

RIVER IRWELL CATCHMENT MANAGEMENT PLAN WATER QUALITY SUPPLEMENT



NRA

*National Rivers Authority
North West Region*

*Guardians of
the Water Environment*



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INTRODUCTION

The introduction of the new water quality classification schemes: General Quality Assessment (GQA) and Water Quality Objectives (WQO's) meant that the issues identified within the original Irwell CMP required interpretation and translation according to the way in which they now fit into the new water quality classification schemes. This report outlines both the proposed WQO's and the current GQA on the Irwell.

The European Community (EC) Directive requirements, as outlined within the original Consultation Report, remain as previously stated.

The issues referred to within this report have been kept consistent with the Consultation Report so that reference can be made between the two documents, however, there are some additional issues arising from the application of the new water quality classification schemes.

The following outlines the process used and the classifications determined, along with the issues and options for resolution of water quality problems, specifically related to the new classification schemes.

WATER QUALITY

Proposed Water Quality Objectives and General Quality Assessment.

The NRA uses two principal schemes for the reporting and management of river water quality: the general quality assessment (GQA) scheme; and the proposed water quality objectives (WQO's) scheme. These schemes have replaced the water quality classification system used previously by the NRA (the NWC classification).

The GQA scheme is used to make periodic assessments of quality of river water in order to monitor geographical and temporal trends. The scheme comprises four components - general chemistry, nutrients, aesthetics and biology - each providing a discrete "window" upon the quality of river stretches. The general chemistry component of the GQA is in current use, and comprises six tiered grades defined by standards for Dissolved Oxygen, BOD, and Total Ammonia. The remaining three windows are still under development and will be applied when available.

GQA CHEMICAL GRADING FOR RIVERS AND CANALS

WATER QUALITY	GRADE	DISSOLVED OXYGEN (%) 10-PERCENTILE	BOD (MG/L) 90-PERCENTILE	AMMONIA (MG/L AS N) 90-PERCENTILE
GOOD	A	80	2.5	0.25
GOOD	B	70	4	0.6
FAIR	C	60	6	1.3
FAIR	D	50	8	2.5
POOR	E	20	15	9.0
BAD	F	-	-	-

The WQO scheme establishes clear quality targets to a commonly agreed planning framework for regulatory bodies and dischargers alike. The proposed WQO scheme is based upon the recognised uses to which a river system may be put. These uses include: River Ecosystem; Special Ecosystem; Abstraction for Potable Supply; Agricultural / Industrial Abstraction and Watersports. The standards defining the five tiered River Ecosystem (RE) use classes, which address the chemical quality requirements of different types of aquatic ecosystems, were introduced by *The Surface Waters (River Ecosystem) (Classification) Regulations 1994*. Standards for further uses are still under development. For each stretch of river, a target RE class will be assigned, including a date by which this level of water quality should be achieved. Until WQO's are formally established by legal Notice served by the Secretary of State and, therefore, exist on a statutory basis, they will be applied on a non statutory basis through a translation of River Quality Objectives (RQO's) from NWC classes to appropriate RE classes and target dates.

GENERAL QUALITY ASSESSMENT 1993

UPPER IRWELL

The Upper Irwell and its major tributaries are classified with regard to water quality. The Authority's comprehensive monitoring programme indicates that significant lengths of the catchment are polluted and of poor aesthetic appearance.

RIVER ROCH

The comprehensive monitoring programme indicates that significant lengths of the catchment are of good or fair quality.

RIVER CROAL

The comprehensive monitoring programme indicates that much of the Croal catchment is of good or fair quality water.

RIVER IRK

The River Irk and its major tributaries are classified with regard to water quality. The comprehensive monitoring programme indicates that significant lengths of the catchment are polluted and of poor aesthetic appearance.

RIVER MEDLOCK

The monitoring programme indicates that most of the catchment is of poor quality.

LOWER IRWELL

The Lower Irwell and its major tributaries are classified with regard to water quality. The comprehensive monitoring programme indicates that significant lengths of the catchment are polluted and of poor aesthetic appearance.

OBJECTIVES

The NRA North West Region has been working towards the achievement of the long term objective target classes known as River Quality Objectives (RQO's) inherited from the former North West Water Authority but with slight amendments detailed below.

The original River Quality Objectives formulated in 1979, following a public consultation procedure, related to National Water Council (NWC) classes, which were based on a limited number of chemical criteria including Biochemical Oxygen Demand, Dissolved Oxygen and Ammonia, with due recognition of the results of biological monitoring. Rivers were ranked in order of decreasing water quality as 1A, 1B, 2, 3, 4 and X according to the results of routine chemical and biological monitoring. Waters within class 1A or 1B were of sufficiently high water quality to support game or other types of fisheries whilst class 2 waters were capable of supporting coarse fisheries, provided that physical factors and flow conditions were suitable.

However, following recent direction from the Department of the Environment, such targets have now been changed to reflect the Use related Water Quality Objective. As such a lateral translation of the previous River Quality Objective has been required into new Water Quality Objectives.

The new Use related Water Quality Objective has resulted in a translation of the old RQO's into new WQO's, expressed in terms of a River Ecosystem class, broadly along the following lines:

PREVIOUS NWC RIVER QUALITY OBJECTIVE	PROPOSED RIVER ECOSYSTEM WATER QUALITY OBJECTIVE
1A	River Ecosystem class 1
1B	River Ecosystem class 2
2	River Ecosystem class 3 or 4
3	River Ecosystem class 5
4	-

With the new Water Quality Objective, any RQO which was previously NWC class 2, is actually translated to WQO class 4, i.e. the class which is deemed to be the most easily attainable. This assumes that the current water quality is not actually better than that class, and that such a target class does not incur additional expenditure by the Water Companies, other than that which would have been required to achieve the RQO.

Where the previous RQO was NWC class 2, and the current water quality is of chemical quality consistent with the upper half of such a class, or where investment has already been put in place to improve water quality, the RQO should be translated into a new WQO of class 3.

The new Water Quality Objectives were established by firstly translating the old NWC objectives into the new WQO, and also by calculating the current chemical water quality. From this the translated objective, and the calculated objective were compared.

Three scenarios essentially exist:

1. The calculated objective, and the neutrally translated objective are the same. Under such circumstances the new Water Quality Objective is set at the level calculated, and dated.

2. The calculated objective is actually better than the neutrally translated objective. The new Water Quality Objective is subsequently set at the new, better, calculated quality level, and dated.
3. The calculated quality is worse than the neutral translation. Under such circumstances the river stretch in question is examined to see as to whether any investment is planned in the short to medium term, which would allow the quality to improve. If expenditure is planned, and committed, for example, under provisions such as NWW Asset Management Plan2 (AMP2), or a programmed farm campaign, etc. then the new Water Quality Objective is set at the neutral translation, however, with a target date which reflects when the water quality would have benefited from the committed investment.

However, if no expenditure is planned within the reach then the Water Quality Objective has to be set at the calculated level, and dated. Many such reaches may have issues, however, they must be raised as "Long Term Water Quality Issues," as they have no committed expenditure planned for their resolution within the short to medium term timescale, as such it is acceptable to retain the neutrally translated objective as a long term objective.

The way in which the classification exercise is carried out has changed to a system which bases the class of a watercourse on the use to which any particular stretch of water is utilised for. To date only the Rivers Ecosystem Classification system specifying the requirements for different use types has been fully developed. The regulations defining the system received legal status on the 10th May 1994.

Therefore, until further use related systems are developed the classification system will be based on the River Ecosystem Use Classification scheme.

The River Ecosystem Use Classification is based only on a series of chemical criteria. Those criteria being: Biochemical Oxygen Demand; Dissolved Oxygen; Ammonia; Un-ionised Ammonia; pH; Dissolved Copper; Total Zinc and Hardness.

Rivers are ranked in order of decreasing water quality as 1, 2, 3, 4, 5 and of No class, according to the results of routine chemical monitoring. Waters within class 1 or 2 are of sufficiently high water quality to support all fish species; whilst class 3 are suitable for high class coarse fish populations; class 4 waters are suitable for coarse fish populations; class 5 waters are likely to limit coarse fish populations and reaches which have No class are ones in which fish are unlikely to be present, or insufficient data is available to classify water quality.

Classification systems for other uses are likely to follow.

RIVER ECOSYSTEM CLASSIFICATION : WATER QUALITY CRITERIA

CLASS	DISSOLVED OXYGEN (%) 10-PERCENTILE	BOD (MG/L) 90-PERCENTILE	AMMONIA (MG/L as N) 90-PERCENTILE	UN-IONISED AMMONIA (MG/L as N) 95-PERCENTILE	pH LOWER LIMIT as 5 PERCENTILE; UPPER as 95-PERCENTILE	HARDNESS (MG/L Ca CO ₃)	DISSOLVED COPPER UG/L 95-PERCENTILE	TOTAL ZINC UG/L 95-PERCENTILE
RE1	80	2.5	0.25	0.021	6 - 9	<10 >10 and <50 >50 and <100 >100	5 22 40 112	30 200 300 500
RE2	70	4	0.6	0.021	6 - 9	<10 >10 and <50 >50 and <100 >100	5 22 40 112	30 200 300 500
RE3	60	6	1.3	0.021	6 - 9	<10 >10 and <50 >50 and <100 >100	5 22 40 112	300 700 1000 2000
RE4	50	8	2.5	-	6 - 9	<10 >10 and <50 >50 and <100 >100	5 22 40 112	300 700 1000 2000
RE5	20	15	9.0	-	-	-	-	-

STATE OF THE CATCHMENT

The routine chemical and biological sampling programme of the NRA is used to assess compliance with the targets set.

Water Quality Classification

Having set Water Quality Objectives (previously the NWC long term objectives) it is possible to assess the state of the catchment against these targets. Data from routine chemical monitoring has been used to facilitate this comparison.

The following tables indicate the current state of individual reaches under consideration. The reasons for failures are raised as issues within the context of this Plan.

**ASSESSMENT OF WATER QUALITY OBJECTIVE, RIVER ECOSYSTEM CLASS
AND GENERAL QUALITY ASSESSMENT BY STRETCH**

UPPER IRWELL SUB-CATCHMENT

RIVER	STRETCH	LENGTH	NWC TRANSLATED OBJECTIVE	RIVER ECOSYSTEM OBJECTIVE	LONG TERM OBJECTIVE	CMP ISSUE	LONG TERM ISSUE	GQA CLASS 93
ELTON BROOK	QSL AT DOW LANE TO IRWELL	1.9	4	RE3, 1995	RE3	Y	N	C
OGDEN	QSL HOLDEN WOOD RES.OUTLET TO SWINNEL BK	0.4	2	RE2, 1995	RE2	N	N	A
COWPE BK.	QSL AT HIGHER BOARSGREAVE TO IRWELL	1.4	2	RE2, 1995	RE2	Y	N	B
LIMY WATER	LOVECLOUGH TO IRWELL	5.1	4	RE2, 1995	RE2	N	N	B
KIRKLEES BK	OLIVES PAPER MILL TO IRWELL	0.7	4	RE3, 1995	RE3	N	N	C
SWINNEL BK	QSL AT HUD HEY ROAD TO OGDEN	2.7	4	RE4, 1995	RE4	N	N	D
KIRKLEES BK	QSL AT BROOKHOUSE BRIDGE TO OLIVES PAPER	3.8	2	RE2, 1995	RE2	N	N	B
HOLCOMBE BK.	QSL AT REDISHER CLOSE TO IRWELL	1.3	2	RE2, 1995	RE2	N	N	B
DEARDEN BK.	QSL AT SCOUT MOOR RES. TO IRWELL	4.2	2	RE2, 1995	RE2	N	N	A
OGDEN	SWINNEL BK. TO IRWELL	2.8	2	RE3, 1995	RE2	N	Y	C
IRWELL	WHITEWELL BK. TO ROSSENDALE STW	6.4	4	RE4, 1995	RE4	N	N	B
IRWELL	ROSSENDALE STW TO CHEST WHEEL BRIDGE	9.2	4	RE4, 1995	RE3	Y	Y	C
IRWELL	CHEST WHEEL BRIDGE TO ROCH	10.3	4	RE4, 1995	RE3	N	Y	C
WHITEWELL BK.	SHAWCLOUGH BK. TO IRWELL	1.6	1	RE3, 1995	RE1	N	Y	C
WHITEWELL BK.	QSL CLOUGH BOTTOM TO SHAWCLOUGH BK.	4.4	1	RE3, 1995	RE1	N	Y	C
LIMY WATER	QSL AT CLOW BRIDGE TO LOVECLOUGH	2.2	1	RE2, 1995	RE2	N	N	B
PIGS LEE BK.	QSL AT A56 TO IRWELL	0.9	2	RE5, 1995	RE4	N	Y	E
IRWELL	QSL AT DEERPLAY TO WHITEWELL BK.	8.7	4	RE3, 1995	RE2	N	Y	B

QSL: QUALITY SURVEY LIMIT

UPPER IRWELL SUB-CATCHMENT

CURRENT ISSUES

ISSUES WHICH WILL BE ADDRESSED WITHIN THE TIMESCALE OF THE PLAN:

ISSUE SCW2(CW19) - WIDESPREAD AESTHETIC DETERIORATION DUE TO OCHRE

Many generally localised stretches of watercourse exhibit a characteristic orange bed discolouration. This arises from iron based solids which can be released in mine water and run-off from other areas of disturbed land, for example, waste tips and spoil tips. It can also occur from natural land drainage.

ISSUE SS3 COWPE BROOK - HIGHER BOARSGREAVE TO THE RIVER IRWELL

This stretch is very significantly affected by run off, from the Kearns of Waterfoot Limited site where there are major problems with the leakage of trade effluent. The trade effluent contains high levels of permethrin which is a moth-proofer used by Kearns.

ISSUE SS12 RIVER IRWELL - DOWNSTREAM OF ROSSENDALE STW

More data needs to be collected to confirm and fully assess the situation. The source of permethrin is in trade effluents persisting through treatment at Rossendale STW.

ISSUE SS31 ELTON BROOK - DOW LANE TO THE RIVER IRWELL

This stretch is impacted upon by as yet undefined sources entering in culverted sections. There is also an unsatisfactory organic impact caused as a consequence of Curtain Styling Ltd. septic tank currently discharging directly to this stretch.

UPPER IRWELL SUB-CATCHMENT

ISSUES WHICH WILL BE ADDRESSED WITHIN THE TIMESCALE OF THE PLAN:

ISSUE NO: SCW2 (CW19)			
Widespread aesthetic deterioration in the Catchment due to ochre.			
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in impact of ochreous run-off from spoil tips, waste tips and apparently natural sources.	NRA to pursue means of run-off control or site/ watercourse treatment.	Improvement to aesthetic and amenity value.	Difficult to establish liability/funding with high risk of failure.

ISSUE NO: SS3	COWPE BROOK - Higher Boarsgreave to the River Irwell Failure to achieve the present water quality classification objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigate the elimination of the loss of permethrin from the Kearns of Waterfoot Ltd. site.	NRA to continue enforcement action. Kearns of Waterfoot Ltd. to continue remedial works to eliminate loss.	Achievement of present water quality classification objective.	Cost to Kearns of Waterfoot Ltd. and possibly customers.

Achievement of the present water quality classification objective for Cowpe Brook has additional benefits for the downstream reach of the River Irwell. The relevant reach of the River Irwell is considered under Issue SS5.

ISSUE NO: SS12	RIVER IRWELL - downstream of Rossendale STW Indications of exceedences of the Environmental Quality Standard for an E.C. List II Dangerous Substance (Permethrin)		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Collection of more data with analysis to the appropriate limit of detection in order to fully assess the exceedence.	NRA	Full understanding and demonstration of the exceedence.	
2. Investigate and negotiate the reduction in the permethrin load from Rossendale STW.	NRA to enforce reduction. NWW Ltd. to pursue control of trade effluent permethrin load from Kearns of Waterfoot Ltd. or provide treatment at STW.	Compliance with Environmental Quality Standard.	Cost to NWW Ltd. and/or Kearns of Waterfoot Ltd. and possibly customers.

EC - European Community

STW - Sewage Treatment Works

Compliance with the EC List II Dangerous Substances Environmental Quality Standard has additional advantage for achievement of the present water quality classification objective for the classified reach of the River Irwell downstream of Rossendale STW. The relevant reach is considered under Issue SS11.

ISSUE NO: SS31	ELTON BROOK - Dow Lane to the River Irwell Failure to achieve the present water quality classification objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
Combination of the following: 1. Investigate the reduction in organic load from as yet not fully defined sources entering in the culverted section. 2. Investigate and eliminate the organic load from Curtain Styling Ltd. septic tank.	NRA to pursue investigation.	Achievement of the present water quality classification objective.	Cost to liable parties. Cost to Curtain Styling Ltd./ householders of connected properties.
	NRA/liable parties to undertake investigations.	Improvement to the aesthetic and amenity value and fishery potential.	
	Liable parties to undertake remedial measures as required.		
	NRA/ Metropolitan Borough of Bury Environmental Health Department to enforce elimination of unsatisfactory discharge.	Achievement of present water quality classification objective. Improvement to the aesthetic and amenity value and fishery potential.	

UPPER IRWELL SUB-CATCHMENT

LONG TERM ISSUES

ISSUES WHICH WILL REQUIRE RESOLUTION TO ACHIEVE THE LONG TERM WATER QUALITY OBJECTIVES:

Issue SS5 River Irwell - Deerplay to Whitewell Brook

This reach is seriously affected by contaminated run-off and mine waters from Old Meadows and Deerplay Collieries, which are highly ochreous and acidic in nature. Also there are several CSO's which have a moderate level of impact during periods of wet weather, resulting in organic inputs being discharged to this stretch. Cowpe Brook also affects the lower part of the reach.

Issue SS6 Whitewell Bk - Clough Bottom to Shawclough Brook

The failure to achieve the proposed long term water quality objective for this reach has been attributed to the organic input discharged via numerous unsatisfactory sewer overflows.

Issue SS7 Whitewell Bk - Shawclough Brook to the River Irwell

The failure to achieve the proposed long term water quality objective for this reach has been attributed to the organic input discharged via numerous unsatisfactory sewer overflows. The water flowing into this stretch from upstream is felt to be impacting upon this stretch significantly.

Issue SS11 River Irwell - Rossendale STW to Chest Wheel Bridge

The final effluent, and the storm tank discharges from Rossendale STW both have a high impact on the River Irwell within this stretch, with significant levels of permethrin and colour being recorded. It is perceived that the organic load from this same source may also contribute to the failure to achieve the objective.

Issue SS13 River Irwell - downstream of Rossendale STW

There have been significant reductions in colour levels but the current situation may still be unacceptable. The source of the colour is from trade effluents persisting through treatment at Rossendale STW.

Issue SS17 River Ogden - Swinnel Brook to the River Irwell

The main reason for the failure to meet the water quality objective within this stretch is the input, from Swinnel Brook, with industrial and domestic mis-connections being recorded to the Bridge End Tributary which is a minor tributary feeding into this stretch.

Issue SS20 River Irwell - Chest Wheel Bridge to the River Roch confluence

Sewage effluent is a significant reason for this stretch not meeting its water quality objective, with discharges from Rossendale STW upstream and Bury STW at the bottom of the stretch generating significant organic loads. As well as the treated and storm effluents from both Rossendale and Bury works there is also a moderate impact upon the water quality experienced as a result of the controlling overflow at Bury works operating during wet weather conditions which causes a deterioration in water quality. There is also an, as yet, not fully identified influence on the invertebrate fauna.

ISSUE SS26 Pigs Lee Brook - A56 to the River Irwell

The main reason for the failure of this stretch to meet the water quality objective class has been contaminated site drainage from the Tetrosyl Limited site. There have been improvements recently. Also organic inputs from an unsatisfactory sewer overflows off Walmersley Road impact upon the stretch.

ISSUE SS34 River Irwell - River Roch Confluence to the River Croal Confluence

The failure to achieve the present water quality objective for this reach has been directly attributable to the organic input discharged via numerous unsatisfactory sewer overflows, in the Radcliffe area and the effect of the upstream River Irwell and River Roch Sub-Catchment. There is a suspicion of impact from Tower Farm Tip Site.

UPPER IRWELL SUB-CATCHMENT

ISSUES WHICH WILL REQUIRE RESOLUTION TO ACHIEVE THE LONG TERM WATER QUALITY OBJECTIVES:

ISSUE NO: SS5		RIVER IRWELL - Deerplay to Whitewell Brook Failure to achieve the proposed long term water quality objective for the classified reach.	
OPTIONS	Responsibility	Advantages	Disadvantages
Combination of the following: 1. Reduction in the impact of ochreous discharges from previous mining operations at Old Meadows and Deerplay. 2. Reduction in organic and debris load from unsatisfactory sewer overflows.	NRA to pursue means of run-off control or site/ watercourse treatment. As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Achievement of proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential. Achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential.	Difficulties in establishing liability/ funding. Cost to NWW Ltd. and possibly customers.

EC--European Community

Achievement of the proposed long term water quality objective will also require improvements in the quality of Cowpe Brook flowing into this reach. Cowpe Brook is dealt with under Issue SS3.

ISSUE NO: SS6	WHITEWELL BROOK - Clough Bottom to Shawclough Brook Failure to achieve the proposed long term water quality objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in organic and debris load from unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Contribution to achievement of proposed long term water quality objective. Improvement to aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers.

EC - European Community

Achievement of the proposed long term water quality objective has additional advantages for the downstream reach of Whitewell Brook. This is considered under Issue SS7.

ISSUE NO: SS7	WHITEWELL BROOK - Shawclough Brook to the River Irwell Failure to achieve the proposed long term water quality objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the organic and debris load from unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Contribution to the achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers.

EC - European Community

ISSUE NO: SS11		RIVER IRWELL - Rossendale STW to Chest Wheel Bridge Failure to achieve the proposed long term water quality objective for the classified reach.	
OPTIONS	Responsibility	Advantages	Disadvantages
Combination of the following:			
1. Reduction in permethrin load from Rossendale STW.	NRA to monitor water quality and enforce reduction.	Achievement of proposed long term water quality objective.	
	NWW Ltd. to pursue control of trade effluent permethrin load from Kearns of Waterfoot Ltd. or provide treatment at STW.		Cost to NWW Ltd. and/or Kearns of Waterfoot Ltd. and possibly customers.
2. Evaluation of requirement for reduction in organic load from Rossendale STW and reduction as appropriate.	NRA to undertake evaluation and promote within other regulatory influences capital expenditure by NWW Ltd. if required.	Achievement of proposed long term water quality objective. Improvement to aesthetic and amenity value and fishery potential.	
	NWW Ltd. to undertake capital works if required.		Possible cost to NWW Ltd. and customers.

STW - Sewage Treatment Works

Contribution to achievement of the proposed long term water quality objective by Option 1 has additional advantages in compliance with the EC List II Dangerous Substances Environmental Quality Standard for permethrin as considered under Issue SS12.

ISSUE NO: SS13		RIVER IRWELL - downstream of Rossendale STW Aesthetic deterioration due to colour.	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Re-evaluation of colour following reductions in colour load from Rossendale STW and possible further reductions.	NRA to monitor and assess colour and promote reductions in load as appropriate.	Possible further improvement in aesthetic value.	
	NWW Ltd. to achieve colour reductions as appropriate.		Cost to NWW Ltd./ trade effluent dischargers and possibly customers.

ISSUE NO: SS17		RIVER OGDEN - Swinnel Brook to the River Irwell Failure to achieve the present water quality classification objective for the classified reach.	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Elimination of domestic and industrial wrong connections to the Bridge End Tributary.	NRA to pursue investigation/enforcement work.	Achievement of proposed long term water quality objective.	Cost to NWW Ltd./Borough of Rossendale Council Cost to NWW Ltd./ industrial unit owners/ householders.
	NWW Ltd./Borough of Rossendale to undertake investigation/enforcement work.	Improvement to the aesthetic and amenity value and fishery potential.	
	NWW Ltd./ industrial unit owners/ householders to undertake remedial works.		

Achievement of the proposed long term water quality objective will also require improvements in the quality of Swinnel Brook flowing into this reach. Swinnel Brook is dealt with under Issue SS14.

ISSUE NO: SS20		RIVER IRWELL - Chest Wheel Bridge to the River Roch Confluence Failure to achieve the proposed long term water quality objective for the classified reach.	
OPTIONS	Responsibility	Advantages	Disadvantages
Combination of the following:			
1. Reduction in the impact of an, as yet, not fully identified influence on the benthic fauna.	NRA to undertake investigations into the source and pursue appropriate remedial measures.	Achievement of the proposed long term water quality objective. Improvement to the fishery potential.	Cost to liable parties.
2. Reduction in the organic load from Bury STW.	NRA to review consent conditions and promote within other regulatory influences capital expenditure by NWW Ltd. NWW Ltd. to undertake capital works.	Achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential.	

STW - Sewage Treatment Works

Achieving the proposed long term water quality objective for this reach has additional benefits for the downstream classified reach of the River Irwell. The downstream reach is considered in Issue SS34.

ISSUE NO: SS26		PIGS LEE BROOK - A56 to the River Irwell Failure to achieve the proposed long term water quality objective for the classified reach.	
OPTIONS	Responsibility	Advantages	Disadvantages
Combination of the following:			
1. Sustained and further improvement in the quality of the site drainage discharge from the Tetrosyl Ltd. site.	NRA to continue to monitor water quality. HMIP to under- take necessary enforcement action.	Achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to Tetrosyl Ltd.
2. Reduction in the organic load from the unsatisfactory sewer overflow off Walmersley Road.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree the improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.		Cost to NWW Ltd. and possibly customers.

EC - European Community

HMIP - Her Majesty's Inspectorate of Pollution

ISSUE NO: SS34	RIVER IRWELL - River Roch confluence to the River Croal confluence Failure to achieve the present water quality classification objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the organic and debris load from unsatisfactory sewer overflows in Radcliffe. 2. Evaluation of the possible pollution impact of Tower Farm Tip site.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works. NRA to undertake investigations.	Achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential. Fuller understanding of possible contributory factor.	Cost to NWW Ltd. and possibly customers.

EC - European Community

Achievement of the proposed long term water quality objective will also require improvements in the Roch sub-catchment and upstream reach of the River Irwell. The River Roch sub-catchment is considered in Chapter 3. The upstream reach is dealt with under Issue SS20 of this chapter.

**ASSESSMENT OF WATER QUALITY OBJECTIVE, RIVER ECOSYSTEM CLASS
AND GENERAL QUALITY ASSESSMENT BY STRETCH**

RIVER ROCH SUB-CATCHMENT

RIVER	STRETCH	LENGTH	NWC TRANSLATED OBJECTIVE	RIVER ECOSYSTEM OBJECTIVE	LONG TERM OBJECTIVE	CMP ISSUE	LONG TERM ISSUE	GQA CLASS 93
Roch	Rochdale STW to R Irwell	15.2	4	RE5,1998	RE4	N	Y	F
Roch	Stanney Bk to Rochdale STW	4.5	4	RE4,1995	RE4	Y	N	D
Roch	R Beal to Stanney Bk	1.3	3	RE3,1995	RE3	N	N	B
Roch	AKZO Chemie site to R Beal	2.5	2	RE2,1995	RE2	N	N	B
Roch	Summit to AKZO Chemi	3.3	2	RE2,1995	RE2	N	N	B
Roch	QSL Chelburn Res.to Summit	1.5	2	RE5,1995	RE2	N	Y	C
Whittle Brook	QSL Birch Services Trib. to R Roch	4.9	3	RE5,1995	RE3	N	Y	C
Naden Brook	Cheesden Bk to Roch	0.4	3	RE3,1995	RE3	N	N	C
Naden Brook	QSL Doctor Dam to Cheesden Bk	3.5	2	RE5,1995	RE2	Y	N	E
Cheesden Bk	QSL Deepley Vale to Naden Bk	5.1	1	RE2,1995	RE2	N	N	B
Oldhouse Bk	QSL Ashworth Moor Resr.to Naden Bk	3.2	1	RE2,1995	RE2	N	N	B
Millers Brook	QSL Roëacre Lodge to Roch	1.3	3	RE3,1995	RE3	N	N	C
Sudden Brook	QSL at Balderstone to Roch	4	3	RE3,1995	RE3	N	N	C
River Spodden	QSL Facit Station to Roch	7.5	2	RE5,1995	RE2	N	Y	E
Cowm Brook	QSL Cowm Resvr. to R Spodden	1.7	3	RE2,1995	RE2	N	N	B
Hey Brook	QSL Buckley Resvr. to Roch	3	2	RE2,1995	RE2	N	N	B
Stanney Bk	QSL at Newbold to Roch	1	4	RE5,1995	RE4	N	Y	C
R Beal	Piethorn Bk to Roch	5.2	2	RE2,1995	RE2	N	N	B
R Beal	QSL at Royton Sidings to Piethorn Bk	6.1	2	RE2,1995	RE2	N	N	B
Piethorn Bk	Ogden Resvr. to R Beal	2	2	RE2,1995	RE2	N	N	B
Piethorn Bk	QSL Head Piethorn Resvr. to Ogden Res	2	1	RE4,1995	RE2	N	Y	D
Ash Brook	Wardle to R Roch	2	2	RE2,1995	RE2	N	N	B
Ealess Brook	Rochdale Canal to R Roch	0.1	2	RE2,1995	RE2	N	Y	A
Ealees Brook	QSL at Owlet Hall to Rochdale Canal	1.6	2	RE2,1995	RE2	N	N	B
Lydgate Bk	Ochre Stream to R Roch	0.2		Monitoring	for iron levels only		Y	
Lydgate Bk	QSL at Lydgate Mill to Ochre Stream	1.9	2	RE2,1995	RE2	N	N	B

QSL : QUALITY SURVEY LIMIT

STW : SEWAGE TREATMENT WORKS

RIVER ROCH SUB-CATCHMENT

CURRENT ISSUES

ISSUES WHICH WILL BE ADDRESSED WITHIN THE TIMESCALE OF THE PLAN:

ISSUE SCW2(CW19) - WIDESPREAD AESTHETIC DETERIORATION DUE TO OCHRE

Many generally localised stretches of watercourse exhibit a characteristic orange bed discolouration. This arises from iron based solids which can be released in minewater and run-off from other areas of disturbed land, for example, waste tips and spoil tips. It can also occur from natural land drainage.

ISSUE SS23 RIVER ROCH - DOWNSTREAM OF STANNEY BROOK

Exceedence of EC List II Dangerous Substance EQS for copper. Contaminated land at the Makin Metal Powders Ltd. site has resulted in copper being released to Stanney Brook.

ISSUE SS34 COWM RESERVOIR AND COWM BROOK

Aesthetic deterioration due to discolouration arising from fine solids. This has been caused as a result of the poor quality of the discharge produced by Bardon Roadstone from their quarry.

NEW ISSUE NADEN BROOK - DOCTOR DAM TO CHEESDEN BROOK

An incident occurred on Naden Brook that was identified during sampling. High results for pH and Biochemical Oxygen Demand were recorded. This is the only record of abnormal results in several years data and caused the stretch to fail its proposed water quality objective.

RIVER ROCH SUB-CATCHMENT

ISSUES WHICH WILL BE ADDRESSED WITHIN THE TIMESCALE OF THE PLAN:

ISSUE NO: SCW2 (CW19)	Widespread aesthetic deterioration due to ochre		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in impact of ochreous run-off from spoil tips, waste tips and apparently natural sources.	NRA to pursue means of run-off control or site/ watercourse treatment.	Improvement to aesthetic and amenity value.	Difficult to establish liability/funding with high risk of failure.

ISSUE NO: SS23	RIVER ROCH - downstream of Stanney Brook Exceedence of EC List II Dangerous Substances Environmental Quality Standard for copper.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigate and negotiate the reduction in release of copper from Makin Metal Powders Ltd. contaminated land area.	NRA to monitor and enforce. Makin Metal Powders Ltd. to undertake remedial measures.	Compliance with EQS in the River Roch.	Cost to Makin Metal Powders Ltd. and possibly customers.

EC - European Community

EQS - Environmental Quality Standard

There are additional benefits of reduction of copper levels below the EQS for the present water quality classification of both Stanney Brook and the classified reach of the River Roch that it flows into.

Stanney Brook water quality classification is considered under Issue SS28 and the relevant reach of the River Roch under Issue SS22.

ISSUE NO: SS34	COWM RESERVOIR and COWM BROOK Periodic aesthetic deterioration due to discolouration arising from fine solids.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Enforce consistent quality of Bardon Roadstone quarry discharge.	NRA to continue to monitor water quality and enforce improvement. Bardon Roadstone to undertake operational and drainage measures.	Improvement to aesthetic and amenity value.	Possible cost to Bardon Roadstone.

NEW ISSUE	NADEN BROOK - Doctor Dam to Cheesden Brook Failure to achieve the proposed water quality classification objective.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigate possible pollution source and if appropriate instigate remedial work. The failure was due to an abnormal sample, future data may reveal no further abnormalities.	NRA to investigate Responsible parties to undertake remedial action.	Possible achievement of long-term water quality objective.	Cost to responsible parties.

RIVER ROCH SUB-CATCHMENT

LONG TERM ISSUES

ISSUES WHICH WILL REQUIRE RESOLUTION TO ACHIEVE THE LONG TERM WATER QUALITY OBJECTIVES:

ISSUE SS1 RIVER ROCH - CHELBURN RESERVOIR TO SUMMIT

Failure to achieve the proposed long-term water quality objective for the reach as a result of natural acidic run-off entering the stretch.

ISSUE SS3 LYDGATE BK - OCHRE STREAM TO RIVER ROCH

High visual impact on this stretch due to the presence of ochre emanating from ochreous springs. The benthic fauna is restricted by ochreous material.

ISSUE SS4 EALEES BROOK - ROCHDALE CANAL CROSSING TO RIVER ROCH

High visual impact on this stretch due to the presence of ochre emanating from ochreous springs. The benthic fauna is restricted by ochreous material.

ISSUE SS17 PIETHORN BK - HEAD OF PIETHORN RESERVOIR TO OGDEN RESERVOIR

Failure to achieve proposed long-term water quality objective for the stretch is unknown. As yet, not fully identified pollution sources have contributed to the failure of this stretch to meet the objective class.

ISSUE SS28 STANNEY BROOK - NEWBOLD TO RIVER ROCH

Failure to achieve the proposed long-term water quality objective for the stretch. Contaminated land at the Makin Metal Powders Ltd. site is the source of copper that is being released to the watercourse, along with organic inputs discharging via unsatisfactory overflows result in the stretch failing its objective. Ochreous run-off has some localised impact on the visual appearance and possibly the invertebrate population of the reach.

ISSUE SS33 RIVER SPODDEN - FACIT STATION TO THE RIVER ROCH

Failure to achieve the long term water quality objective for the stretch. Sources of pollution included contamination from the sewerage system. Work has been undertaken by NWW Ltd. on the sewerage system and recent results from samples taken since the work was completed show improvements in the water quality.

ISSUE SS35 RIVER ROCH - ROCHDALE STW TO THE RIVER IRWELL

the failure to achieve the long term water quality objective for this stretch has been attributed to the impact of treated effluent from Rochdale WwTW, in particular in the levels of ammonia. The organic input from unsatisfactory sewer overflows is also perceived as being significant.

During 1994 work was undertaken by North West Water Ltd. to improve treatment and find the source of the high ammonia discharge to Rochdale treatment works. The ammonia levels have been reduced since the trader going to the works was identified and has now installed a new treatment process. Results of water samples taken during the latter part of 1994 show improvements in water quality.

ISSUE SS45 WHITTLE BROOK - BIRCH SERVICES TO RIVER ROCH

The failure to achieve the long term water quality objective for this stretch has been attributed to widespread aesthetic problems due to discharges from small sewage treatment plants, of which there are a large number in the catchment.

ISSUE SS48 PARR BROOK

Aesthetic deterioration due to sewage litter. Debris discharged via storm sewer overflows is visible on the bed and banks.

RIVER ROCH SUB-CATCHMENT

ISSUES WHICH WILL REQUIRE RESOLUTION TO ACHIEVE THE LONG TERM WATER QUALITY OBJECTIVES:

ISSUE NO: SS1	RIVER ROCH - Chelburn Reservoir Tributary to Summit Failure to achieve the long-term Water Quality objective for the classified reach		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigate the reduction of the impact of natural acidic run-off.	NRA to establish means and funding.	Achievement of water quality classification objective.	Likely high cost in establishing means and operating modification of natural system.

ISSUES NO: SS3	LYDGATE BROOK - Ochre stream to River Roch Aesthetic deterioration due to ochre		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigate the reduction in visual impact of ochreous springs and their restrictions on the benthic fauna.	NRA to investigate means and funding for reduction.	Improvement in aesthetic and amenity value.	Difficulty in establishing means of funding with a high risk of failure.

ISSUES NO: SS4	EALEES BROOK - Rochdale Canal to River Roch Aesthetic deterioration due to ochre		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigate the reduction in visual impact of ochreous springs and their restrictions on the benthic fauna.	NRA to investigate means and funding for reduction.	Improvement in aesthetic and amenity value.	Difficulty in establishing means of funding with a high risk of failure.

ISSUE NO: SS17		PIETHORN BROOK - Head of Piethorn Reservoir to Ogden reservoir Failure to achieve the long term water quality objective	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Full investigation and evaluation of pollution sources and appropriate remedial action. The failure to achieve the objective was revealed in 1992 with routine collection of further information.	NRA to undertake investigation Responsible parties to undertake remedial action.	Possible achievement of long-term water quality classification objective.	Cost to responsible parties.

ISSUE NO: SS28		STANNEY BROOK - Newbold to the River Roch Failure to achieve the proposed long-term water quality classification objective.	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the release of copper from contaminated land at Makin Metal Powders Ltd.	NRA to Monitor copper levels and enforce reductions Makin Metal Powders Ltd. to undertake remedial action.	Achievement of water quality objective. Improvement in aesthetic and amenity value and fishery potential.	Cost to Makin Metal Powders Ltd. and possibly customers
2. Reduction in organic load from unsatisfactory sewer overflows.	As required in EC Urban Wastewater Treatment Directive NRA/NWW Ltd. to agree improvements required for satisfactory performance NWW Ltd. to undertake capital works.	Achievement of water quality objective. Improvement in aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers.
3. Reduction in visual impact and possible influence on benthic fauna of ocherous springs.	NRA to establish means of funding for remedial measures.	Achievement of water quality objective. Improvement in aesthetic and amenity value and fishery potential.	Difficulty of establishing means and funding with high risk of failure.

ISSUE NO: SS33	RIVER SPODDEN - Facit Station to River Roch Failure to achieve the proposed water quality classification objective.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Evaluation of any improvement in water quality following the work that NWW Ltd. have undertaken on the sewerage system.	NRA	The long-term water quality classification objective may be achieved.	

ISSUE NO: SS35	RIVER ROCH - Rochdale STW to River Irwell Failure to achieve the long term water quality classification objective.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Evaluation of any improvement in water quality following the work that NWW Ltd. have undertaken on Rochdale STW and reduction in ammonia to the works from a trader.	NRA to assess the impact and review if any further improvements may be required in agreement with NWW Ltd.	The long-term water quality classification objective may be achieved.	Cost to NWW Ltd. and possibly customers
2. Evaluation of the impact of the organic and debris load from unsatisfactory sewer overflows.	NRA to assess the impact. NRA/NWW Ltd. to agree improvements if required to achieve satisfactory performance. NWW Ltd. undertake capital works.	Achievement of the long-term water quality classification objective. Improvement to the aesthetic and amenity value and fishery potential.	Possible cost to NWW Ltd. and customers

Achievement of the long-term water quality objective for this reach may also require improvements in the upstream reach and tributaries.

The achievement of the long-term water quality objective would have additional benefits for the River Irwell down-stream of their confluence.

ISSUE NO: SS45	WHITTLE BROOK - Birch Services to River Roch Failure to achieve the long term water quality classification objective.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Pursue improved performance of small sewage treatment plants.	NRA to monitor water quality and enforce discharge standards. Owners / operators to undertake appropriate regular maintenance.	Achievement of the proposed long term water quality objective.	Cost to plant owners / operators.

ISSUE NO: SS48	RIVER ROCH - Parr Brook Aesthetic deterioration due to sewage litter.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the debris load from unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers.

**ASSESSMENT OF WATER QUALITY OBJECTIVE, RIVER ECOSYSTEM CLASS
AND GENERAL QUALITY ASSESSMENT BY STRETCH**

RIVER CROAL SUB-CATCHMENT

RIVER	STRETCH	LENGTH	NWC TRANSLATED OBJECTIVE	RIVER ECOSYSTEM OBJECTIVE	LONG TERM OBJECTIVE	CMP ISSUE	LONG TERM ISSUE	GQA CLASS 93
Croal	Croal Minor to R Irwell	4.2	3	RE3,1995	RE3	N	N	C
Croal	Tonge/Bradshaw Bk confluence to Croal Minor	0.7	3	RE3,1995	RE3	N	N	B
Tonge	Astley Bk to Bradshaw Bk	3.9	3	RE3,2001	RE3	Y	N	D
Blackshaw Bk	Hall Lane Tip to Croal	0.6	3	RE3,1995	RE3	N	N	C
Blackshaw Bk	QSL at Red Bridge to Hall Lane Tip	3.3	2	RE2,2001	RE2	Y	N	B
Croal Minor	Captains Clough to Croal	3.2	4	RE5,2001	RE4	Y	Y	F
Middle Brook	Heatons Bridge to Captains Clough	3.8	3	RE3,1995	RE3	N	N	C
Middle Brook	QSL Red Moss to Heatons Bridge	4.7	3	RE3,1995	RE3	N	Y	C
Captains Clough	QSL Doffcocker Lodge to Middle Bk	3.4	2	RE4,1995	RE2	N	Y	D
Bradshaw Bk	Bradshaw Brow to Tonge	5.2	2	RE2,1995	RE2	N	N	B
Bradshaw Bk	Jumbles Resvr.inlet to Bradshaw Brow	3.5	2	RE4,1995	RE4	Y	N	C
Bradshaw Bk	QSL Wayoh Resvr.to Jumbles Resvr.	1.6	2	RE2,1995	RE2	N	N	B
Quarltan Brook	QSL Edgeworth to Bradshaw Bk	1.1	3	RE2,1995	RE2	N	N	B
Astley Brook	A666 Road to Eagley Bk	0.5	4	RE4,1995	RE4	N	N	D
Astley Brook	QSL at Smithills Dean Rd to A666 Rd.	1.7	1	RE2,1995	RE2	N	Y	B
Eagley Brook	Charles Turner to Astley Bk	8	2	RE2,1995	RE2	N	Y	C
Eagley Brook	Belmont STW to Charles Turner	1.3	2	RE3,1995	RE2	Y	Y	E
Eagley Brook	Belmont Resvr. to Belmont STW	1.6	1	RE2,1995	RE2	N	Y	B

QSL - QUALITY SURVEY LIMIT

STW - SEWAGE TREATMENT WORKS

RIVER CROAL SUB-CATCHMENT

CURRENT ISSUES

ISSUES WHICH WILL BE ADDRESSED WITHIN THE TIMESCALE OF THE PLAN:

ISSUE SS3 EAGLEY BROOK - DOWNSTREAM BELMONT STW

Exceeding of the EQS for an EC List II Dangerous Substance (Chromium) has been identified as being persistent within the final treated effluent produced at Belmont STW. The source is trade effluents.

ISSUE SS23 BLACKSHAW BROOK - RED BRIDGE TO HALL LANE TIP

The failure to achieve the objective for this reach has been attributed to the organic input discharged via the unsatisfactory sewer overflow at Darcy lever Old Hall, and also the organic contamination arising from foul and storm water drainage from Bradley Fold Industrial Estate.

NEW ISSUE BRADSHAW BROOK - JUMBLES RESERVOIR INLET TO BRADSHAW BROW

Failure to achieve the proposed water quality classification objective for the reach is due to an anomalously high reading for ammonia.

NEW ISSUE RIVER TONGE - ASTLEY BROOK TO BRADSHAW BROOK

Intermittent organic loads and debris discharges via unsatisfactory overflows impact upon the aesthetic appearance and fishery potential of the watercourse.

NEW ISSUE CROAL MINOR - CAPTAINS CLOUGH TO CROAL

Failure to achieve the proposed water quality classification objective for the reach can be mainly attributed to the high organic load from unsatisfactory sewer overflow discharges. There is also an impact on the water quality from urban run-off.

RIVER CROAL SUB-CATCHMENT

ISSUES WHICH WILL BE ADDRESSED WITHIN THE TIME SCALE OF THE PLAN:

ISSUE NO: SS3	EAGLEY BROOK - downstream of Belmont STW Exceedence of the Environmental Quality Standard for an EC List II Dangerous Substance (Chromium)		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Enforce the reduction in the chromium load from Belmont STW.	NRA to monitor water quality and take appropriate action. NWW Ltd. to continue trade effluent control measures on Belmont Bleaching and Dyeing Co.Ltd.	Compliance with EC List-II-Dangerous Substance EQS. Improvement to fishery potential	Cost to NWW Ltd. and Belmont Bleaching and Dyeing Co.Ltd. and possibly customers.

EC - European Community

EQS - Environmental Quality Standard

STW - Sewage Treatment Works

ISSUE NO: SS23	BLACKSHAW BROOK - Red Bridge to Hall Lane Tip Failure to achieve the proposed water quality classification objective.		
OPTIONS	Responsibility	Advantages	Disadvantages
<p>Combination of the following:</p> <p>1. Monitor and enforce the reduction in organic and debris load from unsatisfactory sewer overflow</p> <p>2. Investigate and eliminate the organic contamination arising from foul and storm drainage associated with Bradley Fold Industrial Estate.</p> <p>3. Continued monitoring for recurrence of domestic wrong connection problems and pursuance of remedial action as appropriate.</p>	<p>As requirement of the EC Urban Wastewater Directive.</p> <p>NRA/NWW Ltd. to agree the improvements required to achieve satisfactory performance</p> <p>NWW Ltd. to undertake capital works.</p> <p>NRA to monitor water quality and pursue elimination of contamination.</p> <p>Bury Estates to undertake remedial measures on the storm and private foul drainage.</p> <p>NWW Ltd. to undertake remedial measures on the public foul sewer.</p> <p>NRA</p>	<p>Achievement of water quality objective.</p> <p>Improved aesthetic and amenity value and fishery potential.</p> <p>Achievement of water quality objective.</p> <p>Improved aesthetic and amenity value and fishery potential.</p> <p>Achievement of water quality objective.</p> <p>Sustained improvement in aesthetic and amenity value.</p>	<p>Cost to Bury Estates</p> <p>Cost to NWW Ltd. and possibly customers.</p>

NEW ISSUE		BRADSHAW BROOK - Jumbles Reservoir inlet to Bradshaw Brow Failure to achieve proposed water quality classification objective	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigate possible pollution source and if appropriate instigate remedial work.	NRA to investigate. Responsible parties to undertake remedial action.	Possible achievement of water quality objective.	Cost to responsible parties.

NEW ISSUE		RIVER TONGE - Astley Brook to Bradshaw Brook Intermittent pollution affecting water quality and aesthetic appearance	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Monitor and enforce the reduction in organic and debris load from unsatisfactory overflows.	As requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree the improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Improvement in aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers.

NEW ISSUE		CROAL MINOR - Captains Clough to Croal Failure to achieve proposed water quality classification objective.	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in organic and debris load from unsatisfactory overflows.	As requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree the improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Improvement in aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers.

RIVER CROAL SUB-CATCHMENT

LONG TERM ISSUES

ISSUES WHICH WILL REQUIRE RESOLUTION TO ACHIEVE THE LONG TERM WATER QUALITY OBJECTIVE:

ISSUE SS2 EAGLEY BROOK - BELMONT RESERVOIR TO BELMONT STW

Failure to achieve the long-term water quality classification objective for the reach is as a result of natural acidic run-off.

ISSUE SS4 EAGLEY BROOK - BELMONT STW TO CHARLES TURNER COMPANY LIMITED

The failure to achieve the long-term water quality objective for the reach has been attributed to the effluent discharge from Belmont WwTW. The discoloration of effluent is also considered to be aesthetically unpleasing.

ISSUE SS6 EAGLEY BROOK - CHARLES TURNER COMPANY LIMITED TO ASTLEY BROOK

The failure to achieve the long-term water quality classification objective for the reach has been to the organic input discharged via the Charles Turner Company Limited effluent treatment plant and the impact of the upstream reach.

ISSUE SS8 ASTLEY BROOK - SMITHILLS DEAN TO THE A666

Failure to achieve the long-term water quality classification objective is mainly as a consequence of farm drainage problems in the reach.

ISSUE SS19 CAPTAINS CLOUGH - DOFFCOCKER LODGE TO MIDDLE BROOK

The failure to achieve the objective for this reach has been directly attributable to the organic input discharged via several unsatisfactory sewer overflows.

NEW ISSUE MIDDLE BROOK - RED MOSS TO CAPTAINS CLOUGH

Intermittent organic and debris pollution via discharges from unsatisfactory sewer overflows impacting upon the aesthetic appearance and fishery potential of the watercourse.

RIVER CROAL SUB-CATCHMENT

ISSUES WHICH WILL REQUIRE RESOLUTION TO ACHIEVE THE LONG TERM WATER QUALITY OBJECTIVE:

ISSUE NO:SS2	EAGLEY BROOK - Belmont Reservoir to Belmont STW Failure to Achieve long-term water quality objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigate reduction in the impact of natural acidic run-off.	NRA to establish means and funding.	Achievement of water quality classification objective.	Likely high cost in establishing means and operating. Modification of natural system.

ISSUE NO:SS4	EAGLEY BROOK - Belmont STW to Charles Turner Co.Ltd. Failure to achieve the proposed long-term water quality classification objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
Combination of the following:			
1. Reduction in colour load from Belmont STW	NRA to continue to pursue appropriate reduction. NWW Ltd. to pursue trade effluent control of Belmont Bleaching and Dyeing Co.Ltd. and/or provide treatment at the STW to effect reduction.	Achievement of the present water quality classification objective. Improvement to aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. (and possibly customers) and/or Belmont Bleaching and Dyeing Co.Ltd. (and possibly customers).
2. Evaluation of impact of organic load from Belmont STW and reduction as appropriate.	NRA to undertake evaluation of appropriate consent conditions and promote need for capital expenditure by NWW Ltd. amongst other regulatory influences as appropriate. NWW Ltd. to undertake works as appropriate.	Achievement of present water quality classification objective. Possible improvement to fishery potential.	Possible cost to NWW Ltd. and customers.

STW - Sewage Treatment Works

Achievement of the present water quality classification objective for the reach has additional advantages for the downstream reach of Eagley Brook. The downstream reach is considered under Issue SS6.

ISSUE NO: SS6	EAGLEY BROOK - Charles Turner Co.Ltd. to Astley Brook Failure to achieve the proposed long-term water quality classification objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the organic load from Charles Turner & Co.Ltd. trade effluent treatment plant.	<p>NRA to assess requirements and negotiate phased improvements.</p> <p>Charles Turner & Co. Ltd. to undertake necessary works.</p>	<p>Achievement of the present water quality classification objective.</p> <p>Improvement to the aesthetic and amenity value and fishery potential.</p>	Cost to Charles Turner & Co.Ltd. and possibly customers.

Achievement of the present water quality classification objective will also require improvement in the upstream reach of Eagley Brook. The upstream reach is considered under SS4.

ISSUE NO: SS8	ASTLEY BROOK - Smithhills Dean Road to the A666 Failure to achieve the proposed long-term water quality classification objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigate and enforce reductions in the impact of farm drainage.	<p>NRA to monitor water quality, promote good practice and enforce remedial works.</p> <p>Farm operators to adopt good practice and undertake remedial works.</p>	<p>Possible achievement of present water quality classification objective.</p> <p>Improvement to aesthetic and amenity value and fishery potential.</p>	Cost to farm operators.

ISSUE NO: SS19	CAPTAINS CLOUGH BROOK - Doffcocker Lodge to Middle Brook. Failure to achieve proposed long-term water quality classification objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Enforce the reduction in the organic and debris load from unsatisfactory sewer overflows.	<p>As a requirement of the EC Urban Wastewater Treatment Directive</p> <p>NRA/NWW Ltd. are in the process of agreeing the improvements required for satisfactory performance.</p> <p>NWW Ltd. to undertake capital works.</p>	<p>Possible achievement of the water quality classification objective</p> <p>Improvement to the aesthetic and amenity value and fishery potential.</p>	Cost to NWW Ltd. and possibly customers

NEW ISSUE	MIDDLE BROOK - Red Moss to Captains Clough Intermittent pollution affecting water quality and aesthetic appearance.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Enforce the reduction in organic and debris load from unsatisfactory overflows.	As requirement of the EC Urban Wastewater Treatment Directive.	Improvement in aesthetic and amenity value and fishery potential.	
	NRA/NWW Ltd. to agree the improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.		Cost to NWW Ltd. and possibly customers

**ASSESSMENT OF WATER QUALITY OBJECTIVE, RIVER ECOSYSTEM CLASS
AND GENERAL QUALITY ASSESSMENT BY STRETCH**

RIVER IRK SUB-CATCHMENT

RIVER	STRETCH	LENGTH	NWC TRANSLATED OBJECTIVE	RIVER ECOSYSTEM OBJECTIVE	LONG TERM OBJECTIVE	CMP ISSUE	LONG TERM ISSUE	GQA CLASS 93
IRK	MOSTON BK. TO IRWELL	1.7	4	RE4, 2006	RE3	N	Y	E
WHIT (TRUB) BK.	QSL AT CASTLETON STW TO IRK	4.5	4	RE5, 1995	RE4	N	Y	E
IRK	QSL AT SOURCE TO CEDAR GROVE SSO	0.8	4	RE3, 1995	RE3	N	N	C
IRK	WINCE BROOK TO MOSTON BK.	10.3	4	RE3, 2006	RE3	N	Y	E
MOSTON BK	QSL AT HALE LANE FAILSWORTH TO IRK	5.6	4	RE4, 2006	RE3	N	Y	F
WHIT BK.	QSL AT STAKE HILL TO TRUB BK.	2.3	4	RE4, 1995	RE4	N	N	D
LUZLEY BK.	QSL AT SHAW TO IRK	3.3	4	RE3, 1995	RE3	N	N	C
WINCE BK.	QSL AT FOXDENTON LANE TO IRK	3.7	4	RE4, 2001	RE4	Y	N	F
IRK	CEDAR GROVE SSO TO ROYTON STW	2.3	4	RE3, 2001	RE2	Y	Y	E
IRK	ROYTON STW TO WINCE BROOK	4.5	4	RE3, 2001	RE3	Y	N	E

QSL - QUALITY SURVEY LIMIT

STW - SEWAGE TREATMENT WORKS

RIVER IRK SUB-CATCHMENT

CURRENT ISSUES

ISSUES WHICH WILL BE ADDRESSED WITHIN THE TIMESCALE OF THE PLAN:

ISSUE SCW1 PERIODIC AESTHETIC DETERIORATION OF CONSIDERABLE LENGTHS OF (CW18) WATERCOURSE ON THE CATCHMENT DUE TO FOAM

Foam occurs downstream of the principal sewage treatment works due to chemicals in their effluents. The effect can be variable in extent dependent on a number of factors:

ISSUE SS1 RIVER IRK - CEDAR GROVE STORM OVERFLOW TO ROYTON STW

The failure to achieve the proposed water quality objective for this reach has been directly attributable to the organic input discharged via three unsatisfactory sewer overflows at Cedar Grove, Spaw and Haggate and also domestic wrong connections at the Lakes Estate, Chetwyn Ave., and Royton Cricket Club.

ISSUE SS3 RIVER IRK - ROYTON STW TO WINCE BROOK

Failure to achieve the proposed water quality objective for the classified reach. The effluents, from Royton STW has a high impact on the River Irk within this stretch. Also there is a significant organic load produced by the unsatisfactory southern sewer overflow at Royton STW. The quality of water from upstream also contributes to the stretches failure to meet the water quality objective.

ISSUE SS7 WINCE BROOK - FOXDENTON LANE TO THE RIVER IRK

The failure to achieve the proposed water quality objective for this reach has been attributable to the organic input discharged via Oldham STW, as well as numerous unsatisfactory sewer overflows within this stretch.

RIVER IRK SUB-CATCHMENT

ISSUES WHICH WILL BE ADDRESSED WITHIN THE TIMESCALE OF THE PLAN:

ISSUE NO: SCW1(CW18)		Periodic aesthetic deterioration of considerable lengths of watercourse in the catchment due to foam	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in impact of foam causing/ promoting agents in the effluents from Oldham, Royton and Castleton STW.	NWW Ltd. to provide appropriate additional treatment at STW or pursue trade effluent control	Improvement to aesthetic and amenity value.	Cost to NWW Ltd./ trade effluent dischargers and possibly customers.

ISSUE NO: SS1		RIVER IRK - Cedar Grove Combined Sewer Overflow to Royton STW Failure to achieve the proposed water quality objective for the classified reach.	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in organic and debris load from three unsatisfactory sewer overflows at Cedar Grove, Spaw and Haggate.	As a requirement of the EC Urban Wastewater Treatment Directive. The improvements required to achieve satisfactory performance have already been agreed. NWW Ltd. to undertake capital works.	Achievement of the proposed water quality objective. Improvement to the aesthetic and amenity value and fishery potential	Cost to NWW Ltd. and possibly customers.
2. Elimination of organic load from domestic waste wrongly directed to surface water drains in the vicinity of the Lakes Estate, Chetwyn Avenue and Royton Cricket Club.	NRA to pursue investigation / enforcement work. NWW Ltd./ Oldham MBC to undertake investigation/ enforcement work. NWW Ltd./ householders to undertake remedial works.	Achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. (and possibly customers)/ Oldham MBC Cost to NWW Ltd. (and possibly customers)/ householders

MBC - Metropolitan Borough Council

The achievement of the proposed water quality objective for this reach of the River Irk has additional advantages for the downstream classified reach of the River Irk. The downstream reach is considered in under Issue SS3.

ISSUE NO: SS3		RIVER IRK - Royton STW to Wince Brook Failure to achieve the proposed water quality objective for the classified reach.	
OPTIONS	Responsibility	Advantages	Disadvantages
Combinations of the following:-			
1. Reduction in organic load from Royton STW.	NRA to review consent conditions and promote within other regulatory influences capital expenditure by NWW Ltd.	Achievement of proposed water quality objective.	
	NWW Ltd. to undertake capital works.	Improvement to aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers.
2. Reduction in the organic and debris load from the unsatisfactory southern sewer overflow at Royton STW.	As a requirement of the EC Urban Wastewater Treatment Directive.	Achievement of the proposed water quality objective.	
	NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance.	Improvement to the aesthetic and amenity value and fishery potential.	
	NWW Ltd. to Undertake capital works.		Cost to NWW Ltd. and possibly customers.

STW - Sewage Treatment Works

Achievement of the proposed water quality objective also requires improvements to the upstream reach. The upstream reach is considered under Issue SS1.

Achievement of the proposed water quality objective has additional benefits for the downstream reach of the River Irk. The downstream reach is considered in Issue SS9.

ISSUE NO: SS7	WINCE BROOK - Foxdenton Lane to the River Irk Failure to achieve the proposed water quality objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
<p>Combinations of the following:-</p> <p>1. Reduction in the organic load from Oldham STW.</p> <p>2. Reduction in organic and debris load from a number of unsatisfactory sewer overflows.</p>	<p>NRA to review consent conditions and promote within other regulatory influences capital expenditure by NWW Ltd.</p> <p>NWW Ltd. to undertake capital works.</p> <p>As a requirement of the EC Urban Wastewater Treatment Directive.</p> <p>NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance.</p> <p>NWW Ltd. to undertake capital works.</p>	<p>Achievement of the proposed water quality objective.</p> <p>Improvement to the aesthetic and amenity value and fishery potential.</p>	<p>Cost to NWW Ltd. and possibly customers.</p> <p>Cost to NWW Ltd. and possibly customers.</p>

EC - European Community

STW - Sewage Treatment Works

Achievement of the proposed water quality objective for Wince Brook has additional advantages for the classified reach of the River Irk downstream of their confluence. The relevant reach is considered under Issue SS9.

RIVER IRK SUB-CATCHMENT

LONG TERM ISSUES

ISSUES WHICH WILL REQUIRE RESOLUTION TO ACHIEVE THE LONG TERM WATER QUALITY OBJECTIVES:

ISSUE SS1 RIVER IRK - CEDAR GROVE SSO TO ROYTON STW

The failure to achieve the proposed long term water quality objective is likely to be attributable to the organic input discharged via three unsatisfactory sewer overflows at Cedar Grove, Spaw and Haggate and also domestic wrong connections at the Lakes Estate, Chetwyn Ave, and Royton Cricket Club.

ISSUE SS9 RIVER IRK - WINCE BROOK TO MOSTON BROOK

The failure to achieve the proposed long term water quality objective for this reach has been directly attributable to the organic input discharged via numerous unsatisfactory sewer overflows within this stretch and to the upstream quality and that of Wince Brook.

ISSUE SS11 BOARDMAN BROOK

Organic and aesthetic deterioration. This stretch suffers as a consequence of debris and organic inputs being discharged via a number of unsatisfactory sewer overflows.

ISSUE SS15 MOSTON BROOK - HALE LANE, FAILSWORTH TO THE RIVER IRK

The failure to achieve the proposed long term water quality objective for this reach has been directly attributable to the organic input discharged via numerous unsatisfactory sewer overflows.

ISSUE SS16 RIVER IRK - MOSTON BROOK TO THE RIVER IRWELL

The failure to achieve the proposed long term water quality objective for this reach has been directly attributable to the organic input discharged via numerous unsatisfactory sewer overflows within this stretch and the upstream quality and that of Moston Brook.

NEW ISSUE WHIT (TRIB) BK - CASTLETON STW TO THE RIVER IRK

The failure to achieve the proposed long term water quality objective for this reach has been directly attributable to the effluents from Castleton STW. Also there is a significant organic load discharged via numerous unsatisfactory sewer overflows within this stretch.

RIVER IRK SUB-CATCHMENT

ISSUES WHICH WILL REQUIRE RESOLUTION TO ACHIEVE THE LONG TERM WATER QUALITY OBJECTIVES:

ISSUE NO: SS1		RIVER IRK - Cedar Grove Combined Sewer Overflow to Royton STW Failure to achieve the proposed water quality objective for the classified reach.		
OPTIONS		Responsibility	Advantages	Disadvantages
1. Reduction in organic and debris load from three unsatisfactory sewer overflows at Cedar Grove, Spaw and Haggate.		As a requirement of the EC Urban Wastewater Treatment Directive.	Achievement of the proposed water quality objective.	
		The improvements required to achieve satisfactory performance have already been agreed. NWW Ltd. to undertake capital works.	Improvement to the aesthetic and amenity value and fishery potential	Cost to NWW Ltd. and possibly customers.
2. Elimination of organic load from domestic waste wrongly directed to surface water drains in the vicinity of the Lakes Estate, Chetwyn Avenue and Royton Cricket Club.		NRA to pursue investigation / enforcement work.	Achievement of the proposed long term water quality objective.	
		NWW Ltd./ Oldham MBC to undertake investigation/enforcement work. NWW Ltd./ householders to undertake remedial works.	Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. (and possibly customers)/ Oldham MBC Cost to NWW Ltd. (and possibly customers)/ householders.

MBC - Metropolitan Borough Council

The achievement of the proposed water quality objective for this reach of the River Irk has additional advantages for the downstream classified reach of the River Irk. The downstream reach is considered in under Issue SS3.

ISSUE NO: SS9	RIVER IRK - Wince Brook to Moston Brook Failure to achieve the proposed long term water quality objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the organic and debris load from a number of unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance.	Achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential.	
	NWW Ltd. to undertake capital works.		Cost to NWW Ltd. and possibly customers.

EC - European Community

Achievement of the proposed long term water quality objective for this reach of the River Irk will also require improvements to the upstream reach and to Wince Brook. The upstream reach is considered under Issue SS3 and Wince Brook under Issue SS7.

Achievement of the proposed long term water quality objective for this reach has additional advantages for the downstream reach of the River Irk. The downstream reach is considered under Issue SS16.

ISSUE NO: SS11	BOARDMAN BROOK Organic and aesthetic deterioration.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the organic and debris load from unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Improvement to the aesthetic and amenity value.	Cost to NWW Ltd. and possibly customers.

EC - European Community

ISSUE NO: SS15	MOSTON BROOK - Hale Lane, Failsworth to the River Irk Failure to achieve the proposed long term water quality objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the organic and debris load from a number of unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers.

EC - European Community

Achievement of the proposed long term water quality objective has additional advantages for the classified reach of the River Irk which Moston Brook flows into. The relevant reach is considered under issue SS16.

ISSUE NO: SS16	RIVER IRK - Moston Brook to the River Irwell Failure to achieve the proposed long term water quality objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the organic and debris load from numerous unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers.

EC - European Community

Achievement of the proposed long term water quality objective for this reach also requires improvement to the upstream reach of the River Irk and to Moston Brook. The upstream reach of the River Irk is considered under Issue SS9 and Moston Brook under Issue SS15.

Achievement of the proposed long term water quality objective for this reach of the River Irk has additional advantages of the River Irwell downstream of their confluence. This is considered in Chapter 7 for the Lower Irwell Sub-Catchment

NEW ISSUE		WHIT (TRUB) BROOK - Castleton STW to the River Irk Failure to achieve the proposed water quality objective for the classified reach.	
OPTIONS	Responsibility	Advantages	Disadvantages
Combinations of the following:- 1. Reduction in the organic load from Castleton STW.	NRA to review consent conditions and promote within other regulatory influences capital expenditure by NWW Ltd.	Achievement of the proposed water quality objective.	
2. Reduction in the organic and debris load from a number of unsatisfactory sewer overflows.	NWW Ltd. to undertake capital works. As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers. Cost to NWW Ltd. and possibly customers.

EC - European Community

STW - Sewage Treatment Works

**ASSESSMENT OF WATER QUALITY OBJECTIVE, RIVER ECOSYSTEM CLASS
AND GENERAL QUALITY ASSESSMENT BY STRETCH**

RIVER MEDLOCK SUB-CATCHMENT

RIVER	STRETCH	LENGTH	NWC TRANSLATED OBJECTIVE	RIVER ECOSYSTEM OBJECTIVE	LONG TERM OBJECTIVE	CMP ISSUE	LONG TERM ISSUE	GQA CLASS 93
Medlock	Pinmill Brow to R Irwell	3.8	4	RE4,2001	RE4	Y	N	F
Medlock	Lords Bk to Pinmill Brow	5.7	4	RE4,2001	RE4	Y	N	E
Medlock	Glodwick Bk to Lords Bk	6.8	4	RE4,1995	RE4	N	N	C
Medlock	Thornley Bk to Glodwick Bk	2.2	3	RE3,1995	RE3	N	N	C
Medlock	A62 Road Bridge to PTC Thornley Bk	2.5	4	RE4,1995	RE4	N	N	D
Medlock	Strinesdale Restr.to A62	0.5	No data	No class	RE2	Y	N	
Medlock	Upper Strinesdale to Strinesdale Res	0.7	1	RE1,1995	RE1	N	N	A
Lords Brook	QSL Bridge Hall Farm to Medlock	2.2	4	RE5,1995	RE4	N	Y	E
Lumb Brook	QSL at Railway to Medlock	1	4	RE4,2001	RE4	Y	N	E
Thornley Bk	QSL at Wood Bk to Medlock	1.8	4	RE4,1995	RE4	N	N	D

QSL - QUALITY SURVEY LIMIT

RIVER MEDLOCK SUB-CATCHMENT

CURRENT ISSUES

ISSUES WHICH WILL BE ADDRESSED WITHIN THE TIMESCALE OF THE PLAN:

ISSUE SCW1 (CW18)

WIDESPREAD AESTHETIC DETERIORATION DUE TO OCHRE

Many generally localised stretches of watercourse exhibit a characteristic orange bed discolouration. This arises from iron based solids which can be released in mine water and run-off from other areas of disturbed land, for example, waste tips and spoil tips. It can also occur from natural land drainage.

ISSUE SS2 RIVER MEDLOCK - STRINESDALE RESERVOIR TO THE A62

Failure to achieve the water quality objective for the reach. Data has not previously been collected for all the required elements for the purpose of classifying this reach. It is likely that it will fail to meet the objective and that this is due to sources such as urban run-off normally considered outside the scope of pollution control.

ISSUE SS11 LUMB BROOK - RAILWAY CROSSING TO THE RIVER MEDLOCK

The failure to achieve the proposed water quality objective for this reach has been directly attributed to the organic input discharged via unsatisfactory sewer overflows, and also previous discharges from Lumb Lane Pumping Station, although remedial work has been carried out to rectify this problem. There is also suspected pollution emanating from culverted sections, which have been difficult to identify.

ISSUE SS13 RIVER MEDLOCK - LORDS BROOK TO RIVER IRWELL

The failure to achieve the proposed water quality objective for this reach has been attributed to the organic input discharged via numerous unsatisfactory sewer overflows, and also the organic load from Failsworth STW. The water entering the reach from Lords Brook also has a significant impact.

RIVER MEDLOCK SUB-CATCHMENT

ISSUES WHICH WILL BE ADDRESSED WITHIN THE TIMESCALE OF THE PLAN:

ISSUE NO: SCW1 (CW18)		Widespread aesthetic deterioration due to ochre	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in impact of ochreous run-off from spoil tips, waste tips and apparently natural sources	NRA to pursue means of run-off control or site/ watercourse treatment.	Improvement to aesthetic and amenity value.	Difficult to establish liability/funding with high risk of failure.

ISSUE NO: SS2		RIVER MEDLOCK - Strinesdale Reservoir to the A62 Incomplete information indicating failure to achieve the proposed water quality classification objective for the classified reach.	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Collect and review further information.	NRA	Understanding of current class and options for revision of present water quality classification objective and/or investigation and remedial work on pollution sources.	

ISSUE NO: SS11		LUMB BROOK - Railway crossing to the River Medlock Failure to achieve the proposed water quality classification objective	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in organic load from sewer overflows.	As required by EC Urban Wastewater Treatment Directive. NWW Ltd. to undertake capital works.	Achievement of water quality objective. Improvement in aesthetic and amenity value and fishery potential of open sections.	Cost to NWW Ltd. and possibly customers.
2. Evaluation of the impact of Lumb Lane pumping station following recent remedial measures.	NRA/NWW Ltd. to agree improvements required for satisfactory performance. NRA to undertake evaluation.	Understanding of potential cause of failure to achieve water quality objective.	
3. Evaluation of the impact of recently discovered sewer overflow near railway crossing.	NRA to undertake evaluation. NWW Ltd. to undertake capital works if required.		Cost to NWW Ltd. and possibly customers.
4. Investigate further sources of contamination of culverted sections and tributaries.		Improvement in aesthetic and amenity value and fishery potential of open sections.	

ISSUE NO: SS13		RIVER MEDLOCK - Lords Brook to the River Irwell Failure to achieve the proposed water quality classification objective	
OPTIONS	Responsibility	Advantages	Disadvantages
Combination of the following:			
1. Reduction in organic and debris load from the numerous unsatisfactory sewer overflows to the reach and unclassified tributaries.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Improvement in aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers. Likely disruption to city centre.
2. Reduction in the organic load from Failsworth STW	NRA to undertake evaluation of appropriate consent conditions and promote within other regulatory influences expenditure by NWW Ltd. NWW Ltd. to undertake capital works.	Improvement in aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers.

EC - European Community

Achievement of the proposed water quality classification objective will also require improvements in the River Medlock upstream and to Lords Brook. The upstream reach is considered in Issue SS8 and Lords Brook in Issue SS12.

Achievement of the classification objective has additional advantages for the Lower Irwell sub- catchment. The Lower Irwell sub-catchment is considered in Chapter 7.

RIVER MEDLOCK SUB-CATCHMENT

LONG TERM ISSUES

ISSUES WHICH WILL REQUIRE RESOLUTION TO ACHIEVE THE LONG TERM WATER QUALITY OBJECTIVE:

ISSUE SS12 LORDS BROOK - BRICK HALL FARM TO THE RIVER MEDLOCK

Failure to achieve the long-term water quality objective for this reach. Problems from numerous sources have the potential to contribute to the failure of this stretch to achieve its objective. These have principally been tip run-off, sewerage problems, domestic mis-connections, and also inputs from a pig farm. Continued housing development has the potential to cause water quality deterioration's.

RIVER MEDLOCK SUB-CATCHMENT

ISSUES WHICH WILL REQUIRE RESOLUTION TO ACHIEVE THE LONG TERM WATER QUALITY OBJECTIVE:

ISSUE NO: SS12	LORDS BROOK - Brick Hall Farm to the River Medlock Failure to achieve the proposed long term water quality objective.		
OPTIONS	Responsibility	Advantages	Disadvantages
Combination of the following:			
1. Continued prevention of pollution from pig farming operations.	NRA to monitor water quality and promote good practice. Enforcement as appropriate.	Achievement of water quality objective Improvement in aesthetic and amenity value.	Possible cost to pig farm operators.
2. Evaluation of other potential pollution sources and reduction or elimination of impact as appropriate. Potential sources include an old tip site sewerage problems and domestic wrong connections.	NRA to undertake evaluation and establish liability. Responsible parties to undertake appropriate remedial measures.		Cost to responsible parties.
3. Reduction in the impact of extensive housing development work.	NRA to monitor water quality and enforce prevention of contamination of surface water drains. Developers to undertake good practice.		

**ASSESSMENT OF WATER QUALITY OBJECTIVE, RIVER ECOSYSTEM CLASS
AND GENERAL QUALITY ASSESSMENT BY STRETCH**

LOWER IRWELL SUB-CATCHMENT

RIVER	STRETCH	LENGTH	NWC TRANSLATED OBJECTIVE	RIVER ECOSYSTEM OBJECTIVE	LONG TERM OBJECTIVE	CMP ISSUE	LONG TERM ISSUE	GQA CLASS 93
WORSLEY BK.	QSL AT FOLLY BROOK TO ECCLES STW	2.3	4	RE4, 1995	RE4	N	N	D
FOLLY BK.	QSL AT SWINTON STW TO WORSLEY BK.	2.1	4	RE3, 1995	RE2	N	Y	C
UNITY BK.	QSL AT MOSS LANE TO IRWELL	1.3	4	RE5, 1995	RE4	N	Y	E
SLACK BK.	QSL AT LUMN'S LANE TO IRWELL	0.6	4	NO CLASS 1995	RE4	N	Y	F
SINGING CLOUGH BK.	QSL AT WORSLEY ROAD TO IRWELL	1.9	4	RE5, 2006	RE4	N	Y	F
IRWELL (MSC)	SALFORD UNIVERSITY TO SALFORD DOCKS	8.2	4	RE5, 1995	RE4	N	Y	E
WORSLEY BK	ECCLES STW TO MSC	1	4	RE5, 1995	RE4	N	Y	E
IRWELL	ROCH TO SALFORD UNIVERSITY	22.9	4	RE4, 2006	RE4	N	Y	E
CORN BK.	QSL AT OPENSHAW TO MSC	5.6	4	RE4, 2001	RE4	Y	N	E
SINGLETON BROOK	A56 TO RIVER IRWELL	1.5	4	RE4, 2001	RE4	Y	Y	E
MANCHESTER SHIP CANAL	SALFORD DOCKS TO MERSEY	10	4	RE5, 2001	RE4	Y	Y	F

MSC - MANCHESTER SHIP CANAL

QSL - QUALITY SURVEY LIMIT

STW - SEWAGE TREATMENT WORKS

LOWER IRWELL SUB-CATCHMENT

CURRENT ISSUES

ISSUES WHICH WILL BE ADDRESSED WITHIN THE TIMESCALE OF THE PLAN:

ISSUE SS9 SINGLETON BROOK - A56 TO THE RIVER IRWELL

The failure to achieve the proposed water quality objective for this reach has been attributable to the organic input discharged via unsatisfactory sewer overflows.

ISSUE SS14 CORN BROOK - OPENSHAW TO THE MANCHESTER SHIP CANAL

The failure to achieve the proposed water quality objective for the classified reach. This stretch appears to have been seriously affected by severe organic pollution, of as yet unknown origin. The failure to achieve the proposed water quality objective for this reach has also been attributed to the organic input discharged via unsatisfactory sewer overflows.

ISSUE SS15 MANCHESTER SHIP CANAL - SALFORD DOCKS TO THE RIVER MERSEY

The failure to achieve the proposed water quality objective for this reach has been attributable to the organic input discharged within the final treated effluent of Davyhulme STW, and numerous unsatisfactory sewer overflows. The upstream River Irwell also has a significant impact.

NEW ISSUE RIVER IRWELL - PAMONA DOCK TO TURNING BASIN, SALFORD DOCKS

Oxygen depletion has been observed as a consequence of contaminated silt influencing the water quality.

LOWER IRWELL SUB-CATCHMENT

ISSUES WHICH WILL BE ADDRESSED WITHIN THE TIMESCALE OF THE PLAN:

ISSUE NO: SS9	SINGLETON BROOK - A56 to the River Irwell Failure to achieve the proposed water quality objective for the classified reach		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Monitor and enforce the reduction in the organic and debris load from unsatisfactory sewer overflows.	<p>As a requirement of the EC Urban Wastewater Treatment Directive.</p> <p>NRA/ NWW Ltd. to agree improvements required to achieve satisfactory performance.</p> <p>NWW Ltd. to undertake capital works.</p>	<p>Achievement of the proposed water quality objective.</p> <p>Improvement to the aesthetic and amenity value and fishery potential.</p>	<p>Cost to NWW Ltd. and possibly customers.</p>

ISSUE NO: SS14	CORN BROOK - Openshaw to the Manchester Ship Canal Failure to achieve the proposed water quality objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
Combination of the following:			
1. Investigate and eliminate the occurrence of periodic severe organic pollution of unknown specific origin.	<p>NRA to pursue investigation of source.</p> <p>Other agencies to participate in investigatory work.</p> <p>Industrial site owners to undertake capital works.</p>	<p>Achievement of proposed water quality objective.</p> <p>Improvement to limited amenity and aesthetic value.</p>	<p>Cost to other agencies of investigation of intermittent source to culverted watercourse.</p> <p>Cost to industrial site owners of remedial measures.</p>
2. Reduction in the organic and debris load from unsatisfactory sewer overflows.	<p>As a requirement of the EC Urban Wastewater Treatment Directive.</p> <p>NRA/ NWW Ltd. to agree improvements required to achieve satisfactory performance.</p> <p>NWW Ltd. to undertake capital works.</p>	<p>Achievement of proposed water quality objective.</p> <p>Improvement to limited amenity and aesthetic value.</p>	<p>Cost to NWW Ltd. and possibly customers</p>

EC - European Community

ISSUE NO: SS15		MANCHESTER SHIP CANAL - Salford Docks to the River Mersey Failure to achieve the proposed water quality objective for the classified reach.	
OPTIONS	Responsibility	Advantages	Disadvantages
Combination of the following:			
1. Reduction in the organic load from Davyhulme STW.	NRA to review consent conditions and promote within other regulatory influences capital expenditure by NWW Ltd.	Achievement of the proposed water quality objective.	
	NWW Ltd. to undertake capital works.	Improvement to aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers.
2. Reduction in organic and debris load from unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive.	Achievement of proposed water quality objective.	
	NRA/ NWW Ltd. to agree improvements required to achieve satisfactory performance.	Improvement of amenity and fishery value.	
	NWW Ltd. to undertake capital works.	Reduction in debris load would result in a specific benefit in aesthetic quality.	Cost to NWW Ltd. and possibly customers.

EC - European Community

Achievement of the proposed water quality objective also requires improvements to the upstream reach of the River Irwell. This is considered under Issue SS13.

NEW ISSUE		R.IRWELL - Pamona Dock to Turning Basin, Salford Docks Potential oxygen depletion due to action of contaminated silt.	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Pursue with Partners need/implementation of dredging/aeration to improve aesthetic quality. Seek further funding.	NRA/ NWW/ MSC Co./ Mersey Basin Campaign	Improvement to amenity value and fishery potential. Reduction in the debris load would result in a specific benefit in aesthetic quality.	Costs to all parties involved.

LOWER IRWELL SUB-CATCHMENT

LONG TERM ISSUES

ISSUES WHICH WILL REQUIRE RESOLUTION TO ACHIEVE THE LONG TERM WATER QUALITY OBJECTIVES:

ISSUE SS1 RIVER IRWELL - RIVER CROAL CONFLUENCE TO SALFORD UNIVERSITY

The failure to achieve the proposed long term water quality objective for the classified reach. The tributaries, the River Croal and Slack Brook, as well as the upstream River Irwell have substantial impact on this reach. The final effluent from Bolton STW, numerous unsatisfactory sewer overflows and the trade effluent discharged from the Robert Fletcher Ltd. premises are also having an effect in terms of the organic loads being discharged.

ISSUE SS2 SINGING CLOUGH BK - WORSLEY ROAD TO THE RIVER IRWELL.

The failure to achieve the proposed long term water quality objective for this reach has been attributable to the organic input discharged via a number of unsatisfactory sewer overflows. Also having a moderate impact on the water quality within this stretch is contaminated wet weather run-off and wrongly connected trade effluent from industrial units in the Walkden area. It is also felt that both motorway drainage and ochreous run-off are affecting the water quality of this stretch.

ISSUE SS4 UNITY BROOK - MOSS LANE TO THE RIVER IRWELL

The failure to achieve the proposed long term water quality objective for the classified reach. This stretch is significantly affected by motorway run-off. Also impacting upon this stretch is what appears to be naturally ochreous run-off and oil contamination from an as yet not fully defined source.

ISSUE SS5 RIVER IRWELL - DOWNSTREAM OF BOLTON STW

Aesthetic deterioration due to foam. Foam is caused by chemicals persisting through treatment at Bolton STW.

ISSUE SS7 PRESTWICH CLOUGH BROOK

Aesthetic deterioration due to discolouration and deposited debris arising from storm sewage discharges. This tributary has been significantly affected by the excessive organic and debris inputs discharged via a number of unsatisfactory sewer overflows.

ISSUE SS8 SLACK BROOK - LUMNS LANE TO THE RIVER IRWELL

The failure to achieve the proposed long term water quality objective for this reach has been attributable to the organic input discharged via unsatisfactory sewer overflows many of which are located on unclassified tributaries, and also high organic inputs within tip leachate, which has emanated from the Carrington Lane tip site. The trade effluent produced by Magnesium Elektron Ltd., has very significant impact on the lower part of the reach.

ISSUE SS9 SINGLETON BROOK - A56 TO RIVER IRWELL

This reach is affected by the impact of what appear to be natural ochreous discharges.

**ISSUE SS13 RIVER IRWELL/
MANCHESTER SHIP CANAL**

SALFORD UNIVERSITY TO SALFORD DOCKS

The failure to achieve the proposed long term water quality objective for this reach has been attributable to the organic input discharged via numerous unsatisfactory sewer overflows, and the impact of tributaries, the River Irk and the River Medlock and the River Irwell upstream.

**ISSUE SS15 MANCHESTER SHIP
CANAL**

SALFORD DOCKS TO THE RIVER MERSEY

The failure to achieve the proposed long term water quality objective for this reach has been attributable to the organic input discharged via the final treated effluent of Salford STW.

**ISSUE SS17 MANCHESTER SHIP
CANAL**

DOWNSTREAM OF DAVYHULME STW

Aesthetic deterioration due to colour and foam. Chemicals causing colour and foam persist through the treatment process at Davyhulme STW.

ISSUE SS18 KEMPNOUGH BROOK

UPSTREAM OF OLD WARKE DAM

Occasional aesthetic deterioration due to oil

Kempnough Brook is affected as a consequence of spillages, and/or leakage's at industrial sites finding their way into the watercourse. Also organic input discharged via sewer overflows affects this reach.

ISSUE SS20 FOLLY BROOK

FORMER SWINTON STW TO WORSLEY BROOK

The failure to achieve the proposed long term water quality objective for this reach has been attributable to the organic input discharged via unsatisfactory sewer overflows, entering Folly Brook itself, and also unclassified tributaries, especially Deans Brook. Also having a moderate impact on the water quality within this stretch has been drainage from industrial premises. Domestic misconnections also lead to discharges of organic material to this particular stretch of water.

ISSUE SS29 WORSLEY BROOK

ECCLES STW TO THE MANCHESTER SHIP CANAL

The failure to achieve the proposed long term water quality objective for this reach has been attributable to the organic input discharged within the final treated effluent of Eccles STW and unsatisfactory sewer overflows. The upstream reach also has a major impact upon this reach.

LOWER IRWELL SUB-CATCHMENT

ISSUES WHICH WILL REQUIRE RESOLUTION TO ACHIEVE THE LONG TERM WATER QUALITY OBJECTIVES:

ISSUE NO: SS1	RIVER IRWELL - River Croal confluence to Salford University Failure to achieve the proposed long term water quality objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
<p>Combination of the following:</p> <p>1. Evaluation of the need for reduction in organic load from Bolton STW.</p> <p>2. Reduction in organic and debris load from unsatisfactory sewer overflows.</p> <p>3. Evaluation of the need for reduction in organic load in the trade effluent discharge from Robert Fletcher Ltd.</p>	<p>NRA to undertake evaluation and promote within other regulatory influences capital expenditure by NWW Ltd. as appropriate. NWW Ltd. to undertake capital works.</p> <p>As a requirement of the EC Urban Wastewater Treatment Directive</p> <p>NRA/ NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works</p> <p>NRA to undertake evaluation. Robert Fletcher Ltd. to undertake capital works.</p>	<p>Achievement of proposed long term water quality objective.</p> <p>Improvement to aesthetic and amenity value and fishery potential.</p> <p>Achievement of proposed long term water quality objective.</p> <p>Improvement of amenity value and fishery potential.</p> <p>Reduction in debris load would result in a specific benefit in aesthetic quality.</p> <p>Achievement of proposed long term water quality objective.</p> <p>Improvement to amenity and aesthetic value and fishery potential.</p>	<p>Cost to NWW Ltd. and possibly customers.</p> <p>Cost to NWW Ltd. and possibly customers.</p> <p>Possible cost to Robert Fletcher Ltd. and possibly customers.</p>

EC - European Community

Achievement of the proposed long term water quality objective also requires improvements in the River Irwell upstream of the reach, the River Croal Sub-Catchment and Slack Brook. The Upper Irwell Sub-Catchment is considered in Chapter 2 and the River Croal Sub-Catchment in Chapter 4. Slack Brook is considered under Issue SS8 of this Chapter.

Achievement of the proposed long term water quality objective for this reach has additional advantages for the downstream reach of the River Irwell. The downstream reach is considered under Issue SS13.

ISSUE NO: SS2		SINGING CLOUGH BROOK - Worsley Road to the River Irwell Failure to achieve the proposed long term water quality objective for the classified reach.	
OPTIONS	Responsibility	Advantages	Disadvantages
Combination of the following:			
1. Reduction in the organic and debris load from unsatisfactory sewer overflows.	As a requirement of the EC-Urban Wastewater Treatment Directive. NRA/ NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Achievement of proposed long term water quality objective. Improvement to amenity value of limited open stretch.	Cost to NWW Ltd. and possibly customers.
2. Improvement of operation of industrial units in Walkden to reduce contamination of wet weather run-off, occurrence of spillages and trade effluent wrong connections.	NRA to continue to monitor. NWW Ltd./Bolton MBC/ City of Salford Council to continue to undertake investigations.	Achievement of proposed long term water quality objective. Improvement to amenity value of limited open stretch.	Cost to NWW Ltd./ Bolton MBC and City of Salford Council.
3. Improvement of the quality of motorway run-off by retrospective development of treatment systems.	NRA to establish requirements Department of Transport to fund.	Achievement of proposed long term water quality objective. Improvement to amenity value of limited open stretch.	Cost to Department of Transport.
4. Reduction in the impact of ochreous run-off from unknown sources.	NRA to pursue means of run-off control or site/ watercourse treatment.	Achievement of proposed long term water quality objective. Improvement to amenity value of limited open stretch.	Difficult to establish liability/funding with high risk of failure.

EC - European Community

MBC - Metropolitan Borough Council

ISSUE NO: SS4	UNITY BROOK - Moss Lane to the River Irwell Failure to achieve the proposed long term water quality objective for the classified reach		
OPTIONS	Responsibility	Advantages	Disadvantages
<p>Combination of the following:</p> <ol style="list-style-type: none"> 1. Improvement of the quality of motorway run-off by retrospective development of treatment systems. 2. Reduction in the frequency of occurrence of oil contamination from as yet undefined specific source via motorway drainage. 3. Reduction in the impact of ochreous run-off from apparently natural sources. 	<p>NRA to establish requirement. DOT to fund.</p> <p>NRA/DOT to undertake extensive investigatory work to establish source and enforce improvement.</p> <p>NRA to pursue means of run-off control or site/ watercourse treatment.</p>	<p>Achievement of proposed long term water quality objective. Improvement to aesthetic and amenity value and fishery potential.</p> <p>Achievement of proposed long term water quality objective. Improvement to aesthetic and amenity value and fishery potential.</p> <p>Achievement of proposed long term water quality objective. Improvement to aesthetic and amenity value and fishery potential.</p>	<p>Cost to DOT.</p> <p>Difficulty of investigations with intermittent nature of discharge.</p> <p>Difficult to establish liability/ funding with high risk of failure.</p>

DOT - Department of Transport

ISSUE NO: SS5		RIVER IRWELL - downstream of Bolton STW Aesthetic deterioration due to foam.	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the impact of foam causing/ promoting agents in Bolton STW final effluent.	NRA to monitor and pursue reduction. NWW Ltd. to provide appropriate additional treatment at STW and/or pursue trade effluent control.	Improvement to aesthetic and amenity value.	Cost to NWW Ltd. and/ or trade effluent dischargers.

STW - Sewage Treatment Works

ISSUE NO: SS7		PRESTWICH CLOUGH BROOK Aesthetic deterioration due to discolouration and deposited debris arising from storm sewage discharges.	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the organic and debris load from unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Improvement to the aesthetic and amenity value.	Cost to NWW Ltd. and possibly customers.

EC - European Community

ISSUE NO: SS8	SLACK BROOK - Lumns Lane to the River Irwell Failure to achieve the proposed long term water quality objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
Combination of the following:			
1. Reduction in the organic and debris load from unsatisfactory sewer overflows mainly located on unclassified tributaries.	As a requirement of the EC Urban Wastewater treatment Directive. NRA/ NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Achievement of proposed long term water quality objective. Improvement to aesthetic and amenity value.	Cost to NWW Ltd. and possibly customers.
2. Reduction in the organic load of tip leachate from Carrington Lane tip site.	NRA to continue to monitor water quality and enforce improvements. GMWDA to undertake necessary remedial measures	Achievement of proposed long term water quality objective. Improvement to aesthetic and amenity value.	Cost to GMWDA
3. Improvement of the quality of the trade effluent discharge from Magnesium Elektron Ltd.	NRA to review consent conditions. Magnesium Elektron Ltd. to undertake capital works.	Achievement of proposed long term water quality objective. Improvement to aesthetic and amenity value.	Cost to Magnesium Elektron Ltd. and possibly customers.

EC - European Community

GMWDA - Greater Manchester Waste Disposal Authority

Achievement of the proposed long term water quality objective for Slack Brook has additional advantages for the classified reach of the River Irwell into which it flows. The relevant reach is considered under Issue SS1.

ISSUE NO: SS9	SINGLETON BROOK - A56 to the River Irwell Effects of ochre upon the water quality of this reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the impact of ochre from apparently natural source.	NRA to pursue means of run-off control or site/ watercourse treatment.	<p>Achievement of the proposed water quality objective.</p> <p>Improvement to the aesthetic and amenity value and fishery potential.</p>	Difficulty in establishing liability/ funding with high risk of failure.

ISSUE NO: SS13	RIVER IRWELL/MANCHESTER SHIP CANAL - Salford University to Salford Docks Failure to achieve the proposed long term water quality objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction of the organic and debris load from unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive.	Achievement of proposed long term water quality objective.	
	NRA/ NWW Ltd. to agree improve-ments required to achieve satisfactory perform-ance. NWW Ltd. to undertake capital works.	Improvement to amenity value and fishery potential. Reduction in the debris load would result in a specific benefit in aesthetic quality.	Cost to NWW Ltd. and possibly customers.

EC - European Community

Achievement of the proposed long term water quality objective also requires improvements to the River Irwell upstream and the River Irk and River Medlock Sub-Catchments. The upstream reach of the River Irwell is considered in Issue SS1 and the Irk and Medlock Sub-Catchments in Chapters 5 and 6 respectively.

Achievement of the proposed long term water quality objective has additional advantages for the downstream reach of the River Irwell. This is considered in Issue SS15.

ISSUE NO: SS15	MANCHESTER SHIP CANAL - Salford Docks to the River Mersey Failure to achieve the proposed long term water quality objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
1 Evaluation of organic load from Salford STW and reduction as appropriate.	NRA to undertake evaluation and promote within other regulatory influences, capital expenditure by NWW Ltd. as appropriate. NWW Ltd. to undertake capital works as appropriate.	Achievement of proposed water quality objective. Improvement of amenity and aesthetic value and fishery potential.	Possible cost to NWW Ltd. and customers.

ISSUE NO: SS17		MANCHESTER SHIP CANAL - downstream of Davyhulme STW Aesthetic deterioration due to colour and foam.	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in colour and foam associated with Davyhulme STW final effluent.	NRA to monitor and pursue reduction. NWW Ltd. to achieve reduction by trade effluent control and/or treatment at STW.	Improvement to aesthetic and amenity value.	Cost to NWW Ltd. and/or trade effluent dischargers.

STW - Sewage Treatment Works

ISSUE NO: SS18		KEMPNOUGH BROOK - upstream of Old Warke Dam Occasional aesthetic deterioration due to oil.	
OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in frequency of occurrence of spillages and contamination of hard standing on industrial estates.	NRA/NWW Ltd./ City of Salford Council to undertake inspections and investigations.	Improvement of aesthetic and amenity value and safeguard Worsley Woods SBI.	Cost to NWW Ltd. and City of Salford Council.
2. Reduction in the organic and debris load from unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers.

SBI - Site of Biological Importance

ISSUE NO: SS20		FOLLY BROOK - former Swinton STW to Worsley Brook Failure to achieve the proposed long term water quality objective for the classified reach.	
OPTIONS	Responsibility	Advantages	Disadvantages
Combination of the following:			
1. Reduction in the organic and debris load from unsatisfactory sewer overflows to Folly Brook and its unclassified tributaries especially Deans Brook.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance. NWW Ltd. to undertake capital works.	Achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. and possibly customers.
2. Reduction in the impact of drainage from industrial sites.	NRA/NWW Ltd. to undertake inspection and investigation work to identify risk sites. Industrial site owners to undertake remedial works.	Achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd. Cost to industrial site owners.
3. Reduction in the organic load from domestic wrong connections.	NRA to pursue investigation/enforcement work. NWW Ltd./ City of Salford Council to undertake investigation/enforcement work. NWW Ltd./ householders to undertake remedial works.	Achievement of the proposed long term water quality objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd./ City of Salford Council. Cost to NWW Ltd./ householders.

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The achievement of the proposed long term water quality objective for Folly Brook has additional advantages for Worsley Brook into which it flows. Worsley Brook is considered under Issue SS25.

ISSUE NO: SS29	WORSLEY BROOK - Eccles STW to the Manchester Ship Canal Failure to achieve the proposed long term water quality objective for the classified reach.		
OPTIONS	Responsibility	Advantages	Disadvantages
<p>Combination of the following:</p> <p>1. Reduction in the organic load from Eccles STW.</p> <p>2. Reduction in the organic and debris load from unsatisfactory sewer overflows.</p>	<p>NRA to review consent conditions and promote within other regulatory influences capital expenditure by NWW Ltd.</p> <p>NWW Ltd. to uprate treatment or divert discharge to Manchester Ship Canal.</p> <p>As a requirement of the EC Urban Wastewater Treatment Directive.</p> <p>NRA/NWW Ltd. to agree improvements required to achieve satisfactory performance.</p> <p>NWW Ltd. to undertake capital works.</p>	<p>Achievement of the proposed long term water quality objective.</p> <p>Improvement to the aesthetic and amenity value and fishery potential.</p> <p>Achievement of the proposed long term water quality objective.</p> <p>Improvement to the aesthetic and amenity value and fishery potential.</p>	<p>Cost to NWW Ltd. and possibly customers.</p> <p>Cost to NWW Ltd. and possibly customers.</p>

Achievement of the proposed long term water quality objective for this classified reach also requires improvements in the upstream reach of Worsley Brook. The upstream reach is considered under Issue SS25.

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