provide a standard, consistent method for collating and prioritising R&D proposals based on the Agency.
European Union system for the Evaluation of Substances, version 1.0.	OTH 002	EUSES	

TITLE	FORM REF.	ACRONYM	MODEL PURPOSE
Hull Acid Rain Model	PIR 001	HARM	This model is used for the calculation of the concentration and deposition of sulphur and nitrogen pollutants over the UK and creating deposition maps.
Meso and Regional Scale Pollutant dispersion and Deposition Model	PIR 002	NAME II	To calculate and forecast pollutant concentration and deposition. It is used for retrospective episodes of analysis of poor air quality.
United Kingdom Air Dispersion Modelling System	PIR 003	UKADMS	Calculation of short-term - long-term ground level pollutant concentrations for releases to air (air dispersions model).
AERMOD	PIR 004	AERMOD	Estimation of air pollutant concentrations (short-term and long-term) from point source, line source and area source emissions
DISTAR	PIR 005	DISTAR	Estimates of air pollutant concentration based on RAI methodology
Operator and Pollution Risk Appraisal	PIR 006	OPRA	OPRA assess several aspects of the performance of an operator to provide an indication of probability of an occurrence of an undesirable event and the consequences of the event. These factors are combined to give an indication of comparative risks.
Uniform System for the Evaluation of Substances	PIR 007	USES	USES is a tool that can be used for rapid quantitative assessments of the general risks of substances. USES may be applied to risk assessment and to set priorities for new and existing substances.

TITLE	FORM REF.	ACRONYM	MODEL PURPOSE
Validity Analysis of Disposal Alternatives	RAS 001	VANDAL	VANDAL is central to the Agency's quantitative risk assessment capability, providing estimates of risk to man, over long time scales, from radionuclide releases from radioactive waste disposal facilities.
WOLFNET	RAS 002	WOLFNET	WOLFNET is the flow sub-model in VANDAL and provides groundwater flow predictions for the transport sub-model in VANDAL.
DECOS-MG	RAS 003	DECOS-MG	Dynamic modelling of radionuclide migration within the surface environment.
TIME4	RAS 004	TIME4	This methodology is being developed to enable risk assessments for other techniques to be normalised in order to establish priorities across the remit of the Environment Agency.
Chemical Transport Adsorption Redox and Delay Model	RAS 005	CHEMTARD	CHEMTARD is a coupled chemical transport code used to determine the migration of radionuclides through the geosphere.
pH Redox Equilibrium Equations	RAS 006	PHREEQE	The PHREEQE computer program is designed to modelling geochemical reactions. Based on an ion pairing model, PHREEQE can calculate pH, redox potential, and mass transfer as a function of reaction progress.

TITLE	FORM REF.	ACRONYM	MODEL PURPOSE
Part IIA EPA 1990. Handbook, Guidance Notes and Supporting Manuals.	LQ 001		To describe the process to be adopted by the Agency when exercising regulatory control under the contaminated land provisions of Part IIA of the Environmental Protection Act 1990. The Handbook also provides links to associated Agency documentation (i.e. guidance notes and supporting manuals).
Model Procedures for the Management of Contaminated Land.	LQ 002		To provide a structured framework and procedural guidance for the identification, treatment and monitoring of contaminated land.
Contaminated Land Exposure Assessment	LQ 003	CLEA	Estimating likely human exposure for contaminants in soils for the development of guideline values to indicate whether there are any unacceptable long-term risks to human health.
Short Term Risks	LQ 004		Development of model to assess short-term risks to human health.
Buildings Risk	LQ 005		Guidance on assessing and managing risks from contamination to building materials including specific regulatory guidance for Part IIA.
Ecosystem Risk from Contaminated Land	LQ 006	ECORCL	To assess the risks to ecosystems from contaminated sites.
Contaminated Land Exposure Assessment	LQ 007	ConSim	ConSim has been developed to help an assessor predict the impact of leaching of contaminants from land contamination on the quality of controlled waters (and GW in particular). ConSim uses Monte Carlo techniques to provide probabilistic output of predicted impact on water quality arising from the migration of contaminants. ConSim considers biological, physical and chemical process (and 1st order radioactive decay if applicable) acting to attenuate pollutants within the system.
Methodology for the derivation of remedial targets for soil and groundwater to protect water resources.	LQ 008		Guidance on risk management requirements for contaminated soils and groundwater to prevent pollution of the aquatic environment. This methodology compliments the ConSim software tool.
Validation of Analytical Techniques for Laboratory Analysis of Soil.	LQ 009		To provide Quality Assurance in Laboratory Analysis of Soil.

TITLE	FORM REF.	ACRONYM	MODEL PURPOSE
River Quality Planning	WQ 001	RQP	A collection of stochastic programmes for predicting the impact of single discharges includes RQI and CONCLASS.
Simulation of Catchments	WQ 002	SIMCAT	The prime purpose is to calculate the effect of discharges and other types of pollution and abstractions on the statistical distributions of river water quality throughout a catchment. It is primarily used as a consent setting tool.
Temporal Overall Model for Catchments	WQ 003	TOMCAT	TOMCAT may be used as a tool for consent setting in order to achieve river quality standards and may also be used as a planning tool to model, for example, phosphate to assist targeting investment. It is an essential tool for calculating consent standard for effluent discharges in catchments where there might be several works affecting the river quality, or where it is important to predict dissolved oxygen levels.
Quality Simulation Along Rivers	WQ 004	QUASAR	QUASAR is a predictive model to assess the effect of developments and changes within the catchment (for example, drainage and sewerage changes - more stringent consents etc) on river quality. QUASAR may be used in both a dynamic and a planning capacity.
Estuarine (Contaminant) Shell	WQ 005	ECoS	ECoS is a shell or framework for modelling contaminants such as dangerous substances in estuaries.
MIKE - 1 Dimensional and 1 Layered	WQ 006	MIKE11	MIKE11 is an engineering software package for the simulation of flows, water quality and sediment transport in estuaries, rivers, irrigation systems, canals and other water bodies.
Quality of Estuaries Simulations	WQ 007	QUESTS	QUESTS models estuarine quality particularly with respect of discharges and how consent conditions may be determined to improve water quality and target investment.
TIDEWAY	WQ 008	TIDEWAY	2-D Vertical modelling in Estuaries.
Aggregated Dead Zone	WQ 009	ADZ	Assessing the time of arrival of a polluting discharge during an incident.
POLLUX	WQ 010	POLLUX	
Construction of Bunds for Oil Storage	WQ 011		To define cost effective storage protection facilities to reduce the risk of (oil) pollution of controlled waters.
Farm Activity and River Management System	WQ 012	FARMS I&II	FARMS I & II is a distributed catchment scale model to simulate the run-off of water and the transport of pollutants arising from farm wastes, into rivers. It is used for developing farm waste management plans.

TITLE	FORM REF.	ACRONYM	MODEL PURPOSE
Simulation of Catchments	WQ 013	SIMCAT	Stochastic modelling of water quality in catchments. It is used as a consent setting tool.
Temporal Overall Model for Catchments	WQ 014	TOMCAT	Stochastic modelling of water quality in catchments. It may be used as a tool for consent setting in order to achieve river quality standards and may also be used as a planning tool to model, for example, phosphate to assist targeting investment.
Incident Reaction Interface System	WQ 015	IRIS	IRIS is a time of travel calculation model for assessing the length of time taken for a pollutant to travel down a catchment to potable water intakes. The models primary function is for intake protection purposes.
Pollution Prevention Manual	WQ 016		To provide consistent guidance to all Environment Agency field officers on pollution prevention issues including site visits, risk assessment and risk management.
Pollution Prevention Site Visits	WQ 017		To assess and manage risk on wide ranging types of site to prevent pollution and improve water quality. All regions undertake some form of PP activity.
Works Notice Risk Assessment Forms	WQ 018		To provide a consistent basis for deciding whether a works notice should be served to prevent water pollution.
Prediction of Pesticide Pollution in the Environment	WQ 019	POPPIE	Prediction of Pesticide Pollution in the Environment.
FARM Pollution Prevention Visit Proforma	WQ 020		Consistent data collection of farm storage facilities and risk assessment of storage operations.
Pollution Risk from Accidental Influx to Rivers & Estuaries	WQ 021	PRAIRIE	To predict consequences of accidental releases of chemicals into water courses.
Urban Pollution Management Manual	WQ 022	UPM Manual	The UPM Manual is designed to deliver adequate environmental protection at least cost for intermittent discharges of urban sewage. This is achieved through the planning process and the use of specific tools developed for the purpose.
Decision Support Tool	WQ 023	DECIST	Make better decisions when deciding levels of data collection in urban pollution management studies.

TITLE	FORM REF.	ACRONYM	MODEL PURPOSE
Catchment Inventory system	WQ 024	CATCHIS	CATCHIS is a system for evaluating the risk of specific pesticides being present in specified surface water and groundwater locations.
Source Protection Zones models & maps	WQ 025	SPZs	Source Protection Zones have been developed to define areas in which activities could impact groundwater abstraction.
Groundwater Vulnerability Maps	WQ 026		Groundwater Vulnerability Maps have been produced to define the vulnerability of groundwater in any specific location regardless of use.
Rapid Risk Assessment Methodology	WQ 027		To provide consistent approach to risk assessment at industrial sites (non IPC sites).
Discharge Consent Manual	WQ 028		The discharge Consent Manual is a collection of Agency's policies for the determination of Consents for discharges. The Manual covers the legal & technical basics for ensuring the protection of WQ. The manual is a dynamic document subject to continual reviews & addition.

TITLE	FORM REF.	ACRONYM	MODEL PURPOSE
Landfill Simulation Model	WMR 001	LandSim	LandSim allows the assessor to predict the impact of pollutants in a landfill site on the quality of controlled waters (particularly groundwater). The model considers leachate chemistry, engineering performance of containment and leachate collection systems and processes acting in the unsaturated zone to attenuate pollutants before they reach the waterhole.
Operator and Pollution Risk Appraisal for Waste	WMR 002	OPRA for Waste	OPRA for Waste provides a straightforward characterisation of the overall environmental risk from waste disposal or recovery operations by providing an indication of an occurrence of an undesirable event and the consequences of the event. These factors are combined to give an indication of comparative risks and are used to determine the frequency of inspections at sites.

TITLE	FORM REF.	ACRONYM	MODEL PURPOSE
Flood Defence Management System	FD 001	FDMS	The main purpose is to identify the need for capital/revenue expenditure and to determine the prioritisation and justification of that expenditure.
Flood Studies Report (PC Based)	FD 002	MICROFSR	FSR is used for estimation of design flows for ungauged catchments. Flows are estimated at one point in the catchment only.
Frequency Simulation (of Flood Flows)	FD 003	FRQSIM	FSR is used for estimation of design flows for ungauged catchments. Flows are estimated at one point in the catchment only.
Regional Flow-Forecasting system	FD 004		The Regional Flow-Forecasting System relies on output from one of three models (Isolated Event Model/Thames Conceptual Model/Probability Model) to forecast flood events in river catchment zones.
ISIS	FD 005	ISIS	ISIS has been developed from ONDA and SALMON and it models flow, water quality and sediment transport in complex river and channel networks.
Hydrological Engineering Centre Risk Analysis System	FD 006	HEC-RAS	HEC 2 is a backwater model for ascertaining water levels along a reach of river or open channel for a steady flow rate.
Backwater Programs (Generic)	FD 007		Backwater programs are used to estimate water levels given in-channel geometry and roughness and a steady flow.
MIKE – 2 Dimensional and 1 Layered	FD 008	MIKE21	MIKE21 is a comprehensive modelling system for 2D free surface flows and is applicable to hydraulic and related phenomena in lakes, estuaries, bays and coastal areas.
NAM (Hydrological Model)	FD 009	NAM	NAM is a deterministic conceptual lumped model representing the land phase of the hydrological cycle. It is based on physical and semi empirical formulations.
Forecasting Rain Optimised using New Techniques of Interactively Enhanced Radar and Satellite Data.	FD 010	FRONTIERS	FRONTIERS is a model that provides high-resolution quantitative rainfall forecasts for flow prediction.
Local Rainfall Forecasting System	FD 011		The Local Rainfall Forecasting System is an advection model that models the speed and direction of rainfall and can forecast up to two hours ahead.

TITLE	FORM REF.	ACRONYM	MODEL PURPOSE
Generating Advanced Non-Casts for Deployment in Operational Land-surface Flood-Forecasting	FD 012	GANDALF	GANDALF is an operational thunderstorm warning procedure for use with river flood forecasting systems.
Risk Assessment for Sea and Tidal Defences	FD 013		This methodology has been developed to provide a detailed quantitative risk assessment procedure including probabilistic failure analysis and assessment of areas of flooding. This methodology is designed to compliment the SPACE Methodology and act as a second tier detailed assessment.
Indicative Floodplain Maps	FD 014	IFM	Show areas within which may be vulnerable to flooding from rivers or the sea..
Flood Estimation Handbook	FD 015	FEH	FEH is used for estimation of design flows for ungauged sites. It is a development of the flood studies report.
Database of Erosion Deposition and Flooding	FD 016		Database of 1500 reported flooding and erosion events in Britain from 1770 to present. Developed by DETR to inform planning guidance.

TITLE	FORM REF.	ACRONYM	MODEL PURPOSE
River Habitat Survey	CO 001	RHS	To determine River habitat quality in the context of river type and level of physical modification.
River Corridor Survey	CO 002	RCS	To provide information on the plant communities and land use along watercourses.
Landscape Assessment	CO 003		To provide information on landscape character of river corridors.
Habitats Directive Review	CO 004		To review all consents / activities affecting Habitats and Birds Directive sites
Planning applications screening process	CO 005		To prioritise planning applications for consultation with conservation staff.

TITLE	FORM REF.	ACRONYM	MODEL PURPOSE
FLOWPATH	WR 001	FLOWPATH	Flowpath is a propriatory model which is applied in the determination of Groundwater Protection Zones. The model may also be applied in groundwater pollution incident investigation. It is a 2D steady state numerical groundwater flow model.
MODFLOW/MODPATH	WR 002	MODFLOW	MODFLOW is a finite difference groundwater model for modelling time variant flow in anisotropic, heterogeneous, layered aquified systems. These models are 2D/3D Steady State/Time Variant Groundwater flow and particle backing models.
RESPLAN	WR 003		Least cost economic prioritisation of resource Development scheduling / resource allocation modelling
Finite Difference Code	WR 004	BU	BU is a finite difference groundwater model for modelling time/variant flow in anisotropic, heterogeneous, layered aquifer systems. These models are 2D/3D steady state/time variant groundwater flow and particle tracking method.
Integrated Catchment Management Model	WR 005	ICMM	This is a finite difference groundwater model for modelling transit flow in anisotropic, heterogeneous layered aquifer systems.
Single Layer Finite Difference Code.	WR 006	SLAY	This is a finite groundwater model for modelling transient flow in anisotropic, heterogeneous, single layered, aquifer systems.
MIKE – System Hydrologique Europeane	WR 007	MIKE SHE	MIKE SHE is a dynamic modelling tool for the analysis planning and management of water resources and environmental problems related to surface water and groundwater, in particular to assess potential impact of human activities.
Well Head Protection Area	WR 008	WHPA	The Well Head Protection Area Model is utilised for derivation of Groundwater Protection Zones. The model is a 2D steady state numerical groundwater flow model.
Surface Water Abstraction Licensing Procedure	WR 009	SWALP	The determination of surface water abstraction licence applications

Micro Low Flows V21	WR 010		Used to estimate natural and artificial infiltrated flow statistics at ungauged river sites.
Water Resources Model	WR 011	WRM	Water Resources Planning. WRM helps evaluate the capability of existing and proposed WR Development toward meeting target levels of service of consumption given existing and forecast demands against known hydrologic performance.
Thames Catchment Model River Flow Generation	WR 012		To generate sequences of possible future river flows for different rainfall scenarios used in conjunction with the Thames WR model (for reservoirs). River Flows + reservoirs = Drought Management Model.
Drought Management System	WR 013	DMS	Operational planning and management of water resources. Provides a broad assessment of risk of resource/supply failure given statistical likelihood of different rainfall scenarios given actual reservoir storage and run off at that time.
Bursts and Background Estimates	WR 014	BABE	To estimate the level of leakage of water from distribution system.
Demand Forecasting Model	WR 015	DFM	To forecast public water supply demands for the future.

Environment Agency
Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Environmental Impact Assessment (External developers)**

Form Ref **EIA001**

2. Model Purpose

Acronym **EIA/External**

Agency technical guidance on scoping and detailed guidance notes for a comprehensive range of development types primarily assist external developers and their consultants on how to assess the environmental impact of projects and schemes, how to reduce risks to the environment from such schemes, and how best to develop mitigating measures. Also for Agency staff and local Planning Authorities.

Users: **Operational, functional + planning liaison staff. Mainly used by externals / eg. consultants, industry, although it applies to Agency when considering a development.**

Frequency

Routine ☒
 Periodic ☐
 Occasionally ☐

Development

None ☐
 Arguing revision ☐
 Being revised ☒
 Under development ☐

License

Licensed ☐
 If so, number ☐
 Free ☒

3. General Assessment

Media

Air ☒
 Land ☒
 Water ☒
 Waste ☒

Function

Water Quality ☒
 Water Resources ☒
 Flood Defence ☒
 Fisheries ☒
 Rec & Nav ☒
 Conservation ☒
 PIR ☒
 Radioactivity ☒
 Waste Policy ☒
 Land Quality ☒

Risk Assessment

Qualitative ☒
 Semi-Quantitative ☒
 Quantitative ☐
 Criteria ☐
 Assessment ☒
 Deterministic ☒
 Stochastic ☐
 Risk Assessment ☒
 Risk Management ☒

Purpose

Regulation ☒
 Operational ☒
 Planning ☒
 Prioritising ☒

4. Further Assessment

Coverage

Site Specific ☒
 Catchment ☒
 Regional ☐
 National ☐

Type

Procedural ☒
 Mathematical ☐
 Statistical ☐
 Chemical ☒
 Physical ☒
 Biological ☒
 Radioactivity ☐

System Base

Paper ☒
 PC - DOS ☐
 PC - Windows ☐
 UNIX/Mainframe ☐

Timescale ☐
 Resolution ☐

In-House ☒
 Third Party ☒

5. Links to Standards, Targets and Databases (Cross-reference)

Standards **DETR legislation + Guidance; other good practice guidance.**

Databases

6. Comments

Guidance documents are currently being updated and are due to be completed in the autumn of 2000.

Contact **Andrew Brookes or
 Environmental Development
 Officer.**

Location: **NCRAOA**

Tel: **710 6828**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title **Environmental Impact Assessment, Works & Activities**Form Ref **EIA002**

2. Model Purpose

Acronym **EIA/External**

To establish minimum national standards for the environmental impact assessment at an appropriate level of all Agency works and activities. To ensure the Agency meets the statutory requirements of European and UK EIA legislation and the Environment Act.

Users: **Agency EIA staff and project managers Consultants****Frequency**Routine
Periodic
Occasionally

✓

DevelopmentNone
Arguing revision
Being revised

✓

LicenseLicensed
If so, number
Free

✓

3. General Assessment**Media**Air
Land
Water
Waste

✓
✓
✓
✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓
✓
✓
✓
✓
✓
✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Probabilistic/Determ
Monte-Carlo
Risk Assessment
Risk Management

✓
✓
✓
✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓
✓
✓

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓
✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓
✓

5. Links to Standards, Targets and Databases (Cross-reference)Standards **DETR Legislation and Guidance, MAFF Guidance, Agency National Handbook and**

Databases

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6. Comments**National Handbook (1998) due to be updated - timescales to be agreed.**Contact **Andrew Brookes o
Environmental**Location: **NCRAOA**Tel: **710 6828**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title **Strategic Risk Assessment Methodology**Form Ref **SR001**

2. Model Purpose

Acronym **SRAM**

This methodology has been developed to enable comparative assessments of environmental impacts at the strategic level.

Users: **Potential prioritisation of LEAPS****Frequency**Routine
Periodic
Occasionally

✓

DevelopmentNone
Arguing revision
Being revised
Under development

LicenseLicensed
If so, number
Free

N/A

3. General Assessment**Media**Air
Land
Water
Waste

✓
✓
✓
✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓
✓
✓
✓
✓
✓
✓
✓
✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓
✓
✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓
✓
✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓
✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)Standards **Dependent upon the type of intention and consequence.**Databases **Dependent upon the type of intention and consequences.****6. Comments**

This methodology is currently under development but has reached proof of concept stage and been piloted on LEAPS and on the state of the Environment Report.

Contact **Simon Pollard**Location: **NCRAOA**Tel: **710 6832**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title **R&D Prioritisation spreadsheet**Form Ref **OTH 001**

2. Model Purpose

Acronym

To provide a standard, consistent method for collating and prioritising R&D proposals based on the Agency.

Users: **R&D Programme Officers & Topic Leaders****Frequency**Routine
Periodic
Occasionally

✓

DevelopmentNone
Arguing revision
Being revised
Under development

✓

LicenseLicensed
If so, number
Free

✓

3. General Assessment**Media**Air
Land
Water
Waste

✓
✓
✓
✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓
✓
✓
✓
✓
✓
✓
✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓

PurposeRegulation
Operational
Planning
Prioritising

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

--

Databases **R&D MIS**

--

6. Comments

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Contact **David Bird (R&D planning officer)**Location: **Bristol**Tel: **7 10 4325**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Users:

Frequency

Routine ☒
Periodic ☐
Occasionally ☐

Development

None ☐
Arguing revision ☐
Being revised ☒
Under development ☐

License

Licensed ☐
If so, number
Free ☒

3. General Assessment

Media

Air ☒
Land ☒
Water ☒
Waste ☐

Function

Water Quality ☒
Water Resources ☐
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☒
Radioactivity ☐
Waste Policy ☒
Land Quality ☒

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☒
Criteria ☐
Assessment ☒
Deterministic ☒
Stochastic ☐
Risk Assessment ☒
Risk Management ☐

Purpose

Regulation ☒
Operational ☐
Planning ☐
Prioritising ☐

4. Further Assessment

Coverage

Site Specific ☒
Catchment ☐
Regional ☒
National ☐

Type

Procedural ☐
Mathematical ☒
Statistical ☐
Chemical ☒
Physical ☐
Biological ☐
Radioactivity ☐

System Base

Paper ☐
PC - DOS ☐
PC - Windows ☒
UNIX/Mainframe ☐
In-House ☐
Third Party ☒

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

EUSES is used to produce predicted environmental concentrations (PECs) for industrial chemicals on a local, regional and continental scale for a generic environment, and to compare these with predicted no effect concentrations (PNECs). A variety of release scenarios can be modeled from one-off to continuous. The model was developed by European Member States, the European Commission, and industry.

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Hull Acid Rain Model**

Form Ref **PIR001**

2. Model Purpose

Acronym **HARM**

This model is used for the calculation of the concentration and deposition of sulphur and nitrogen pollutants over the UK and creating deposition maps.

Users: **Under contract by Head Office**

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

N/A

3. General Assessment

Media

Air
Land
Water
Waste

✓
✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓
✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓
✓
✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

Annual
10km

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards **Air quality standards for sulphur dioxide and nitrogen oxides and critical loads**

Databases **Land cover databases, altitude, and rainfall**

6. Comments

This model is a derivation of the Harwell Trajectory Model. This model is currently used by the DETR, Air and Environment Quality division.

Contact **Colin Powlesland**

Location: **London**

Tel: **7 10 6827**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Meso and Regional Scale Pollutant dispersion and Deposition Model.**

Form Ref **PIR002**

2. Model Purpose

Acronym **NAME II**

To calculate and forecast pollutant concentration and deposition. It is used for retrospective episodes of analysis of poor air quality.

Users: **Regional PIR Officers**

Frequency

Routine ☐
Periodic ☐
Occasionally ☒

Development

None ☒
Arguing revision ☐
Being revised ☐
Under development ☐

License

Licensed ☐
If so, number ☐
Free ☐

3. General Assessment

Media

Air ☒
Land ☐
Water ☐
Waste ☐

Function

Water Quality ☐
Water Resources ☐
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☒
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☒
Criteria ☐
Assessment ☒
Deterministic ☒
Stochastic ☐
Risk Assessment ☒
Risk Management ☐

Purpose

Regulation ☐
Operational ☐
Planning ☐
Prioritising ☐

4. Further Assessment

Coverage

Site Specific ☒
Catchment ☐
Regional ☒
National ☐
Global ☐

Type

Procedural ☐
Mathematical ☒
Statistical ☐
Chemical ☒
Physical ☒
Biological ☐
Radioactivity ☐

System Base

Paper ☐
PC - DOS ☐
PC - Windows ☐
UNIX/Mainframe ☒

Timescale ☐
Resolution ☐

In-House ☐
Third Party ☒

5. Links to Standards, Targets and Databases (Cross-reference)

Standards **AQS: Sulphur and Nitrogen Critical Loads**

Databases **Based on the global forecasting model and draws on global and European emission databases.**

6. Comments

The Agency pays for the use of this model on a contract basis.

Contact **Jimi Irwin**

Location: **London**

Tel: **7 10 6825**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title **United Kingdom Air Dispersion Modelling System**Form Ref **PIR003**

2. Model Purpose

Acronym **UKADMS****Calculation of short-term - long-term ground level pollutant concentrations for releases to air (air dispersions model).**Users: **PIR/RSR and waste colleagues****Frequency**

Routine	<input checked="" type="checkbox"/>
Periodic	<input type="checkbox"/>
Occasionally	<input type="checkbox"/>

Development

None	<input checked="" type="checkbox"/>
Arguing revision	<input type="checkbox"/>
Being revised	<input type="checkbox"/>
Under development	<input type="checkbox"/>

License

Licensed	<input checked="" type="checkbox"/>
If so, number	<input type="checkbox"/>
Free	<input type="checkbox"/>

3. General Assessment**Media**

Air	<input checked="" type="checkbox"/>
Land	<input type="checkbox"/>
Water	<input type="checkbox"/>
Waste	<input type="checkbox"/>

Function

Water Quality	<input type="checkbox"/>
Water Resources	<input type="checkbox"/>
Flood Defence	<input type="checkbox"/>
Fisheries	<input type="checkbox"/>
Rec & Nav	<input type="checkbox"/>
Conservation	<input type="checkbox"/>
PIR	<input checked="" type="checkbox"/>
Radioactivity	<input checked="" type="checkbox"/>
Waste Policy	<input type="checkbox"/>
Land Quality	<input type="checkbox"/>

Risk Assessment

Qualitative	<input type="checkbox"/>
Semi-Quantitative	<input type="checkbox"/>
Quantitative	<input checked="" type="checkbox"/>
Criteria	<input type="checkbox"/>
Assessment	<input checked="" type="checkbox"/>
Deterministic	<input checked="" type="checkbox"/>
Stochastic	<input type="checkbox"/>
Risk Assessment	<input checked="" type="checkbox"/>
Risk Management	<input type="checkbox"/>

Purpose

Regulation	<input checked="" type="checkbox"/>
Operational	<input type="checkbox"/>
Planning	<input checked="" type="checkbox"/>
Prioritising	<input checked="" type="checkbox"/>

4. Further Assessment**Coverage**

Site Specific	<input checked="" type="checkbox"/>
Catchment	<input type="checkbox"/>
Regional	<input checked="" type="checkbox"/>
National	<input type="checkbox"/>

Type

Procedural	<input type="checkbox"/>
Mathematical	<input checked="" type="checkbox"/>
Statistical	<input checked="" type="checkbox"/>
Chemical	<input type="checkbox"/>
Physical	<input checked="" type="checkbox"/>
Biological	<input type="checkbox"/>
Radioactivity	<input checked="" type="checkbox"/>

System Base

Paper	<input type="checkbox"/>
PC - DOS	<input type="checkbox"/>
PC - Windows	<input checked="" type="checkbox"/>
UNIX/Mainframe	<input type="checkbox"/>
In-House	<input type="checkbox"/>
Third Party	<input checked="" type="checkbox"/>

5. Links to Standards, Targets and Databases (Cross-reference)Standards **All relevant air quality standards and targets**Databases **METDATA from met office and OS Data****6. Comments****Model was developed with a view to giving a more accurate picture of dispersion and to deal with complex topography.**Contact **Betty Ng**Location: **Cardiff**Tel: **7 26 2299**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **AERMOD**

Form Ref **PIR004**

2. Model Purpose

Acronym **AERMOD**

Estimation of air pollutant concentrations (short-term and long-term) from point source, line source and area source emissions.

Users: **PIR/RSR and waste functions**

Frequency

Routine ☒
Periodic ☐
Occasionally ☐

Development

None ☒
Arguing revision ☐
Being revised ☐
Under development ☐

License

Licensed ☐
If so, number ☐
Free ☒

3. General Assessment

Media

Air ☒
Land ☐
Water ☐
Waste ☐

Function

Water Quality ☐
Water Resources ☐
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☒
Radioactivity ☒
Waste Policy ☒
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☒
Criteria ☐
Assessment ☒
Deterministic ☒
Stochastic ☐
Risk Assessment ☐
Risk Management ☐

Purpose

Regulation ☒
Operational ☐
Planning ☒
Prioritising ☒

4. Further Assessment

Coverage

Site Specific ☐
Catchment ☐
Regional ☒
National ☐

Type

Procedural ☐
Mathematical ☒
Statistical ☒
Chemical ☐
Physical ☒
Biological ☐
Radioactivity ☒

System Base

Paper ☐
PC - DOS ☐
PC - Windows ☒
UNIX/Mainframe ☐

Timescale ☐
Resolution ☐

In-House ☐
Third Party ☒

5. Links to Standards, Targets and Databases (Cross-reference)

Standards **Air Quality Standards**

Databases **Meteorological area and OS area.**

6. Comments

Contact **Betty Ng**

Location: **Cardiff**

Tel: **7 26 2299**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Users:

Frequency

Routine
Periodic
Occasionally ☒

Development

None
Arguing revision
Being revised
Under development

License

Licensed ☒
If so, number
Free

3. General Assessment

Media

Air ☒
Land ☐
Water ☐
Waste ☐

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative ☒
Criteria
Assessment ☒
Deterministic
Stochastic
Risk Assessment ☒
Risk Management

Purpose
Regulation ☒
Operational ☐
Planning ☒
Prioritising ☒

4. Further Assessment

Coverage

Site Specific
Catchment
Regional ☒
National

Type

Procedural
Mathematical ☒
Statistical
Chemical
Physical ☒
Biological
Radioactivity

System Base

Paper
PC - DOS ☒
PC - Windows
UNIX/Mainframe

Timescale
Resolution

In-House
Third Party

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

OPRA assess several aspects of the performance of an operator to provide an indication of probability of an occurrence of an undesirable event and the consequences of the event. These factors are combined to give an indication of comparative risks.

Users:

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

✓

3. General Assessment

Media

Air
Land
Water
Waste

✓
✓
✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓
✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

OPRA consists of two main components - the Operator Performance Appraisal and the Pollution Hazard Appraisal
Information stored in IPCS.

Contact

Location:

Tel:

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title Form Ref

2. Model Purpose

Acronym

USES is a tool that can be used for rapid quantitative assessments of the general risks of substances. USES may be applied to risk assessment and to set priorities for new and existing substances.

Users: **Frequency**Routine
Periodic
Occasionally

DevelopmentNone
Arguing revision
Being revised
Under development

LicenseLicensed
If so, number
Free

3. General Assessment**Media**Air
Land
Water
Waste

✓
✓
✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓
✓

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓
✓

5. Links to Standards, Targets and Databases (Cross-reference)Standards Databases **6. Comments**

--

Contact Location: Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

VANDAL is central to the Agency's quantitative risk assessment capability, providing estimates of risk to man over long timescales, from radionuclide releases from radioactive waste disposal facilities.

Users:

Frequency

Routine ☐
Periodic ☐
Occasionally ☒

Development

None ☒
Arguing revision ☐
Being revised ☐
Under development ☐

License

Licensed ☐
If so, number
Free ☒

3. General Assessment

Media

Air ☐
Land ☒
Water ☒
Waste ☒

Function

Water Quality ☐
Water Resources ☐
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☒
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☒
Criteria ☒
Assessment ☒
Deterministic ☒
Stochastic ☒
Risk Assessment ☒
Risk Management ☐

Purpose

Regulation ☒
Operational ☐
Planning ☐
Prioritising ☐

4. Further Assessment

Coverage

Site Specific ☒
Catchment ☒
Regional ☐
National ☐

Type

Procedural ☐
Mathematical ☒
Statistical ☒
Chemical ☒
Physical ☒
Biological ☐
Radioactivity ☒

System Base

Paper ☐
PC - DOS ☐
PC - Windows ☐
UNIX/Mainframe ☐

Timescale ☐
Resolution ☐

In-House ☒
Third Party ☐

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Contact

Location:

Tel:

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title **WOLFNET**Form Ref **RAS002**

2. Model Purpose

Acronym **WOLFNET****WOLFNET is the flow sub-model in VANDAL and provides groundwater flow predictions for the transport sub-model in VANDAL.**Users: **Risk Section, NCRAOA.****Frequency**Routine
Periodic
Occasionally

✓

DevelopmentNone
Arguing revision
Being revised
Under development

✓

LicenseLicensed
If so, number
Free

✓

3. General Assessment**Media**Air
Land
Water
Waste

✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)Standards **As VANDAL**

Databases

6. Comments**Sub-model of VANDAL**Contact **Roger Yearsley**Location: **London**Tel: **7 10 6833**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title DECOS-MG

Form Ref RAS003

2. Model Purpose

Acronym DECOS-MG

Dynamic modelling of radionuclide migration within the surface environment.

Users: NCRAOS - Risk Section

Frequency

Routine	
Periodic	
Occasionally	✓

Development

None	✓
Arguing revision	
Being revised	
Under development	

License

Licensed	
If so, number	
Free	✓

3. General Assessment

Media

Air	
Land	✓
Water	✓
Waste	

Function

Water Quality	
Water Resources	
Flood Defence	
Fisheries	
Rec & Nav	
Conservation	
PIR	
Radioactivity	✓
Waste Policy	
Land Quality	

Risk Assessment

Qualitative	
Semi-Quantitative	
Quantitative	✓
Criteria	✓
Assessment	✓
Deterministic	✓
Stochastic	✓
Risk Assessment	✓
Risk Management	

Purpose

Regulation	
Operational	
Planning	
Prioritising	

4. Further Assessment

Coverage

Site Specific	✓
Catchment	
Regional	
National	

Type

Procedural	
Mathematical	✓
Statistical	
Chemical	
Physical	✓
Biological	✓
Radioactivity	✓

System Base

Paper	
PC - DOS	
PC - Windows	
UNIX/Mainframe	

Timescale

Resolution	
------------	--

In-House

Third Party	✓
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5. Links to Standards, Targets and Databases (Cross-reference)

Standards As VANDAL

Databases SECOS - dose conversion factors

6. Comments

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Contact Roger Yearsley

Location: London

Tel: 7 10 6833

Environment Agency
Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **TIME4**

Form Ref **RAS004**

2. Model Purpose

Acronym **TIME4**

This methodology is being developed to enable risk assessments for other techniques to be normalised in order to establish priorities across the remit of the Environment Agency.

Users: **NCRAOA - Risk Section**

Frequency

Routine ☐
 Periodic ☐
 Occasionally ☒

Development

None ☒
 Arguing revision ☐
 Being revised ☐
 Under development ☐

License

Licensed ☐
 If so, number ☐
 Free ☒

3. General Assessment

Media

Air ☐
 Land ☒
 Water ☒
 Waste ☐

Function

Water Quality ☐
 Water Resources ☐
 Flood Defence ☐
 Fisheries ☐
 Rec & Nav ☐
 Conservation ☐
 PIR ☐
 Radioactivity ☒
 Waste Policy ☐
 Land Quality ☐

Risk Assessment

Qualitative ☐
 Semi-Quantitative ☐
 Quantitative ☒
 Criteria ☒
 Assessment ☒
 Deterministic ☒
 Stochastic ☒
 Risk Assessment ☒
 Risk Management ☐

Purpose

Regulation ☒
 Operational ☐
 Planning ☐
 Prioritising ☐

4. Further Assessment

Coverage

Site Specific ☒
 Catchment ☐
 Regional ☐
 National ☐

Type

Procedural ☐
 Mathematical ☒
 Statistical ☐
 Chemical ☐
 Physical ☒
 Biological ☐
 Radioactivity ☐

System Base

Paper ☐
 PC - DOS ☐
 PC - Windows ☐
 UNIX/Mainframe ☐
 In-House ☒
 Third Party ☐

5. Links to Standards, Targets and Databases (Cross-reference)

Standards **As VANDAL**

Databases

6. Comments

Contact **Roger Yearsley**

Location: **London**

Tel: **7 10 6833**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Users:

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

✓

3. General Assessment

Media

Air
Land
Water
Waste

✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓

Purpose
Regulation
Operational
Planning
Prioritising

✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **pH Redox Equilibrium Equations**

Form Ref **RAS006**

2. Model Purpose

Acronym **PHREEQE**

The PHREEQE computer program is designed to modelling geochemical reactions. Based on an ion pairing model, PHREEQE can calculate pH, redox potential, and mass transfer as a function of reaction progress.

Users: **NCRAOA - Risk Section**

Frequency

Routine	
Periodic	
Occasionally	✓

Development

None	✓
Arguing revision	
Being revised	
Under development	

License

Licensed	
If so, number	
Free	✓

3. General Assessment

Media

Air	
Land	
Water	✓
Waste	

Function

Water Quality	
Water Resources	
Flood Defence	
Fisheries	
Rec & Nav	
Conservation	
PIR	
Radioactivity	✓
Waste Policy	
Land Quality	

Risk Assessment

Qualitative	
Semi-Quantitative	
Quantitative	✓
Criteria	
Assessment	
Deterministic	
Stochastic	
Risk Assessment	
Risk Management	

Purpose

Regulation	✓
Operational	
Planning	
Prioritising	

4. Further Assessment

Coverage

Site Specific	✓
Catchment	
Regional	
National	

Type

Procedural	
Mathematical	
Statistical	
Chemical	✓
Physical	
Biological	
Radioactivity	

System Base

Paper	
PC - DOS	
PC - Windows	
UNIX/Mainframe	✓

Timescale	
Resolution	

In-House	
Third Party	

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Contact **Roger Yearsley**

Location: **London**

Tel: **7 10 6833**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Part IIA EPA 1990. Handbook, Guidance Notes and Supporting Manuals.**

Form Ref **LQ001**

2. Model Purpose

Acronym

To describe the process to be adopted by the Agency when exercising regulatory control under the contaminated land provisions of Part IIA of the Environmental Protection Act 1990. The Handbook also provides links to associated Agency documentation (ie guidance notes and supporting manuals).

Users: **Agency staff and made available externally (eg local authorities)**

Frequency

Routine	<input checked="" type="checkbox"/>
Periodic	<input type="checkbox"/>
Occasionally	<input type="checkbox"/>

Development

None	<input type="checkbox"/>
Arguing revision	<input type="checkbox"/>
Being revised	<input checked="" type="checkbox"/>
Under development	<input type="checkbox"/>

License

Licensed	<input type="checkbox"/>
If so, number	<input type="checkbox"/>
Free	<input checked="" type="checkbox"/>

3. General Assessment

Media

Air	<input type="checkbox"/>
Land	<input checked="" type="checkbox"/>
Water	<input checked="" type="checkbox"/>
Waste	<input type="checkbox"/>

Function

Water Quality	<input type="checkbox"/>
Water Resources	<input type="checkbox"/>
Flood Defence	<input type="checkbox"/>
Fisheries	<input type="checkbox"/>
Rec & Nav	<input type="checkbox"/>
Conservation	<input type="checkbox"/>
PIR	<input type="checkbox"/>
Radioactivity	<input type="checkbox"/>
Waste Policy	<input type="checkbox"/>
Land Quality	<input checked="" type="checkbox"/>

Risk Assessment

Qualitative	<input type="checkbox"/>
Semi-Quantitative	<input checked="" type="checkbox"/>
Quantitative	<input checked="" type="checkbox"/>
Criteria	<input checked="" type="checkbox"/>
Assessment	<input checked="" type="checkbox"/>
Deterministic	<input type="checkbox"/>
Stochastic	<input type="checkbox"/>
Risk Assessment	<input checked="" type="checkbox"/>
Risk Management	<input checked="" type="checkbox"/>

Purpose	<input type="checkbox"/>
Regulation	<input checked="" type="checkbox"/>
Operational	<input type="checkbox"/>
Planning	<input type="checkbox"/>
Prioritising	<input type="checkbox"/>

4. Further Assessment

Coverage

Site Specific	<input checked="" type="checkbox"/>
Catchment	<input type="checkbox"/>
Regional	<input checked="" type="checkbox"/>
National	<input checked="" type="checkbox"/>

Type

Procedural	<input checked="" type="checkbox"/>
Mathematical	<input type="checkbox"/>
Statistical	<input type="checkbox"/>
Chemical	<input checked="" type="checkbox"/>
Physical	<input type="checkbox"/>
Biological	<input type="checkbox"/>
Radioactivity	<input type="checkbox"/>

System Base

Paper	<input checked="" type="checkbox"/>
PC - DOS	<input type="checkbox"/>
PC - Windows	<input type="checkbox"/>
UNIX/Mainframe	<input type="checkbox"/>

Timescale	<input type="checkbox"/>
Resolution	<input type="checkbox"/>

In-House	<input checked="" type="checkbox"/>
Third Party	<input checked="" type="checkbox"/>

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

Links to CLEA CONSIM/LANSIM & other model procedure tools hand legislation

6. Comments

*to agency staff but externals may incur costs.

Contact **Sue Herbert**

Location: **Solihull**

Tel: **722 4621**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title **Model Procedures for the Management of Contaminated Land.**Form Ref **LQ002**

2. Model Purpose

Acronym

To provide a structured framework and procedural guidance for the identification, treatment and monitoring of contaminated land.Users: **Widespread use****Frequency**

Routine

Periodic

Occasionally

Development

None

Arguing revision

Being revised

Under development

License

Licensed

If so, number

Free

3. General Assessment**Media**

Air

Land

Water

Waste

Function

Water Quality

Water Resources

Flood Defence

Fisheries

Rec & Nav

Conservation

PIR

Radioactivity

Waste Policy

Land Quality

Risk Assessment

Qualitative

Semi-Quantitative

Quantitative

Criteria

Assessment

Deterministic

Stochastic

Risk Assessment

Risk Management

Purpose

Regulation

Operational

Planning

Prioritising

4. Further Assessment**Coverage**

Site Specific

Catchment

Regional

National

Type

Procedural

Mathematical

Statistical

Chemical

Physical

Biological

Radioactivity

System Base

Paper

PC - DOS

PC - Windows

UNIX/Mainframe

Timescale

Resolution

In-House

Third Party

5. Links to Standards, Targets and Databases (Cross-reference)Standards **Other EQOs and QA Standards**Databases **Links to CLEA, Consim, The Integrated Methodology, etc..****6. Comments****Completed but with DETR for publication (date not known). No licence required but must pay cost of buying.**Contact **Mark Kibblewhite**Location: **Bristol**Tel: **7 10 4492**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title Contaminated Land Exposure Assessment

Form Ref LQ003

2. Model Purpose

Acronym CLEA

Estimating likely human exposure for contaminants in soils for the development of guideline values to indicate whether there are any unacceptable long term risks to human health.

Users: None

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

N/A

3. General Assessment

Media

Air
Land
Water
Waste

✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards Used to derive site-specific standards and national generic assessment criteria

Databases Links to SVI model toxicological data

6. Comments

The model has been specifically developed with UK parameters and application for generic and site specific uses. The model has competitors from overseas (HESP and AERIS Canadian soil models). It incorporates features from both models.

Contact Mark Kibblewhite

Location: Bristol

Tel: 7 10 4492

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Users:

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

N/A

3. General Assessment

Media

Air
Land
Water
Waste

✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

--

Contact

Location:

Tel:

Environment Agency
Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Buildings Risk**

Form Ref **LQ005**

2. Model Purpose

Acronym

Guidance on assessing and managing risks from contamination to building materials including specific regulatory guidance for Part IIA.

Users: **Widespread use including regulators.**

Frequency

Routine ☐
Periodic ☒
Occasionally ☐

Development

None ☐
Arguing revision ☐
Being revised ☐
Under development ☒

License

Licensed ☐ N/A
If so, number ☐
Free ☐

3. General Assessment

Media

Air ☐
Land ☒
Water ☐
Waste ☐

Function

Water Quality ☐
Water Resources ☐
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☐
Waste Policy ☐
Land Quality ☒

Risk Assessment

Qualitative ☒
Semi-Quantitative ☐
Quantitative ☐
Criteria ☒
Assessment ☒
Deterministic ☐
Stochastic ☐
Risk Assessment ☒
Risk Management ☒

Purpose
Regulation ☒
Operational ☐
Planning ☐
Prioritising ☐

4. Further Assessment

Coverage

Site Specific ☒
Catchment ☐
Regional ☐
National ☐
Timescale ☐
Resolution ☐

Type

Procedural ☒
Mathematical ☐
Statistical ☐
Chemical ☒
Physical ☒
Biological ☐
Radioactivity ☐

System Base

Paper ☒
PC - DOS ☐
PC - Windows ☐
UNIX/Mainframe ☐
In-House ☐
Third Party ☒

5. Links to Standards, Targets and Databases (Cross-reference)

Standards **Part IIA Handbook Model Procedures**

Databases

6. Comments

Contact **S. Herbert**

Location: **Bristol**

Tel: **7 10 4487**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title Form Ref

2. Model Purpose

Acronym Users: **Frequency**Routine
Periodic
Occasionally

✓

DevelopmentNone
Arguing revision
Being revised
Under development

✓

LicenseLicensed
If so, number
Free

✓

3. General Assessment**Media**Air
Land
Water
Waste

✓
✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

In-House

Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)Standards Databases **6. Comments**

--

Contact Location:
Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

ConSim has been developed to help an assessor predict the impact of leaching of contaminants from land contamination on the quality of controlled waters (and GW in particular). ConSim uses Monte Carlo techniques to provide probabilistic output of predicted impact on water quality arising from the migration of contaminants. ConSim considers biological, physical and chemical process (and 1st order radioactive decay if applicable) acting to attenuate pollutants within the system.

Users:

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

✓

3. General Assessment

Media

Air
Land
Water
Waste

✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓
✓
✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Agency owned tool.

Contact

Location:

Tel:

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**

1. Title Methodology for the derivation of remedial targets for soil and groundwater to protect water resources.

Form Ref LQ008

2. Model Purpose

Acronym

Guidance on risk management requirements for contaminated soils and groundwater to prevent pollution of the aquatic environment. This methodology compliments the ConSim software tool.

Users: WQ, Environmental, Operational, Planning staff and environmental protection officers, Consultants, Industry.

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

✓

3. General Assessment**Media**

Air
Land
Water
Waste

✓
✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓

Purpose
Regulation
Operational
Planning
Prioritising

✓
✓
✓
✓

4. Further Assessment**Coverage**

Site Specific
Catchment
Regional
National

✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards WQS

Databases Compliments The ConSim Software tool.

6. Comments

--

Contact Jonathon Smith

Location: NGWCLC

Tel: 722 4753

Environment Agency
Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title Validation of Analytical Techniques for Laboratory
Analysis of Soil.

Form Ref LQ009

2. Model Purpose

Acronym

To provide Quality Assurance in Laboratory Analysis of Soil.

Users:

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

License

Licensed
If so, number
Free

3. General Assessment

Media

Air
Land
Water
Waste

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

Purpose
Regulation
Operational
Planning
Prioritising

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe
In-House
Third Party

5. Links to Standards, Targets and Databases (Cross-reference)

Standards Support Guideline Values,
Model Procedures & Part IIA Regulation
Handbook

Databases

6. Comments

Cross relates to work done by DTI on valid analytical measurements.

Contact Mark Kibblewhite

Location: Bristol

Tel: 7 10 4492

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title Form Ref

2. Model Purpose

Acronym Users: **Frequency**Routine
Periodic
Occasionally

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

DevelopmentNone
Arguing revision
Being revised
Under development

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

LicenseLicensed
If so, number
Free

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>

3. General Assessment**Media**Air
Land
Water
Waste

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

PurposeRegulation
Operational
Planning
Prioritising

<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

Timescale
Resolution

<input type="checkbox"/>
<input type="checkbox"/>

In-House
Third Party

<input checked="" type="checkbox"/>
<input type="checkbox"/>

5. Links to Standards, Targets and Databases (Cross-reference)Standards
Databases **6. Comments**

Contact Location: Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

The prime purpose is to calculate the effect of discharges and other types of pollution and abstractions on the statistical distributions of river water quality throughout a catchment. It is primarily used as a consent setting tool.

Users:

Frequency

Routine ☐
Periodic ☒
Occasionally ☐

Development

None ☐
Arguing revision ☐
Being revised ☒
Under development ☐

License

Licensed ☐
If so, number ☐
Free ☒

3. General Assessment

Media

Air ☐
Land ☐
Water ☒
Waste ☐

Function

Water Quality ☒
Water Resources ☐
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☒
Criteria ☐
Assessment ☒
Deterministic ☐
Stochastic ☒
Risk Assessment ☐
Risk Management ☒

Purpose
Regulation ☒
Operational ☒
Planning ☒
Prioritising ☐

4. Further Assessment

Coverage

Site Specific ☒
Catchment ☒
Regional ☐
National ☐

Type

Procedural ☐
Mathematical ☒
Statistical ☒
Chemical ☒
Physical ☒

System Base

Paper ☐
PC - DOS ☐
PC - Windows ☒
UNIX/Mainframe ☐

Timescale
Resolution ☐
100m

Biological ☐
Radioactivity ☐

In-House ☒
Third Party ☒

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

SIMCAT is auto calibrating and therefore very quick to set up. SIMCAT calculates automatically the statistical confidence limits for each result. SIMCAT automatically calculates the consents required to meet River Quality

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

TOMCAT may be used as a tool for consent setting in order to achieve river quality standards and may also be used as a planning tool to model, for example, phosphate to assist targetting investment. It is an essential tool for calculating consent standard for effluent discharges in catchments where there might be several works affecting the river quality, or where it is important to predict dissolved oxygen levels.

Users:

Frequency

Routine ☒
Periodic ☐
Occasionally ☐

Development

None ☐
Arguing revision ☐
Being revised ☒
Under development ☐

License

Licensed ☐
If so, number ☐
Free ☒

3. General Assessment

Media

Air ☐
Land ☐
Water ☒
Waste ☐

Function

Water Quality ☒
Water Resources ☒
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☒
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☒
Criteria ☐
Assessment ☒
Deterministic ☒
Stochastic ☐
Risk Assessment ☒
Risk Management ☐

Purpose

Regulation ☒
Operational ☐
Planning ☒
Prioritising ☐

4. Further Assessment

Coverage

Site Specific ☒
Catchment ☒
Regional ☐
National ☐

Type

Procedural ☐
Mathematical ☒
Statistical ☒
Chemical ☒
Physical ☒
Biological ☐
Radioactivity ☐

System Base

Paper ☐
PC - DOS ☒
PC - Windows ☐
UNIX/Mainframe ☐

Timescale
Resolution

In-House ☒
Third Party ☒

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

TOMCAT is undergoing further developments to deal with the effects of algae in water resources. Currently there are three different versions available.

Contact

Location:

Tel:

Environment Agency
Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

QUASAR is a predictive model to assess the effect of developments and changes within the catchment (for example, drainage and sewerage changes - more stringent consents etc) on river quality. QUASAR may be used in both a dynamic and a planning capacity.

Users:

Frequency

Routine ☒
 Periodic ☐
 Occasionally ☐

Development

None ☐
 Arguing revision ☐
 Being revised ☒
 Under development ☐

License

Licensed ☒
 If so, number
 Free ☐

3. General Assessment

Media

Air ☐
 Land ☐
 Water ☒
 Waste ☐

Function

Water Quality ☒
 Water Resources ☒
 Flood Defence ☐
 Fisheries ☐
 Rec & Nav ☐
 Conservation ☐
 PIR ☒
 Radioactivity ☐
 Waste Policy ☐
 Land Quality ☐

Risk Assessment

Qualitative ☐
 Semi-Quantitative ☐
 Quantitative ☒
 Criteria ☐
 Assessment ☒
 Deterministic ☒
 Stochastic ☒
 Risk Assessment ☒
 Risk Management ☐

Purpose
 Regulation ☒
 Operational ☐
 Planning ☒
 Prioritising ☒

4. Further Assessment

Coverage

Site Specific ☒
 Catchment ☒
 Regional ☐
 National ☐

Type

Procedural ☐
 Mathematical ☒
 Statistical ☒
 Chemical ☒
 Physical ☒
 Biological ☒
 Radioactivity ☐

System Base

Paper ☐
 PC - DOS ☒
 PC - Windows ☒
 UNIX/Mainframe ☐

Timescale
Resolution

In-House ☒
Third Party ☒

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

This software was developed by the Institute of Hydrology and is currently being fundamentally revised as part of the LOIS Project. The new version will be called QUESTOR which will be more widely available.

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Estuarine (Contaminant) Shell**

Form Ref **WQ005**

2. Model Purpose

Acronym **ECoS**

ECoS is a shell or framework for modelling contaminants such as dangerous substances in estuaries.

Users: **South West, West, Southern**

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

✓

3. General Assessment

Media

Air
Land
Water
Waste

✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓
✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical

✓
✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓
✓
✓

Timescale
Resolution

timescale in days
1km reaches

Biological
Radioactivity

In-House
Third Party

✓
✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards **EQSs & Informal Regional Targets**

Databases **Raw data from Water Quality Archive.**

6. Comments

The use of this software has been modest to date, further development is being undertaken to include the sanitary suite of determinants. The software has been used by Welsh Region to design sampling programmes.

Contact **Richard Freestone**

Location: **Leeds**

Tel: **728 4671**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **MIKE - 1 Dimensional and 1 Layered**

Form Ref **WQ006**

2. Model Purpose

Acronym **MIKE11**

MIKE11 is an engineering software package for the simulation of flows, water quality and sediment transport in estuaries, rivers, irrigation systems, canals and other water bodies.

Users: **Regions**

Frequency

Routine	<input type="checkbox"/>
Periodic	<input checked="" type="checkbox"/>
Occasionally	<input checked="" type="checkbox"/>

Development

None	<input type="checkbox"/>
Arguing revision	<input checked="" type="checkbox"/>
Being revised	<input type="checkbox"/>
Under development	<input type="checkbox"/>

License

Licensed	<input checked="" type="checkbox"/>
If so, number	16
Free	<input type="checkbox"/>

3. General Assessment

Media

Air	<input type="checkbox"/>
Land	<input type="checkbox"/>
Water	<input checked="" type="checkbox"/>
Waste	<input type="checkbox"/>

Function

Water Quality	<input checked="" type="checkbox"/>
Water Resources	<input type="checkbox"/>
Flood Defence	<input checked="" type="checkbox"/>
Fisheries	<input type="checkbox"/>
Rec & Nav	<input type="checkbox"/>
Conservation	<input type="checkbox"/>
PIR	<input type="checkbox"/>
Radioactivity	<input type="checkbox"/>
Waste Policy	<input type="checkbox"/>
Land Quality	<input type="checkbox"/>

Risk Assessment

Qualitative	<input type="checkbox"/>
Semi-Quantitative	<input type="checkbox"/>
Quantitative	<input checked="" type="checkbox"/>
Criteria	<input type="checkbox"/>
Assessment	<input checked="" type="checkbox"/>
Deterministic	<input checked="" type="checkbox"/>
Stochastic	<input type="checkbox"/>
Risk Assessment	<input checked="" type="checkbox"/>
Risk Management	<input type="checkbox"/>

Purpose

Regulation	<input checked="" type="checkbox"/>
Operational	<input type="checkbox"/>
Planning	<input checked="" type="checkbox"/>
Prioritising	<input type="checkbox"/>

4. Further Assessment

Coverage

Site Specific	<input checked="" type="checkbox"/>
Catchment	<input checked="" type="checkbox"/>
Regional	<input type="checkbox"/>
National	<input type="checkbox"/>

Type

Procedural	<input type="checkbox"/>
Mathematical	<input checked="" type="checkbox"/>
Statistical	<input checked="" type="checkbox"/>
Chemical	<input checked="" type="checkbox"/>
Physical	<input checked="" type="checkbox"/>
Biological	<input type="checkbox"/>
Radioactivity	<input type="checkbox"/>

System Base

Paper	<input type="checkbox"/>
PC - DOS	<input type="checkbox"/>
PC - Windows	<input checked="" type="checkbox"/>
UNIX/Mainframe	<input checked="" type="checkbox"/>

Timescale

Resolution	<input type="checkbox"/>
------------	--------------------------

In-House

Third Party	<input checked="" type="checkbox"/>
-------------	-------------------------------------

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

MIKE11 is a modular system which includes a GIS interface. Produced by DfI and supported in the UK by WS Atkins. It is used in the UPM methodology for the most complex situations. Future developments likely but may not be via WS Atkins. It is used periodically by water quality and occasionally by flood defence.

Contact **David Rylands (FD) Trevor Hardy (WQ)**

Location: **Reading**

Tel: **725 5752**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title Form Ref

2. Model Purpose

Acronym

QUESTS models estuarine quality particularly with respect of discharges and how consent conditions may be determined to improve water quality and target investment.

Users: **Frequency**Routine
Periodic
Occasionally

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

DevelopmentNone
Arguing revision
Being revised
Under development

<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

LicenseLicensed
If so, number
Free

<input checked="" type="checkbox"/>
3 or 4
<input type="checkbox"/>

3. General Assessment**Media**Air
Land
Water
Waste

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

PurposeRegulation
Operational
Planning
Prioritising

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

Timescale
Resolution

1 hour timestep
2km reaches

In-House
Third Party

<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>

5. Links to Standards, Targets and Databases (Cross-reference)Standards Databases
6. Comments

This software has been developed by WRc and is used widely within the Agency under licence. Use for non stratified estuaries.

Contact Location: Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Users:

Frequency

Routine ☐
Periodic ☒
Occasionally ☐

Development

None ☐
Arguing revision ☐
Being revised ☒
Under development ☐

License

Licensed ☒
If so, number
Free ☐

3. General Assessment

Media

Air ☐
Land ☐
Water ☒
Waste ☐

Function

Water Quality ☒
Water Resources ☐
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☐
Criteria ☐
Assessment ☐
Deterministic ☐
Stochastic ☐
Risk Assessment ☐
Risk Management ☐

Purpose

Regulation ☒
Operational ☐
Planning ☐
Prioritising ☒

4. Further Assessment

Coverage

Site Specific ☒
Catchment ☐
Regional ☐
National ☐

Type

Procedural ☐
Mathematical ☒
Statistical ☐
Chemical ☒
Physical ☒
Biological ☒
Radioactivity ☐

System Base

Paper ☐
PC - DOS ☐
PC - Windows ☐
UNIX/Mainframe ☒

Timescale ☐
Resolution ☐

In-House ☐
Third Party ☒

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Contact

Location:

Tel:

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title **Aggregated Dead Zone**Form Ref **WQ009**

2. Model Purpose

Acronym **ADZ****Assessing the time of arrival of a polluting discharge during an incident.**Users: **North East, Thames? Anglian?****Frequency**Routine
Periodic
Occasionally

✓

DevelopmentNone
Arguing revision
Being revised
Under development

✓

LicenseLicensed
If so, number
Free

✓
3

3. General Assessment**Media**Air
Land
Water
Waste

✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓
✓

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓
✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

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Databases

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6. Comments**ADZ refers to both a specific software package, and to a more generic methodology. Time of travel during incidents is done by a variety of methods depending on the amount of data available in a catchment. It is often done manually.**Contact **Richard Freestone**Location: **Leeds**Tel: **728 4671**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Users:

Frequency

Routine ☐
Periodic ☒
Occasionally ☐

Development

None ☐
Arguing revision ☒
Being revised ☐
Under development ☐

License

Licensed ☒
If so, number
Free ☐

3. General Assessment

Media

Air ☐
Land ☐
Water ☐
Waste ☒

Function

Water Quality ☐
Water Resources ☐
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☐
Criteria ☐
Assessment ☐
Deterministic ☐
Stochastic ☐
Risk Assessment ☐
Risk Management ☐

Purpose
Regulation ☐
Operational ☒
Planning ☐
Prioritising ☐

4. Further Assessment

Coverage

Site Specific ☐
Catchment ☐
Regional ☐
National ☐

Timescale ☐
Resolution ☐

Type

Procedural ☐
Mathematical ☐
Statistical ☐
Chemical ☐
Physical ☐
Biological ☐
Radioactivity ☐

System Base

Paper ☐
PC - DOS ☐
PC - Windows ☐
UNIX/Mainframe ☐

In-House ☐
Third Party ☐

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Contact

Location:

Tel:

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title Form Ref

2. Model Purpose

Acronym Users: **Frequency**Routine
Periodic
Occasionally

✓

DevelopmentNone
Arguing revision
Being revised
Under development

✓

LicenseLicensed
If so, number
Free

✓

3. General Assessment**Media**Air
Land
Water
Waste

✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓
✓

5. Links to Standards, Targets and Databases (Cross-reference)Standards Databases **6. Comments**Contact Location: Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Farm Activity and River Management System**

Form Ref **WQ012**

2. Model Purpose

Acronym **FARMS I&II**

FARMS I & II is a distributed catchment scale model to simulate the run-off of water and the transport of pollutants arising from farm wastes, into rivers. It is used for developing farm waste management plans.

Users:

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

License

Licensed
If so, number
Free

3. General Assessment

Media

Air
Land
Water
Waste

✓
✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓
✓
✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

Weeks
Field

In-House
Third Party

✓
✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards **EQSs and River Quality Objectives**

Databases **Dependent on a cost database for information on disposal options.**

6. Comments

FARMS has been tested on the Cleddau catchment in South West Wales and is now available for wider use within the NRA. The software was developed by WRC.

Contact **Paul Mitchell**

Location: **Exeter**

Tel: **724 4757**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title Form Ref

2. Model Purpose

Acronym Users: **Frequency**Routine
Periodic
Occasionally

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

DevelopmentNone
Arguing revision
Being revised
Under development

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

LicenseLicensed
If so, number
Free

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>

3. General Assessment**Media**Air
Land
Water
Waste

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

PurposeRegulation
Operational
Planning
Prioritising

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

System BasePaper
PC - Windows 95/DOS
PC - Windows
UNIX/Mainframe

<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Timescale
Resolution

<input type="text" value="min3, max5"/>
<input type="text" value="100 m"/>

In-House
Third Party

<input checked="" type="checkbox"/>
<input type="checkbox"/>

5. Links to Standards, Targets and Databases (Cross-reference)Standards Databases **6. Comments**Contact Location: Tel:

Environment Agency
Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Stochastic modelling of water quality in catchments. It may be used as a tool for consent setting in order to achieve river quality standards and may also be used as a planning tool to model, for example, phosphate to assist targeting investment.

Users:

Frequency

Routine ☒
 Periodic ☐
 Occasionally ☐

Development

None ☐
 Arguing revision ☐
 Being revised ☒
 Under development ☐

License

Licensed ☐
 If so, number ☐
 Free ☒

3. General Assessment

Media

Air ☐
 Land ☐
 Water ☒
 Waste ☐

Function

Water Quality ☒
 Water Resources ☒
 Flood Defence ☐
 Fisheries ☐
 Rec & Nav ☐
 Conservation ☐
 PIR ☒
 Radioactivity ☐
 Waste Policy ☐
 Land Quality ☐

Risk Assessment

Qualitative ☐
 Semi-Quantitative ☐
 Quantitative ☒
 Criteria ☐
 Assessment ☐
 Deterministic ☒
 Stochastic ☒
 Risk Assessment ☒
 Risk Management ☐

Purpose
 Regulation ☒
 Operational ☐
 Planning ☒
 Prioritising ☒

4. Further Assessment

Coverage

Site Specific ☒
 Catchment ☒
 Regional ☐
 National ☒

Type

Procedural ☐
 Mathematical ☒
 Statistical ☒
 Chemical ☒
 Physical ☒
 Biological ☐
 Radioactivity ☐

System Base

Paper ☐
 PC - DOS ☒
 PC - Windows ☐
 UNIX/Mainframe ☐

Timescale
 Resolution
 500 m reaches

In-House ☒
Third Party ☐

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

IRIS is a time of travel calculation model for assessing the length of time taken for a pollutant to travel down a catchment to potable water intakes. The models primary function is for intake protection purposes.

Users:

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

✓

3. General Assessment

Media

Air
Land
Water
Waste

✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical

✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

Timescale in seconds
1km reaches

Biological
Radioactivity

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

Lotus Spreadsheet containing time of travel raw data. Linked to ADZ.

6. Comments

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Pollution Prevention Manual**

Form Ref **WQ016**

2. Model Purpose

Acronym

To provide constant guidance to all Environment Agency field officers on pollution prevention issues including site visits, risk assessment and risk management.

Users: **Area EP staff, Regional and Head Office Staff**

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

3. General Assessment

Media

Air
Land
Water
Waste

✓
✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

Purpose

Regulation
Operational
Planning
Prioritising

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓
✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

--

Databases

--

6. Comments

Where appropriate Wastes Regulatory/Disposal issues are addressed in any new or revised guidance that goes into the manual.

Contact **David Griffiths**

Location: **Rio House**

Tel: **710 4520**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title Form Ref

2. Model Purpose

Acronym

To assess and manage risk on wide ranging types of site to prevent pollution and improve water quality. All regions undertake some form of PP activity.

Users: **Frequency**Routine
Periodic
Occasionally

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

DevelopmentNone
Arguing revision
Being revised
Under development

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

LicenseLicensed
If so, number
Free

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

3. General Assessment**Media**Air
Land
Water
Waste

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>

PurposeRegulation
Operational
Planning
Prioritising

<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Timescale
Resolution

<input type="checkbox"/>
<input type="checkbox"/>

In-House
Third Party

<input checked="" type="checkbox"/>
<input type="checkbox"/>

5. Links to Standards, Targets and Databases (Cross-reference)Standards Databases **6. Comments**

Strong move towards making site visits cross-functional wherever possible. The number of site visits for preventing water pollution has decreased markedly of late because of insufficient resource.

Contact Location: Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title Works Notice Risk Assessment Forms

Form Ref WQ018

2. Model Purpose

Acronym

To provide a consistent basis for deciding whether a works notice should be served to prevent water pollution.

Users: Area EP Staff

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

License

Licensed
If so, number
Free

3. General Assessment

Media

Air
Land
Water
Waste

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

Purpose
Regulation
Operational
Planning
Prioritising

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

Timescale
Resolution

In-House
Third Party

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

--

Databases

Provision made within new ground water regulations database.

6. Comments

Since April 1999 The Environment Agency has been able to serve Works Notices to prevent pollution. The Risk Assessment form within the guidance provides the basis for doing this consistently.

Contact David Griffiths

Location: Bristol

Tel: 710 4520

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title **Prediction of Pesticide Pollution in the Environment.**Form Ref **WQ019**

2. Model Purpose

Acronym **POPPIE****Prediction of Pesticide Pollution in the Environment.**Users: **To be implemented in Regions and National Centres. This model is for Agency use only.****Frequency**Routine
Periodic
Occasionally

✓

DevelopmentNone
Arguing revision
Being revised
Under development

✓

LicenseLicensed
If so, number
Free

✓

3. General Assessment**Media**Air
Land
Water
Waste

✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓
✓
✓
✓

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓
✓
✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓
✓

Timescale

Resolution

Few days-annual
10 km ²

In-House

Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)Standards **EQSs and Drinking Water Standards**Databases **Many/GIS Layers****6. Comments**

--

Contact **Andy Croxford**Location: **Wallingford**Tel: **750 8534**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title **FARM Pollution Prevention Visit Proforma**Form Ref **WQ020**

2. Model Purpose

Acronym

Consistent data collection on farm storage facilities and risk assessment of storage operations.Users: **Area EP Staff****Frequency**Routine
Periodic
Occasionally

✓

DevelopmentNone
Arguing revision
Being revised
Under development

✓

LicenseLicensed
If so, number
Free

3. General Assessment**Media**Air
Land
Water
Waste

✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓
✓

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓
✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

In-House

Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

--

Databases

NVZ database transferred from MAFF.**6. Comments****Generally farm visits have reduced significantly in recent years but Environment Agency has new responsibilities under the Nitrate Directive to visit farms in NVZs to ensure compliance.**

Contact

David Griffiths

Location:

Bristol

Tel:

710 4520

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title **Pollution Risk from Accidental Influx to Rivers & Estuaries**Form Ref **WQ021**

2. Model Purpose

Acronym **PRAIRIE****To predict consequences of accidental releases of chemicals into water courses.**Users: **Environment Protection & Pollution Prevention Staff****Frequency**Routine
Periodic
Occasionally

*

DevelopmentNone
Arguing revision
Being revised
Under development

✓

LicenseLicensed
If so, number
Free

✓
20

3. General Assessment**Media**Air
Land
Water
Waste

✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)Standards **Contains toxicity information**Databases **Integral****6. Comments****Developed to support Dee Protection Zone.***** Frequency of use varies between regions and areas.**Contact **Simon Halfacree**Location: **Cardiff**Tel: **726 2093**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Urban Pollution Management Manual**

Form Ref **WQ022**

2. Model Purpose

Acronym **UPM Manual**

The UPM Manual is designed to deliver adequate environmental protection at least cost for intermittent discharges of urban sewage. This is achieved through the planning process and the use of specific tools developed for the purpose.

Users:

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

License

Licensed
If so, number
Free

3. General Assessment

Media

Air
Land
Water
Waste

✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓
✓
✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓
✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓
✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓
✓
✓
✓

Timescale
Resolution

In-House
Third Party

✓
✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards **Intermittent Standards and UPM, EQSs, R Classification.**

Databases **Specific to application.**

6. Comments

--

Contact **Trevor Hardy**

Location: **Leeds**

Tel: **728 4676**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title Form Ref

2. Model Purpose

Acronym Users: **Frequency**Routine
Periodic
Occasionally

✓

DevelopmentNone
Arguing revision
Being revised
Under development

✓

LicenseLicensed
If so, number
Free

✓

3. General Assessment**Media**Air
Land
Water
Waste

✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓
✓

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

2 monthly

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)Standards Databases **6. Comments**Contact Location: Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Catchment Inventory System**

Form Ref **WQ024**

2. Model Purpose

Acronym **CATCHIS**

CATCHIS is a system for evaluating the risk of specific pesticides being present in specified surface water and groundwater locations.

Users:

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

License

Licensed
If so, number
Free

3. General Assessment

Media

Air
Land
Water
Waste

✓
✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓
✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓
✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

--

Databases

Dependent on SSLRC database on soil characteristics and on pesticide information.

6. Comments

CATCHIS has been developed by SSLRC with Severn Trent Water Plc.

Contact **Jonathan Smith**

Location: **NGWCLC**

Tel: **722 4753**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

Acronym

2. Model Purpose

Source Protection Zones have been developed to define areas in which activities could impact groundwater abstraction.

Users:

Frequency

Routine	<input checked="" type="checkbox"/>
Periodic	<input type="checkbox"/>
Occasionally	<input type="checkbox"/>

Development

None	<input checked="" type="checkbox"/>
Arguing revision	<input type="checkbox"/>
Being revised	<input type="checkbox"/>
Under development	<input type="checkbox"/>

License

Licensed	<input type="checkbox"/>
If so, number	<input type="checkbox"/>
Free	<input checked="" type="checkbox"/>

3. General Assessment

Media

Air	<input type="checkbox"/>
Land	<input checked="" type="checkbox"/>
Water	<input checked="" type="checkbox"/>
Waste	<input type="checkbox"/>

Function

Water Quality	<input checked="" type="checkbox"/>
Water Resources	<input checked="" type="checkbox"/>
Flood Defence	<input type="checkbox"/>
Fisheries	<input type="checkbox"/>
Rec & Nav	<input type="checkbox"/>
Conservation	<input type="checkbox"/>
IPC	<input type="checkbox"/>
Radioactivity	<input type="checkbox"/>
Waste Disposal	<input checked="" type="checkbox"/>
Cont. Land	<input checked="" type="checkbox"/>

Risk Assessment

Qualitative	<input type="checkbox"/>
Semi-Quantitative	<input type="checkbox"/>
Quantitative	<input checked="" type="checkbox"/>
Criteria	<input checked="" type="checkbox"/>
Assessment	<input type="checkbox"/>
Deterministic	<input checked="" type="checkbox"/>
Stochastic	<input type="checkbox"/>
Risk Assessment	<input type="checkbox"/>
Risk Management	<input checked="" type="checkbox"/>

Purpose

Regulation	<input checked="" type="checkbox"/>
Operational	<input checked="" type="checkbox"/>
Planning	<input checked="" type="checkbox"/>
Prioritising	<input checked="" type="checkbox"/>

4. Further Assessment

Coverage

Site Specific	<input checked="" type="checkbox"/>
Catchment	<input checked="" type="checkbox"/>
Regional	<input type="checkbox"/>
National	<input type="checkbox"/>

Type

Procedural	<input type="checkbox"/>
Mathematical	<input checked="" type="checkbox"/>
Statistical	<input type="checkbox"/>
Chemical	<input type="checkbox"/>
Physical	<input checked="" type="checkbox"/>

System Base

Paper	<input checked="" type="checkbox"/>
PC - DOS	<input checked="" type="checkbox"/>
PC - Windows	<input checked="" type="checkbox"/>
UNIX/Mainframe	<input type="checkbox"/>

Timescale

Resolution	<input type="checkbox"/>
------------	--------------------------

30 days -
400 days +
1: 25,000

Biological

Radioactivity	<input type="checkbox"/>
---------------	--------------------------

In-House

Third Party	<input checked="" type="checkbox"/>
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5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Each site has a Source Evaluation Report which is the paper copy of all the data collected in definition of the zone. Map are available from the public register.

Contact

Location:

Tel:

Environment Agency
Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Groundwater Vulnerability Maps have been produced to define the vulnerability of groundwater in any specific location regardless of use.

Users:

3. Additional Information

Frequency

Routine ☐
Periodic ☐
Occasionally ☐

Development

None ☐
Arguing revision ☐
Being revised ☐
Under development ☐

License

Licensed ☐
If so, number
Free ☐

4. General Assessment

Media

Air ☐
Land ☒
Water ☒
Waste ☐

Function

Water Quality ☒
Water Resources ☒
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
IPC ☐
Radioactivity ☐
Waste Disposal ☐
Cont. Land ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☒
Quantitative ☐
Criteria ☒
Assessment ☐
Deterministic ☐
Stochastic ☐
Risk Assessment ☒
Risk Management ☒

Purpose
Regulation ☒
Operational ☒
Planning ☒
Prioritising ☒

5. Further Assessment

Coverage

Site Specific ☐
Catchment ☒
Regional ☒
National ☒

Type

Procedural ☒
Mathematical ☐
Statistical ☐
Chemical ☐
Physical ☒
Biological ☐
Radioactivity ☐

System Base

Paper ☒
PC - DOS ☐
PC - Windows ☒
UNIX/Mainframe ☐

Timescale
Resolution

In-House ☒
Third Party ☐

6. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

7. Comments

Contact

Location:

Tel:

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title **Rapid Risk Assessment Methodology**Form Ref **WQ027**

2. Model Purpose

Acronym

To provide consistent approach to risk assessment at industrial sites (non IPC sites).Users: **Environment Planning and Protection Officers****3. Additional Information****Frequency**Routine
Periodic
Occasionally

✓

DevelopmentNone
Arguing revision
Being revised
Under development

✓
✓

LicenseLicensed
If so, number
Free

✓

4. General Assessment**Media**Air
Land
Water
Waste

✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓
✓

5. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

6. Links to Standards, Targets and Databases (Cross-reference)

Standards

--

Databases

--

7. Comments**Pollution Prevention Manual, Vol 026, Part 1, Chapter 6
Version 1.2, 10/97**Contact **Graham Tate**Location: **Leeds**Tel: **728 4677**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

The Discharge Consent Manual is a collection of Agency's policies for the determination of Consents for discharges. The Manual covers the legal & technical basics for ensuring the protection of WQ. The manual is a dynamic document subject to continual reviews & addition.

Users:

3. Additional Information

Frequency

Routine ☒
Periodic ☐
Occasionally ☐

Development

None ☐
Arguing revision ☒
Being revised ☐
Under development ☐

License

Licensed ☐
If so, number.
Free ☐
It is a controlled Document ☐

4. General Assessment

Media

Air ☐
Land ☐
Water ☒
Waste ☐

Purpose
Regulation ☒
Operational ☒
Planning ☐
Prioritising ☐

Function

Water Quality ☒
Water Resources ☐
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☒
Criteria ☒
Assessment ☒
Deterministic ☒
Stochastic ☒
Risk Assessment ☒
Risk Management ☒

5. Further Assessment

Coverage

Site Specific ☒
Catchment ☐
Regional ☐
National ☐

Timescale
Resolution ☐

Type

Procedural ☒
Mathematical ☒
Statistical ☒
Chemical ☒
Physical ☒
Biological ☒
Radioactivity ☐

System Base

Paper ☒
PC - DOS ☒
PC - Windows ☒
UNIX/Mainframe ☐

In-House ☒
Third Party ☐

6. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

7. Comments

Risk assessment is not intrinsic within the Manual, however, consents themselves are used to manage the risk associated with discharges. Risk Assessment is implicit within Consent Determination. The Manual covers policy, procedures, charging affluents, standard consents, technical guidance, monitoring, compliance & exporting, registers & IPC.

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Landfill Simulation Model**

Form Ref **WMR001**

2. Model Purpose

Acronym **LandSim**

LandSim allows the assessor to predict the impact of pollutants in a landfill site on the quality of controlled waters (particularly groundwater). The model considers leachate chemistry, engineering performance of containment and leachate collection systems and processes acting in the insaturated zone to attenuate pollutants before they reach the waterhole.

Users: **Waste and Groundwater staff (technical support), consultants and Industry**

3. Additional Information

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

✓

4. General Assessment

Media

Air
Land
Water
Waste

✓
✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

5. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

Timescale
Resolution

In-House
Third Party

6. Links to Standards, Targets and Databases (Cross-reference)

Standards **Water Quality Criteria,
Waste Management Operational Practice
(eg head of leachate)**

Databases **N/A**

7. Comments

Agency owned tool. It is for use at both the planning stage in support of a Waste Management License (Reg 15 Assessment), but is only one of a number of tools that may be adopted.

Contact **Jonathan Smith**

Location: **NGWCLC**

Tel: **722 4753**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

OPRA for Waste provides a straightforward characterisation of the overall environmental risk from waste disposal or recovery operations by providing an indication of an occurrence of an undesirable event and the consequences of the event. These factors are combined to give an indication of comparative risks and are used to determine the frequency of inspections at sites.

Users:

3. Additional Information

Frequency

Routine ☒
Periodic ☐
Occasionally ☐

Development

None ☐
Arguing revision ☐
Being revised as part of DETR consultation ☒
Under development ☐

License

Licensed ☐
If so, number
Free ☒

4. General Assessment

Media

Air ☐
Land ☐
Water ☐
Waste ☒

Function

Water Quality ☐
Water Resources ☐
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☐
Waste Policy ☒
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☒
Quantitative ☐
Criteria ☒
Assessment ☒
Deterministic ☐
Stochastic ☐
Risk Assessment ☒
Risk Management ☐

Purpose

Regulation ☒
Operational ☒
Planning ☒
Prioritising ☒

Prioritisation system for licence review
On site work
Planned inspection

Inspection methodology
Site specific basis but could give risk mgmt output in terms of Agency visits & operator controls highlighted.

5. Further Assessment

Coverage

Site Specific ☒
Catchment ☐
Regional ☐
National ☒

Type

Procedural ☐
Mathematical ☒
Statistical ☐
Chemical ☐
Physical ☐
Biological ☐
Radioactivity ☐

System Base

Paper ☒
PC - DOS ☐
PC Windows REGIS ☒
UNIX/Mainframe ☐
In-House ☒
Third Party ☐

Contains procedural elements in inspection methodology

6. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

7. Comments

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

The main purpose is to identify the need for capital/revenue expenditure and to determine the prioritisation and justification of that expenditure.

Users:

Frequency

Routine ☐ ☒
Periodic ☐
Occasionally ☐

Development

None ☐
Arguing revision ☐
Being revised ☒
Under development ☐

License

Licensed ☐ ?
If so, number
Free ☐

3. General Assessment

Media

Air ☐
Land ☒
Water ☒
Waste ☐

Function

Water Quality ☐
Water Resources ☐
Flood Defence ☒
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☒
Quantitative ☐
Criteria ☐
Assessment ☒
Deterministic ☐
Stochastic ☐
Risk Assessment ☒
Risk Management ☒

Purpose
Regulation ☐
Operational ☐
Planning ☒
Prioritising ☒

4. Further Assessment

Coverage

Site Specific ☐
Catchment ☐
Regional ☒
National ☐

Timescale ☐
Resolution ☐

Type

Procedural ☒
Mathematical ☐
Statistical ☐
Chemical ☐
Physical ☐
Biological ☐
Radioactivity ☐

System Base

Paper ☒
PC - DOS ☐
PC - Windows ☒
UNIX/Mainframe ☒

In-House ☒
Third Party ☐

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Flood Studies Report (PC Based)**

Form Ref **FD002**

2. Model Purpose

Acronym **MICROFSR**

FSR is used for estimation of design flows for ungauged catchments. Flows are estimated at one point in the catchment only.

Users:

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

License

Licensed
If so, number
Free

3. General Assessment

Media

Air
Land
Water
Waste

✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

5-72 hrs

In-House
Third Party

✓
✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards **Standard of Service**

Databases

6. Comments

Originally developed by the Institute of Hydrology - flood estimation procedures are continuing to be revised. May be superseded by Microflow.

Contact **David Rylands**

Location: **Reading**

Tel: **725 5752**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

FSR is used for estimation of design flows for ungauged catchments. Flows are estimated at one point in the catchment only.

Users:

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

3. General Assessment

Media

Air
Land
Water
Waste

✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

5-72 hrs

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

FRQSIM was originally developed by the GLC and has since been extensively modified.

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Regional Flow-Forecasting System**

Form Ref **FD004**

2. Model Purpose

Acronym

The Regional Flow-Forecasting System relies on output from one of three models (Isolated Event Model/Thames Conceptual Model/Probability Model) to forecast flood events in river catchment zones.

Users:

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

License

Licensed
If so, number
Free

3. General Assessment

Media

Air
Land
Water
Waste

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

Purpose

Regulation
Operational
Planning
Prioritising

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

Timescale
Resolution

15m to 12h ahead
2km grid

In-House
Third Party

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases **Relies on output from Isolated Even Model/ Thames Catchment Model/**

6. Comments

Contact **Chris Hagett**

Location: **Waltham Cross**

Tel: **725 5440**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **ISIS**

Form Ref **FD005**

2. Model Purpose

Acronym **ISIS**

ISIS has been developed from ONDA and SALMON and it models flow, water quality and sediment transport in complex river and channel networks.

Users: **Flood Defence and Water Quality staff.**

Frequency

Routine	<input checked="" type="checkbox"/>
Periodic	<input type="checkbox"/>
Occasionally	<input checked="" type="checkbox"/>

Development

None	<input type="checkbox"/>
Arguing revision	<input type="checkbox"/>
Being revised	<input checked="" type="checkbox"/>
Under development	<input type="checkbox"/>

License

Licensed	<input checked="" type="checkbox"/>
If so, number	10
Free	<input type="checkbox"/>

3. General Assessment

Media

Air	<input type="checkbox"/>
Land	<input type="checkbox"/>
Water	<input checked="" type="checkbox"/>
Waste	<input type="checkbox"/>

Function

Water Quality	<input checked="" type="checkbox"/>
Water Resources	<input type="checkbox"/>
Flood Defence	<input checked="" type="checkbox"/>
Fisheries	<input type="checkbox"/>
Rec & Nav	<input type="checkbox"/>
Conservation	<input type="checkbox"/>
PIR	<input type="checkbox"/>
Radioactivity	<input type="checkbox"/>
Waste Policy	<input type="checkbox"/>
Land Quality	<input type="checkbox"/>

Risk Assessment

Qualitative	<input type="checkbox"/>
Semi-Quantitative	<input type="checkbox"/>
Quantitative	<input checked="" type="checkbox"/>
Criteria	<input type="checkbox"/>
Assessment	<input checked="" type="checkbox"/>
Deterministic	<input checked="" type="checkbox"/>
Stochastic	<input type="checkbox"/>
Risk Assessment	<input checked="" type="checkbox"/>
Risk Management	<input type="checkbox"/>

Purpose

Regulation	<input type="checkbox"/>
Operational	<input checked="" type="checkbox"/>
Planning	<input checked="" type="checkbox"/>
Prioritising	<input type="checkbox"/>

4. Further Assessment

Coverage

Site Specific	<input type="checkbox"/>
Catchment	<input checked="" type="checkbox"/>
Regional	<input type="checkbox"/>
National	<input type="checkbox"/>

Type

Procedural	<input type="checkbox"/>
Mathematical	<input checked="" type="checkbox"/>
Statistical	<input type="checkbox"/>
Chemical	<input checked="" type="checkbox"/>
Physical	<input checked="" type="checkbox"/>
Biological	<input checked="" type="checkbox"/>
Radioactivity	<input type="checkbox"/>

System Base

Paper	<input type="checkbox"/>
PC - DOS	<input type="checkbox"/>
PC - Windows	<input checked="" type="checkbox"/>
UNIX/Mainframe	<input checked="" type="checkbox"/>

Timescale	Up to 24 h-yrs
Resolution	<1m

In-House	<input checked="" type="checkbox"/>
Third Party	<input checked="" type="checkbox"/>

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

ISIS supersedes ONDA, SALMON and various other models. It is used routinely by flood defence for model flow and design and occasionally by water quality staff.

Contact **David Rylands**

Location: **Reading**

Tel: **725 5752**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Hydrological Engineering Centre - River Analysis System**

Form Ref **FD006**

2. Model Purpose

Acronym **HEC-RAS**

HEC 2 is a backwater model for ascertaining water levels along a reach of river or open channel for a steady flow rate.

Users:

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

License

Licensed
If so, number
Free

3. General Assessment

Media

Air
Land
Water
Waste

✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓
✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

Steady state
50-200mm

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

--

Databases

--

6. Comments

HEC 2 was developed originally by the US Corps of Engineers and could be used more formally in risk assessment although it is not used this way at present.

Contact **Lynda Aucott**

Location: **Exeter**

Tel: **724 2394**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title Form Ref

2. Model Purpose

Acronym Users: **Frequency**Routine
Periodic
Occasionally

DevelopmentNone
Arguing revision
Being revised
Under development

LicenseLicensed
If so, number
Free

3. General Assessment**Media**Air
Land
Water
Waste

✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓
✓

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓
✓

5. Links to Standards, Targets and Databases (Cross-reference)Standards Databases **6. Comments**Contact Location: Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **MIKE - 2 Dimensional and 1 Layered**

Form Ref **FD008**

2. Model Purpose

Acronym **MIKE21**

MIKE21 is a comprehensive modelling system for 2D free surface flows and is applicable to hydraulic and related phenomena in lakes, estuaries, bays and coastal areas.

Users:

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

License

Licensed
If so, number
Free

3. General Assessment

Media

Air
Land
Water
Waste

✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓
✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓
✓
✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓
✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

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Databases

--

6. Comments

MIKE21 is a modular system which includes advection/dispersion, water quality, eutrophication, heavy metals, sediment processes, and long/short wave modelling. Supported in the UK by WS Atkins.

Contact **David Rylands**

Location: **Reading**

Tel: **725 5752**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title Form Ref

2. Model Purpose

Acronym

NAM is a deterministic conceptual lumped model representing the land phase of the hydrological cycle. It is based on physical and semi empirical formulations.

Users: **Frequency**Routine
Periodic
Occasionally

DevelopmentNone
Arguing revision
Being revised
Under development

LicenseLicensed
If so, number
Free

3. General Assessment**Media**Air
Land
Water
Waste

✓
✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓
✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓
✓

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓
✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)Standards Databases **6. Comments**

NAM includes snow storage, surface storage, lower zone storage, and groundwater storage. DHI software supported in the UK by WS Atkins.

Contact Location: Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Forecasting Rain Optimised using New Techniques of Interactively Enhanced Radar and Satellite Data**

Form Ref **FD010**

2. Model Purpose

Acronym **FRONTIERS**

FRONTIERS is a model that provides high-resolution quantitative rainfall forecasts for flow prediction.

Users:

Frequency

Routine ☐
Periodic ☐
Occasionally ☐

Development

None ☐
Arguing revision ☐
Being revised ☐
Under development ☐

License

Licensed ☐
If so, number ☐
Free ☐

3. General Assessment

Media

Air ☐
Land ☐
Water ☒
Waste ☐

Function

Water Quality ☐
Water Resources ☐
Flood Defence ☒
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☒
Criteria ☐
Assessment ☒
Deterministic ☒
Stochastic ☐
Risk Assessment ☒
Risk Management ☐

Purpose

Regulation ☐
Operational ☒
Planning ☐
Prioritising ☐

4. Further Assessment

Coverage

Site Specific ☐
Catchment ☒
Regional ☒
National ☒

Type

Procedural ☐
Mathematical ☒
Statistical ☐
Chemical ☐
Physical ☒
Biological ☐
Radioactivity ☐

System Base

Paper ☐
PC - DOS ☐
PC - Windows ☐
UNIX/Mainframe ☒
In-House ☒
Third Party ☒

Timescale ☐
Resolution ☐

50m (up to 6 h ahead)
5km grid

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases **Dependent on radar data from Chenie radar.**

6. Comments

System being developed further at present.

Contact **Chris Hagett**

Location: **Reading**

Tel: **725 5440**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title **Local Rainfall Forecasting System**Form Ref **FD011**

2. Model Purpose

Acronym

The Local Rainfall Forecasting System is an advection model that models the speed and direction of rainfall and can forecast up to two hours ahead.

Users:

FrequencyRoutine
Periodic
Occasionally**Development**None
Arguing revision
Being revised
Under development**License**Licensed
If so, number
Free**3. General Assessment****Media**Air
Land
Water
Waste**Function**Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality**Risk Assessment**Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management**Purpose**Regulation
Operational
Planning
Prioritising**4. Further Assessment****Coverage**Site Specific
Catchment
Regional
National**Type**Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity**System Base**Paper
PC - DOS
PC - Windows
UNIX/MainframeTimescale
Resolution

2km grid

In-House
Third Party**5. Links to Standards, Targets and Databases (Cross-reference)**

Standards

Databases

Dependent on radar data from Chenie radar.

6. Comments

The Local Rainfall Radar System was originally developed by the Institute of Hydrology.

Contact **Chris Hagett**Location: **Reading**Tel: **725 5440**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Generating Advanced Non-Casts for Deployment in Operational Land-surface Flood-Forecasting**

Form Ref **FD012**

2. Model Purpose

Acronym **GANDALF**

GANDALF is an operational thunderstorm warning procedure for use with river flood forecasting systems.

Users:

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

License

Licensed
If so, number
Free

3. General Assessment

Media

Air
Land
Water
Waste

✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

Purpose
Regulation
Operational
Planning
Prioritising

✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓
✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

5mins-15mins
2km grid

In-House
Third Party

✓
✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

--

Databases

--

6. Comments

--

Contact **Chris Hagett**

Location: **Reading**

Tel: **725 5440**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Risk Assessment for Sea and Tidal Defences**

Form Ref **FD013**

2. Model Purpose

Acronym

This methodology has been developed to provide a detailed quantitative risk assessment procedure including probabilistic failure analysis and assessment of areas of flooding. This methodology is designed to compliment the Space Methodology and act as a second tier detailed assessment.

Users: **Staff at NCRAOA**

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

✓

3. General Assessment

Media

Air
Land
Water
Waste

✓
✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓
✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓
✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓
✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓
✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards **Standards of Service**

Databases

6. Comments

--

Contact **John Cross**

Location: **Leeds**

Tel: **728 2379**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Indicative Floodplain Maps**

Form Ref **FD014**

2. Model Purpose

Acronym **IFM**

Show areas within which may be vulnerable to flooding from the rivers or the sea.

Users:

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

✓

3. General Assessment

Media

Air
Land
Water
Waste

✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓

Purpose
Regulation
Operational
Planning
Prioritising

✓
✓
✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

--

Databases

Institute of Hydrology Flooded Area database.

6. Comments

Shaded indicative flood - prone areas shown on 1:10000 map scale.

Contact **Ian Meadowcroft**

Location: **NCRAOA**

Tel: **710 6830**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Users:

Frequency

Routine
Periodic
Occasionally

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Development

None
Arguing revision
Being revised
Under development

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

License

Licensed
If so, number
Free

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

3. General Assessment

Media

Air
Land
Water
Waste

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

Purpose

Regulation
Operational
Planning
Prioritising

<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

Timescale
Resolution

<input type="checkbox"/>
<input type="checkbox"/>

In-House
Third Party

<input type="checkbox"/>
<input type="checkbox"/>

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Users:

Frequency

Routine ☐
Periodic ☐
Occasionally ☒

Development

None ☐
Arguing revision ☐
Being revised ☒
Under development ☐

License

Licensed ☐
If so, number
Free ☒

3. General Assessment

Media

Air ☐
Land ☒
Water ☒
Waste ☐

Function

Water Quality ☐
Water Resources ☐
Flood Defence ☒
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☒
Semi-Quantitative ☐
Quantitative ☒
Criteria ☐
Assessment ☒
Deterministic ☐
Stochastic ☐
Risk Assessment ☒
Risk Management ☐

Purpose ☐
Regulation ☐
Operational ☐
Planning ☒
Prioritising ☒

4. Further Assessment

Coverage

Site Specific ☐
Catchment ☐
Regional ☐
National ☒

Type

Procedural ☐
Mathematical ☐
Statistical ☐
Chemical ☐
Physical ☒
Biological ☐
Radioactivity ☐

System Base

Paper ☐
PC - DOS ☒
PC - Windows ☐
UNIX/Mainframe ☐

Timescale ☐
Resolution ☐

In-House ☐
Third Party ☒

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Contact

Location:

Tel:

Environment Agency
Register of Risk Assessment Tools: Part 1 - Models and Procedures
1. Title River Habitat Survey

Form Ref CO001

2. Model Purpose
Acronym RHS

To determine river habitat quality in the context of river type and level of physical modification.

Users:

Agency Conservation Staff; LEAPS planners, fisheries, flood defence, water resources, external environmental organisations.

3. Additional Information
Frequency

 Routine ☒
 Periodic ☐
 Occasionally ☐
Development

 None ☐
 Arguing revision ☐
 Being revised ☒
 Under development ☐
License

 Licensed ☐
 If so, number ☐
 Free ☒
4. General Assessment
Media

 Air ☐
 Land ☒
 Water ☒
 Waste ☐
Function

 Water Quality ☐
 Water Resources ☒
 Flood Defence ☒
 Fisheries ☒
 Rec & Nav ☐
 Conservation ☒
 PIR ☐
 Radioactivity ☐
 Waste Policy ☐
 Land Quality ☐
Risk Assessment

 Qualitative ☐
 Semi-Quantitative ☒
 Quantitative ☐
 Criteria ☒
 Assessment ☒
 Deterministic ☐
 Stochastic ☐
 Risk Assessment ☒
 Risk Management ☐
Purpose

 Regulation ☐
 Operational ☒
 Planning ☒
 Prioritising ☒
5. Further Assessment
Coverage

 Site Specific ☒
 Catchment ☒
 Regional ☐
 National ☒
Type

 Procedural ☒
 Mathematical ☐
 Statistical ☐
 Chemical ☐
 Physical ☒
 Biological ☒
 Radioactivity ☐
System Base

 Paper ☒
 PC - DOS ☐
 PC - Windows ☒
 UNIX/Mainframe ☐
 In-House ☒
 Third Party ☐
6. Links to Standards, Targets and Databases (Cross-reference)
Standards
Databases

RHS database in Microsoft access.

7. Comments

A national database exists, as well as individual regional datasets. RHS is now available through IS. Further refinement will be made to the method. There is a RHS user group.

Contact

Marc Naura

Location: Warrington, NW

Tel:

721 2454

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Users:

3. Additional Information

Frequency

Routine ☒
Periodic ☐
Occasionally ☐

Development

None ☒
Arguing revision ☐
Being revised ☐
Under development ☐

License

Licensed ☐
If so, number ☐
Free ☒

4. General Assessment

Media

Air ☐
Land ☒
Water ☒
Waste ☐

Function

Water Quality ☐
Water Resources ☒
Flood Defence ☒
Fisheries ☐
Rec & Nav ☐
Conservation ☒
PIR ☐
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☒
Semi-Quantitative ☐
Quantitative ☐
Criteria ☐
Assessment ☐
Deterministic ☐
Stochastic ☐
Risk Assessment ☐
Risk Management ☐

Purpose

Regulation ☐
Operational ☒
Planning ☒
Prioritising ☒

5. Further Assessment

Coverage

Site Specific ☒
Catchment ☒
Regional ☐
National ☐
Timescale ☐
Resolution ☐

Type

Procedural ☒
Mathematical ☐
Statistical ☐
Chemical ☐
Physical ☐
Biological ☒
Radioactivity ☐

System Base

Paper ☒
PC - DOS ☐
PC - Windows ☐
UNIX/Mainframe ☐
In-House ☐
Third Party ☒

6. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

7. Comments

Contact

Location:

Tel:

Environment Agency
Register of Risk Assessment Tools: Part 1 - Models and Procedures
1. Title Landscape Assessment

Form Ref CO003

2. Model Purpose
Acronym

To provide information on landscape character of river corridors.

Users:

Conservation

3. Additional Information
Frequency

Routine

Periodic

Occasionally

Development

None

Arguing revision

Being revised

Under development

License

Licensed

If so, number

Free

4. General Assessment
Media

Air

Land

Water

Waste

Function

Water Quality

Water Resources

Flood Defence

Fisheries

Rec & Nav

Conservation

PIR

Radioactivity

Waste Policy

Land Quality

Risk Assessment

Qualitative

Semi-Quantitative

Quantitative

Criteria

Assessment

Deterministic

Stochastic

Risk Assessment

Risk Management

5. Further Assessment
Coverage

Site Specific

Catchment

Regional

National

Type

Procedural

Mathematical

Statistical

Chemical

Physical

Biological

Radioactivity

System Base

Paper

PC - DOS

PC - Windows

UNIX/Mainframe

Timescale

Resolution

In-House

Third Party

6. Links to Standards, Targets and Databases (Cross-reference)
Standards
Databases
7. Comments

Use of landscape assessment varies between regions. Thames probably commission the most.

Contact

Richard Copas

Location: Reading

Tel:

725 5565

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Users:

3. Additional Information

Frequency

Routine ☒
Periodic ☐
Occasionally ☐

Development

None ☐
Arguing revision ☒
Being revised ☐
Under development ☐

License

Licensed ☐
If so, number
Free ☒

4. General Assessment

Media

Air ☒
Land ☒
Water ☒
Waste ☒

Function

Water Quality ☒
Water Resources ☒
Flood Defence ☒
Fisheries ☒
Rec & Nav ☒
Conservation ☒
PIR ☒
Radioactivity ☒
Waste Policy ☒
Land Quality ☒

Risk Assessment

Qualitative ☒
Semi-Quantitative ☐
Quantitative ☒
Criteria ☒
Assessment ☒
Deterministic ☐
Stochastic ☐
Risk Assessment ☒
Risk Management ☐

Purpose
Regulation ☒
Operational ☐
Planning ☐
Prioritising ☐

5. Further Assessment

Coverage

Site Specific ☐
Catchment ☐
Regional ☐
National ☒

Timescale
Resolution ☐

Type

Procedural ☒
Mathematical ☐
Statistical ☐
Chemical ☐
Physical ☐
Biological ☐
Radioactivity ☐

System Base

Paper ☒
PC - DOS ☐
PC - Windows ☒
UNIX/Mainframe ☐

In-House ☒
Third Party ☒

6. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

7. Comments

Contact

Location:

Tel:

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title Form Ref

2. Model Purpose

Acronym

Users:

3. Additional Information

Frequency

Routine	<input checked="" type="checkbox"/>
Periodic	<input type="checkbox"/>
Occasionally	<input type="checkbox"/>

Development

None	<input checked="" type="checkbox"/>
Arguing revision	<input type="checkbox"/>
Being revised	<input type="checkbox"/>
Under development	<input type="checkbox"/>

License

Licensed	<input type="checkbox"/>
If so, number	<input type="checkbox"/>
Free	<input checked="" type="checkbox"/>

4. General Assessment

Media

Air	<input checked="" type="checkbox"/>
Land	<input checked="" type="checkbox"/>
Water	<input checked="" type="checkbox"/>
Waste	<input checked="" type="checkbox"/>

Function

Water Quality	<input checked="" type="checkbox"/>
Water Resources	<input checked="" type="checkbox"/>
Flood Defence	<input checked="" type="checkbox"/>
Fisheries	<input checked="" type="checkbox"/>
Rec & Nav	<input checked="" type="checkbox"/>
Conservation	<input checked="" type="checkbox"/>
PIR	<input type="checkbox"/>
Radioactivity	<input type="checkbox"/>
Waste Policy	<input checked="" type="checkbox"/>
Land Quality	<input type="checkbox"/>

Risk Assessment

Qualitative	<input checked="" type="checkbox"/>
Semi-Quantitative	<input type="checkbox"/>
Quantitative	<input type="checkbox"/>
Criteria	<input type="checkbox"/>
Assessment	<input type="checkbox"/>
Deterministic	<input type="checkbox"/>
Stochastic	<input type="checkbox"/>
Risk Assessment	<input type="checkbox"/>
Risk Management	<input checked="" type="checkbox"/>

Purpose

Regulation	<input type="checkbox"/>
Operational	<input checked="" type="checkbox"/>
Planning	<input checked="" type="checkbox"/>
Prioritising	<input checked="" type="checkbox"/>

5. Further Assessment

Coverage

Site Specific	<input type="checkbox"/>
Catchment	<input type="checkbox"/>
Regional	<input checked="" type="checkbox"/>
National	<input type="checkbox"/>

Type

Procedural	<input checked="" type="checkbox"/>
Mathematical	<input type="checkbox"/>
Statistical	<input type="checkbox"/>
Chemical	<input type="checkbox"/>
Physical	<input type="checkbox"/>
Biological	<input type="checkbox"/>
Radioactivity	<input type="checkbox"/>

System Base

Paper	<input checked="" type="checkbox"/>
PC - DOS	<input type="checkbox"/>
PC - Windows	<input type="checkbox"/>
UNIX/Mainframe	<input type="checkbox"/>

Timescale	<input type="checkbox"/>
Resolution	<input type="checkbox"/>

In-House	<input type="checkbox"/>
Third Party	<input type="checkbox"/>

6. Links to Standards, Targets and Databases (Cross-reference)

Standards Databases

7. Comments

Contact Location: Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **FLOWPATH**

Form Ref **WR001**

2. Model Purpose

Acronym **FLOWPATH**

FLOWPATH is a propriatory model which is applied in the determination of Groundwater Protection Zones. The model may also be applied in groundwater pollution incident investigation. It is a 2D steady state numerical groundwater flow model.

Users:

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

License

Licensed
If so, number
Free

3. General Assessment

Media

Air
Land
Water
Waste

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

Purpose
Regulation
Operational
Planning
Prioritising

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

Type

Procedural
Mathematical
Statistical
Chemical
Physical

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

Timescale
Resolution

Days - Months
<1km dep on
grid

Biological
Radioactivity

In-House
Third Party

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

FLOWPATH was developed by Waterloo University, Canada. Input data is specific to application. Flowpath is th preferred model for the derivation of Groundwater Protection Zones.

Contact **Paul Hulme**

Location: **NGCLC**

Tel: **722 4755**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **MODFLOW/MODPATH**

Form Ref **WR002**

2. Model Purpose

Acronym **MODFLOW**

MODFLOW is a finite difference groundwater model for modelling time variant flow in anisotropic, heterogeneous, layered aquified systems. These models are 2D/3D Steady State/TimeVariant Groundwater flow and particle backing

Users: **Regions**

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

✓

3. General Assessment

Media

Air
Land
Water
Waste

✓
✓

Function

Env Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
IPC
Radioactivity
Waste Disposal
Cont. Land

✓
✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓
✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical
Biological
Radioactivity

✓
✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓
✓

Timescale

Resolution

Days - Decades
Down to <50m

In-House

Third Party

✓
✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

--

Databases

--

6. Comments

FLOWPATH is generally preferred over MODFLOW for derivation at Groundwater Protection Zones.

Contact **Paul Hulme**

Location: **NGWCLC**

Tel: **722 4755**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **RESPLAN**

Form Ref **WR003**

2. Model Purpose

Acronym **RESPLAN**

Least cost economic prioritisation of resource
Development scheduling / resource allocation modelling

Users: **Nigel Hepworth / Clair Rigg**

3. Additional Information

Frequency

Routine ☒
Periodic ☒
Occasionally ☐

Development

None ☒
Arguing revision ☐
Being revised ☐
Under development ☐

License

Licensed ☐
If so, number ☐
Free ☒

4. General Assessment

Media

Air ☐
Land ☐
Water ☒
Waste ☐

Function

Water Quality ☐
Water Resources ☒
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☒
Criteria ☐
Assessment ☒
Deterministic ☐
Stochastic ☐
Risk Assessment ☒
Risk Management ☒

Purpose

Regulation ☐
Operational ☐
Planning ☐
Prioritising ☐

5. Further Assessment

Coverage

Site Specific ☐
Catchment ☐
Regional ☒
National ☐

Type

Procedural ☐
Mathematical ☒
Statistical ☐
Chemical ☐
Physical ☐
Biological ☐
Radioactivity ☐

System Base

Paper ☐
PC - DOS ☐
PC - Windows ☒
UNIX/Mainframe ☐
In-House ☐
Third Party ☐

6. Links to Standards, Targets and Databases (Cross-reference)

Standards **Water Resources
Plans and Strategies**

Databases

7. Comments

Contact **Clair Rigg**

Location: **Worthing**

Tel: **710 2285**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Finite Difference Code**

Form Ref **WR004**

2. Model Purpose

Acronym **BU**

BU is a finite difference groundwater model for modelling time/variant flow in anisotropic, heterogeneous, layered aquifer systems. These models are 2D/3D steady state/time variant groundwater flow and particle tracking method.

Users: **Regions**

Frequency

Routine
Periodic
Occasionally

✓

Development

None
Arguing revision
Being revised
Under development

✓

License

Licensed
If so, number
Free

✓

3. General Assessment

Media

Air
Land
Water
Waste

✓
✓

Function

Water Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓
✓

Purpose

Regulation
Operational
Planning
Prioritising

✓

4. Further Assessment

Coverage

Site Specific
Catchment
Regional
National

✓
✓

Type

Procedural
Mathematical
Statistical
Chemical
Physical

✓

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe

✓

Timescale
Resolution

Days to decades
Less than 50m

Biological
Radioactivity

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

--

Databases

--

6. Comments

Developed by Birmingham University

Contact **Paul Hulme**

Location: **NGWCLC**

Tel: **722 4755**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Users:

Frequency

Routine
Periodic
Occasionally ☒

Development

None ☒
Arguing revision
Being revised
Under development

License

Licensed ☒
If so, number
Free

3. General Assessment

Media

Air
Land ☒
Water ☒
Waste

Function

Water Quality
Water Resources ☒
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative ☒
Criteria
Assessment ☒
Deterministic ☒
Stochastic
Risk Assessment ☒
Risk Management ☒

Purpose
Regulation
Operational ☒
Planning
Prioritising

4. Further Assessment

Coverage

Site Specific ☒
Catchment ☒
Regional
National

Type

Procedural
Mathematical ☒
Statistical
Chemical
Physical
Biological
Radioactivity

System Base

Paper
PC - DOS ☒
PC - Windows
UNIX/Mainframe

Timescale
Resolution
Days to
decades
Down to less
than 50m

In-House
Third Party ☒

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Contact

Location:

Tel:

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title Form Ref

2. Model Purpose

Acronym

This is a finite groundwater model for modelling transient flow in anisotropic, heterogeneous, single layered, aquifer systems.

Users: **Frequency**Routine
Periodic
Occasionally

✓

DevelopmentNone
Arguing revision
Being revised
Under development

✓

LicenseLicensed
If so, number
Free

✓

3. General Assessment**Media**Air
Land
Water
Waste

✓
✓

FunctionWater Quality
Water Resources
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

✓

Risk AssessmentQualitative
Semi-Quantitative
Quantitative
Criteria
Assessment
Deterministic
Stochastic
Risk Assessment
Risk Management

✓
✓
✓
✓
✓

PurposeRegulation
Operational
Planning
Prioritising

✓

4. Further Assessment**Coverage**Site Specific
Catchment
Regional
National

✓
✓

TypeProcedural
Mathematical
Statistical
Chemical
Physical

✓

System BasePaper
PC - DOS
PC - Windows
UNIX/Mainframe

✓
✓

Timescale
Resolution

Days to decades
Down to 50m

Biological
Radioactivity

In-House
Third Party

✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **MIKE - System Hydrologique Europeane**

Form Ref **WR007**

2. Model Purpose

Acronym **MIKE SHE**

MIKE SHE is a dynamic modelling tool for the analysis planning and management of water resources and environmental problems related to surface water and groundwater, in particular to assess potential impact of human activities.

Users: **Regions**

Frequency

Routine	
Periodic	
Occasionally	✓

Development

None	✓
Arguing revision	
Being revised	
Under development	

License

Licensed	✓
If so, number	
Free	

3. General Assessment

Media

Air	
Land	✓
Water	✓
Waste	

Function

Water Quality	✓
Water Resources	✓
Flood Defence	
Fisheries	
Rec & Nav	
Conservation	
PIR	
Radioactivity	
Waste Policy	✓
Land Quality	

Risk Assessment

Qualitative	
Semi-Quantitative	
Quantitative	✓
Criteria	
Assessment	✓
Deterministic	✓
Stochastic	✓
Risk Assessment	✓
Risk Management	

Purpose

Regulation	
Operational	✓
Planning	✓
Prioritising	

4. Further Assessment

Coverage

Site Specific	✓
Catchment	✓
Regional	
National	

Type

Procedural	
Mathematical	✓
Statistical	✓
Chemical	✓
Physical	✓
Biological	
Radioactivity	

System Base

Paper	
PC - DOS	✓
PC - Windows	✓
UNIX/Mainframe	
In-House	
Third Party	✓

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Superseded by CONSIM

Contact **Paul Hulme**

Location: **NGWCLC**

Tel: **722 4755**

Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title **Well Head Protection Area**Form Ref **WR008**Acronym **WHPA**

2. Model Purpose

The Well Head Protection Area Model is utilised for derivation of Groundwater Protection Zones. The model is a 2D steady state numerical groundwater flow model.

Users:

Frequency

Routine

Periodic

Occasionally

Development

None

Arguing revision

Being revised

Under development

License

Licensed

If so, number

Free

3. General Assessment

Media

Air

Land

Water

Waste

Function

Env Quality

Water Resources

Flood Defence

Fisheries

Rec & Nav

Conservation

IPC

Radioactivity

Waste Disposal

Cont. Land

Risk Assessment

Qualitative

Semi-Quantitative

Quantitative

Criteria

Assessment

Deterministic

Stochastic

Risk Assessment

Risk Management

Purpose

Regulation

Operational

Planning

Prioritising

4. Further Assessment

Coverage

Site Specific

Catchment

Regional

National

Type

Procedural

Mathematical

Statistical

Chemical

Physical

System Base

Paper

PC - DOS

PC - Windows

UNIX/Mainframe

Timescale

Resolution

Days - Months

Down to <1 m

Biological

Radioactivity

In-House

Third Party

5. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

6. Comments

Flowpath is generally preferred over WHPA which has developed by the US EPA.

Contact **Sarah Evers**Location: **NGWCLC**Tel: **722 4703**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title **Surface Water Abstraction
Licensing Procedure**

Form Ref **WR009**

2. Model Purpose

Acronym **SWALP**

The determination of surface water abstraction licence applications.

Users: **Water Resources staff**

3. Additional Information

Frequency

Routine	
Periodic	✓
Occasionally	

Development

None	
Arguing revision	
Being revised	✓
Under development	

License

Licensed	
If so, number	
Free	✓

4. General Assessment

Media

Air	
Land	
Water	✓
Waste	

Function

Water Quality	
Water Resources	✓
Flood Defence	
Fisheries	
Rec & Nav	
Conservation	
PIR	
Radioactivity	
Waste Policy	
Land Quality	

Risk Assessment

Qualitative	
Semi-Quantitative	
Quantitative	✓
Criteria	
Assessment	✓
Deterministic	✓
Stochastic	
Risk Assessment	✓
Risk Management	✓

Purpose

Regulation	✓
Operational	
Planning	
Prioritising	

5. Further Assessment

Coverage

Site Specific	✓
Catchment	✓
Regional	
National	

Type

Procedural	✓
Mathematical	✓
Statistical	✓
Chemical	
Physical	
Biological	✓
Radioactivity	

System Base

Paper	✓
PC - DOS	
PC - Windows	
UNIX/Mainframe	

Timescale	
Resolution	

In-House	✓
Third Party	

6. Links to Standards, Targets and Databases (Cross-reference)

Standards **Statute**

Databases **Hydrolog
Nald**

7. Comments

In process of review following government directions.

Contact **Ian Barker**

Location: **Wales**

Tel: **726 2127**

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Users:

3. Additional Information

Frequency

Routine ☐
Periodic ☒
Occasionally ☐

Development

None ☐
Arguing revision ☐
Being revised ☐
Under development ☒

License

Licensed ☐
If so, number
Free ☐

4. General Assessment

Media

Air ☐
Land ☐
Water ☒
Waste ☐

Function

Water Quality ☒
Water Resources ☒
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☒
Criteria ☐
Assessment ☒
Deterministic ☒
Stochastic ☐
Risk Assessment ☒
Risk Management ☐

Purpose

Regulation ☐
Operational ☐
Planning ☐
Prioritising ☐

5. Further Assessment

Coverage

Site Specific ☒
Catchment ☒
Regional ☒
National ☒

Type

Procedural ☐
Mathematical ☒
Statistical ☒
Chemical ☐
Physical ☒
Biological ☐
Radioactivity ☐

System Base

Paper ☐
PC - DOS ☒
PC - Windows
UNIX/Mainframe ☐

Timescale
Resolution

In-House ☐
Third Party ☒

6. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

7. Comments

Contact

Location

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Water Resources Planning. WRM helps evaluate capability of existing and proposed WR Development toward meeting target levels of service for consumption given existing and forecast demands against known hydrologic performance.

Users:

3. Additional Information

Frequency

Routine ☐
Periodic ☐
Occasionally ☐

Development

None ☐
Arguing revision ☐
Being revised ☐
Under development ☐

License

Licensed ☐
If so, number ☐
Free ☐

4. General Assessment

Media

Air ☐
Land ☐
Water ☒
Waste ☐

Function

Water Quality ☐
Water Resources ☒
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☒
Criteria ☐
Assessment ☒
Deterministic ☒
Stochastic ☐
Risk Assessment ☒
Risk Management ☐

Purpose

Regulation ☐
Operational ☐
Planning ☒
Prioritising ☐

5. Further Assessment

Coverage

Site Specific ☐
Catchment ☐
Regional ☒
National ☐
Timescale ☐
Resolution ☐

Type

Procedural ☐
Mathematical ☒
Statistical ☐
Chemical ☐
Physical ☐
Biological ☐
Radioactivity ☐

System Base

Paper ☐
PC - DOS ☐
PC - Windows ☐
UNIX/Mainframe ☒
In-House ☒
Third Party ☐

6. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

7. Comments

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

To generate sequences of possible future river flows for different rainfall scenarios used in conjunction with the Thames WR model (for reservoirs). River Flows + reservoirs = Drought Management Model.

Users:

3. Additional Information

Frequency

Routine
Periodic
Occasionally

Development

None
Arguing revision
Being revised
Under development

License

Licensed
If so, number
Free

4. General Assessment

Media

Air
Land
Water ☒
Waste

Function

Water Quality
Water Resources ☒
Flood Defence
Fisheries
Rec & Nav
Conservation
PIR
Radioactivity
Waste Policy
Land Quality

Risk Assessment

Qualitative
Semi-Quantitative
Quantitative ☒
Criteria
Assessment ☒
Deterministic ☒
Stochastic
Risk Assessment ☒
Risk Management

Purpose

Regulation
Operational
Planning ☒
Prioritising

5. Further Assessment

Coverage

Site Specific ☒
Catchment ☒
Regional
National

Type

Procedural
Mathematical ☒
Statistical
Chemical
Physical ☒
Biological
Radioactivity

System Base

Paper
PC - DOS
PC - Windows
UNIX/Mainframe ☒

Timescale
Resolution

In-House ☒
Third Party

6. Links to Standards, Targets and Databases (Cross-reference)

Standards

Databases

7. Comments

May be calibrated for any river site where real flow data is available.

Contact

Location:

Tel:

Environment Agency

Register of Risk Assessment Tools: Part 1 - Models and Procedures

1. Title

Form Ref

2. Model Purpose

Acronym

Operational planning and management of water resources. Provides a broad assessment of risk of resource/supply failure given statistical likelihood of different rainfall scenarios given actual reservoir storage, and run off at that time.

Users:

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Frequency

Routine

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Environment Agency**Register of Risk Assessment Tools: Part 1 - Models and Procedures**1. Title Form Ref

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Acronym

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Air ☐Land ☐Water ☒Waste ☐

Function

Water Quality ☐Water Resources ☒Flood Defence ☐Fisheries ☐Rec & Nav ☐Conservation ☐PIR ☐Radioactivity ☐Waste Policy ☐Land Quality ☐

Risk Assessment

Qualitative ☐Semi-Quantitative ☐Quantitative ☒Criteria ☐Assessment ☐Deterministic ☒Stochastic ☐Risk Assessment ☒Risk Management ☐

5. Further Assessment

Coverage

Site Specific ☐Catchment ☒Regional ☒National ☒

Type

Procedural ☒Mathematical ☒Statistical ☒Chemical ☐Physical ☒Biological ☐Radioactivity ☐

System Base

Paper ☐PC - DOS ☐PC - Windows ☒UNIX/Mainframe ☐In-House ☐Third Party ☐

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Being revised ☐
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4. General Assessment

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Air ☐
Land ☐
Water ☒
Waste ☐

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Water Resources ☒
Flood Defence ☐
Fisheries ☐
Rec & Nav ☐
Conservation ☐
PIR ☐
Radioactivity ☐
Waste Policy ☐
Land Quality ☐

Risk Assessment

Qualitative ☐
Semi-Quantitative ☐
Quantitative ☒
Criteria ☐
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Risk Assessment ☒
Risk Management ☒

Purpose

Regulation ☐
Operational ☒
Planning ☒
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Statistical ☒
Chemical ☐
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Biological ☐
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System Base

Paper ☐
PC - DOS ☐
PC - Windows ☒
UNIX/Mainframe ☐

Timescale ☐
Resolution ☐

In-House ☐
Third Party ☒

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