

CV-SALTS Executive Committee Meeting

October 17, 2013 - 9:00 AM to 3:00 PM

Sacramento Regional Sanitation District Offices – Sunset Maple Room
10060 Goethe Rd, Sacramento 95827

Teleconference (712) 432-0360 Code: 927571#

Go-To-Meeting Link: <https://global.gotomeeting.com/meeting/join/231772981>

Meeting ID: 231-772-981

Posted 10.07.13 – Revised 10.15.13

AGENDA

- 1) **Welcome and Introductions** - Chair
 - a) Committee Roll Call and [Membership Roster](#) -5 min.
 - b) Review/Approve Executive Committee [Meeting Notes for September 26, 2013](#) – 5 min.

- 2) **Summary Report of First Two CEQA Scoping Meeting** - J. Chilcott & R. Meyerhoff (30 min.)

- 3) **Review Draft Findings and Recommendations Related to Establishing a Narrative Translator for Salinity to Provide "Reasonable Protection" for AGR Beneficial Uses** – Tim Moore (2 hrs.)
 - [Regulating Salinity to Provide Reasonable Protection of the Agricultural \(AGR\) Beneficial Use in Groundwater](#)

11:30 am to 1:00 pm - Lunch on your own

- 4) ***Continue AM Discussion: Review Draft Findings and Recommendations to Establishing a Narrative Translator for Salinity to Provide "Reasonable Protection" for AGR Beneficial Uses*** – Tim Moore (1 hr.)

- 5) **Set next meeting objectives/date**
 - a) November 8th Administrative Call
 - b) November 14th Policy Session

CV-SALTS meetings are held in compliance with the Bagley-Keene Open Meeting Act set forth in Government Code sections 11120-11132 (§ 11121(d)). The public is entitled to have access to the records of the body which are posted at <http://www.cvsalinity.org>.

One or more Central Valley Regional Water Quality Board members may attend.

CV-SALTS Committee Rosters

Executive Committee Membership			CV-SALTS Executive Committee Meetings During 2013															
Voters	Category/Stakeholder Group	Name	28-Mar	5-Apr	18-Apr	10-May	16-May	14-Jun	20-Jun	12-Jul	9-Aug	15-Aug	13-Sep	26-Sep	11-Oct	17-Oct	8-Nov	14-Nov
1	Central Valley Water Board	Pamela Creedon	✓		✓		✓		✓			✓		✓				
Alt	Central Valley Water Board	Jeanne Chilcott	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2	State Water Resources Control Bd.	Darrin Polhemus			✓		✓		✓			✓		✓				
3	Department of Water Resources	Jose Faria																
Alt	Department of Water Resources	Ernie Taylor	✓		✓	✓	✓	✓		✓	✓	✓		✓	✓			
4	US Bureau of Reclamation	Michael Mosley			✓			✓	✓	✓		✓		✓				
5	Environmental Justice	TBD																
6	Environmental Water Quality	TBD																
CV Salinity Coalition																		
1	CASA	Bobbi Larson																
2	County of San Joaquin	Mel Lytle																
Alt	County of San Joaquin	Brandon Nakagawa																
3	CVCWA	Debbie Webster		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			
4	City of Fresno	Steve Hogg																
5	CA League of Food Processors	Trudi Hughes					✓							✓				
Alt	CA League of Food Processors	Rob Neenan	✓		✓		✓		✓					✓				
6	Wine Institute	Tim Schmelzer					✓		✓			✓		✓				
Alt	Wine Institute	Chris Savage																
7	City of Tracy	Steve Bailey																
8	Sacramento Regional CSD	Linda Dorn			✓				✓			✓						
Alt	Sacramento Regional CSD	Lisa Voight												✓				
9	San Joaquin River Group	Dennis Westcot																
10	City of Modesto	Gary DeJesus																
11	California Rice Commission	Tim Johnson			✓		✓		✓			✓		✓				
12	City of Manteca	Phil Govea																
13	Tulare Lake Drainage/Storage District	Mike Nordstrom	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓			
14	Stockton East Water District	Karna Harrigfeld	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
15	Western Plant Health Association	Renee Pinel	✓	✓	✓	✓	✓	✓	✓	✓				✓				
16	City of Vacaville	Royce Cunningham	✓		✓													
17	Dairy Cares	Paul Sousa																
Alt	Dairy Cares	J.P. Cativiela	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓			
Comm. Chairs/Co-chairs																		
1	Chair Executive Committee	Parry Klassen	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2	Vice Chair Executive Committee	Debbie Webster	✓				✓								✓			
*	Technical Advisory Committee	Roger Reynolds	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓			
3	Technical Advisory Committee	Nigel Quinn, LBL			✓		✓	✓		✓	✓		✓					
4	Public Education and Outreach	Joe DiGiorgio	✓		✓			✓	✓			✓		✓	✓			
5	Economic and Social Cost Committee	David Cory	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓			
5	Lower San Joaquin River Committee	Karna Harrigfeld	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

* = Already votes as Leadership or Coalition member

Participants also identified for 10/11:

- _____ Pam Buford, CVRWQCB
- _____ Richard Meyerhoff, CDM
- _____ Karen Ashby, LWA
- _____ Casey Creamer, CCGGA
- _____ Michael Johnson, LSJR Committee
- _____ David Orth, SSVWQC
- _____ Jose Gutierrez, Westlands Water District
- _____ Steve Sawyer, City of Vacaville
- _____ Fern Wilson, Vacaville
- _____
- _____
- _____
- _____
- _____
- _____

PAST PARTICIPANTS

- | | | |
|--|---|--------------------------------------|
| Tim Moore, Risk-Sciences | Laurel Firestone, CWC | Tom Griffith, Envirotech |
| Dylan Boyle, LSCE | Josie Tellers, City of Davis | John Herrick |
| Barb Dalgish, LSCE | Tom Grovhoug, LWA | Mark Gowdy, SWRCB, Water Rights |
| Ken Glotzbach, City of Roseville | Fern Wilson, Vacaville | Jamil Ibrahim, MWH Global |
| Tess Dunham, Somach | John Dickey, Plantierra | Rik Rasmussen, SWRCB |
| Diane Barclay, SWRCB | Vicki Kretsinger Grabert, LSCE | Jodi Pontureri, SWRCB |
| Lynda Smith, Metropolitan Water District | Mark Felton, Culligan Water and PWQA | Mark Felton, Culligan Water and PWQA |
| Elaine Archibald, CUWA | Stan Dean, SRCSD | Claus Suverkropp, LWA |
| Karl Longley, CVRWQCB | Melanie Thomson, CUWA | Penny Carlo, Carollo Engineers |
| Tony Pirondini, City of Vacaville | Gene Lee, Reclamation | Dennis Tristao, J.G. Boswell |
| Stan Gryczko, City of Davis | Gary Carlton, Kennedy/Jenks | Polly Jorgensen |
| Robert Granberg, City of Stockton | Tom Reyes, City of Vacaville | Joel Herr, Systech |
| Clay Rodgers, CVRWQCB | Debbie Liebersbach, Turlock Irrigation District | Bill Lewis, City of Live Oak |
| Bruce Houdesheldt, NCWA/Sac Valley WQC | Erich Delmas, City of Tracy | |
| Melissa Thorne, Downey Brand(Tracy) | | |

CV-SALTS Executive Committee Meeting - Summary Action Notes
For September 26, 2013 - 9:00 AM to 3:00 PM

Attendees are listed on the Membership Roster

AGENDA

1) Welcome and Introductions

- a) Chair Parry Klassen brought the meeting to order, and roll call was completed.
- b) Debbie Webster moved to approve, and Mike Nordstrom seconded, and by general acclamation the August 15th action notes were approved with the following revisions to Item #4:
 - Under "Water Quality Objectives," 2nd bulleted item, remove "recommended."
 - Under "Waste Discharge Requirements," clarify the notations from the discussion on "assimilative capacity", "effluent limitations" and "time-to-comply."

2) Summarize Task Schedule for Fall of 2013

➤ The committee discussed coordination of the following 4 key task areas for the remainder of 2013:

a) Executive Committee Meetings-Schedule of Policy Discussions

○ Per Tim Moore the policy discussions are scheduled to align with the technical work.

CV-SALTS Meeting Date	SNMP Policy Issue
Sept. 26, 2013	1) Revise use of Secondary MCLs as numeric water quality objectives in the Basin Plan. 2) Develop method to characterize existing water quality in a groundwater basin (management zone) and to estimate the level of assimilative capacity that is available in that basin.
Oct. 17, 2013	3) Establish decision criteria used to demonstrate that existing and potential AGR uses are reasonably protected from the adverse effects of excess salinity when implementing the narrative objectives of the Basin Plan.
Nov. 14, 2013	4) Identify prerequisite conditions and implementation requirements for making Alternate Compliance Demonstrations by direct protection of drinking water (MUN) uses.

- The goal at the end of these three meetings is to yield solid recommendations that allow for demonstration of sufficient progress in the December updates before the Regional and State boards.
- Jeanne Chilcott advised the committee the board presentations would focus on technical work, what has been accomplished, and why additional time is needed.

b) CEQA Scoping Meetings

- Meetings are scheduled for October 10 (Modesto), October 16 (Rancho Cordova), October 21 (Colusa), and October 28 (Fresno).
- The October Policy Meeting Agenda will include a summary item for feedback from the first two meetings.

c) Progress Reports to Regional and State Boards

- Per Jeanne Chilcott the Regional Board presentation is scheduled for 12/5. The State Board meeting is tentatively scheduled for the third Tuesday in December; if cancelled will be the first Tuesday in January.

- Jeanne needs the technical info for the presentations no later than the end of October. The actual presentation needs to be completed no later than Friday, November 22nd.
- d) Technical Deliverables
 - Richard Meyerhoff provided an update on the tech projects. Three projects near completion are:
 - ICM Study**-Final Report submitted to Project Committee on 9/13, comments due back on Monday, Sept 30th.
 - GIS Task 4** Report is finished.
 - Aquatic Life** Final Report will be presented to the TAC on 10/15.
 - Other projects in progress:
 - Conceptual Model Phase 2** – Currently out for RFP. Richard suggested using the Project Committee as a Selection Committee. There were no objections, Richard will confirm with Project Committee members via email.
 - Tulare Lake Bed** – Revised draft report has been received.
 - Ag Zone Mapping**- Moving forward, Project Committee meeting this week.
 - SSALTS** is moving forward, wrapping up Phase 1.
- 3) Finalize Proposed Recommendation to Revise Water Quality Objective for Secondary Maximum Contaminants
 - The morning Policy Discussion focused on the Proposed Revisions to Water Quality Objectives for Secondary MCLs.
 - Tim will draft a new version based on the discussion and bring back to the committee at a later date for subsequent review.
- 4) Finalize Policy Directions to Technical Consultants for Calculating Current Average Nitrate or TDS Concentration and Available Assimilative Capacity in a Groundwater Management Zone
 - In the afternoon session the committee also discussed the following two documents:
 - Principles to Govern Calculation of Average Groundwater Quality
 - Principles to Govern Estimation and Allocation of Assimilative Capacity in Groundwater
 - Richard Meyerhoff advised the committee that the intent was to have a technical team selected and a work plan in progress by the next Policy Session on 10/17. The principles contained in these two documents are central to writing the work plan for Task 4 in Phase 2 of the project. Committee members should forward any concerns to Richard regarding the principles outlined.
- 5) Set next meeting objectives/date
 - The next Admin meetings are October 11th and November 8th. The next Policy Session will be October 17th.

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Regulating Salinity to Provide Reasonable Protection of the Agricultural (AGR) Beneficial Use in Groundwater

Summary of the Current Approach

- 1) The Basin Plans define AGR as "uses of water for farming, horticulture, or ranching including, but not limited to, irrigation (including leaching of salts), stock watering, or support of vegetation for range grazing."
- 2) "Unless otherwise designated by the Regional Water Board, all ground waters of the Region are considered suitable or potentially suitable, at a minimum, ...for agricultural supply (AGR)... In making any exception to the AGR beneficial use designation, the Regional Water Board will consider whether this is a pollution, either by natural processes or human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for agricultural use using either BMPs or best economically achievable treatment practices."¹
- 3) The Basin Plans do not establish explicit numeric water quality objectives for salinity in groundwater for the AGR beneficial use. However, the TLBP does regulate the maximum average annual increase in groundwater salinity (aka "managed degradation" policy). And, both Basin Plans include the following narrative water quality objective: "Ground waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses."
- 4) Historically, the Regional Board has assumed that TDS concentrations <450 mg/L and EC levels <700 μ S/cm would not adversely affect the AGR beneficial use (including salt sensitive crops). These values, based on guidelines originally published by Ayers and Westcott (1976, 1985), are used to translate the narrative objective into Waste Discharge Requirements (WDRs), receiving water limitations, and/or effluent limits where warranted.
- 5) The Regional Board requires dischargers to achieve compliance with narrative or numeric salinity objectives at "First Encountered Groundwater" (e.g. at the top of the saturated zone).

¹ Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region - 4th Ed. The Sacramento River Basin and the San Joaquin River Basin. Revised Sept., 2009. Pg. II-3.00.

Implementation Issues and Concerns

- 1) The fact that all ground waters are considered "suitable or potentially suitable" for AGR does not mean that subsurface water quality is, or should be, capable of sustaining maximum yield for every conceivable crop. This is particularly true where imported surface water is used to produce crops that would not otherwise be commercially viable if forced to rely on native ground water as the sole source of irrigation supply.
- 2) Ayers & Wescott's salinity guideline (<700 $\mu\text{S}/\text{cm}$) is frequently applied as the default translator for implementing the narrative water quality objective without careful consideration of the existing or reasonably probable future crops that are or may be irrigated with the underlying groundwater.
- 3) Given the average salinity of available water supplies and applied water, it is often impossible to comply with the 700 $\mu\text{S}/\text{cm}$ even after implementing Best Management Practices. There is no feasible or practicable means of meeting the translated narrative objective at First Encountered Groundwater.
- 4) Focusing on salinity concentration as the primary metric for evaluating beneficial use protection and potential water quality degradation penalizes water conservation BMPs that minimize the total salt mass moving through the vadoze zone.
- 5) The regional economy depends on efficient use and re-use of water to maximize agricultural production and minimize waste. Reliance on a single salinity threshold undermines this principle and jeopardizes the industry's ability to grow a variety of different crops with widely varying salt tolerances.
- 6) Ayers and Westcott's recommended salinity guideline for "Unrestricted Use" (<700 $\mu\text{S}/\text{cm}$) has been misinterpreted and applied in a manner inconsistent with the author's conclusions. Some salinity impacts can be mitigated by modern irrigation strategies without unreasonably affecting the beneficial use.
- 7) Evaluating compliance with salinity standards at First Encountered Groundwater does not adequately consider the availability of assimilative capacity in the receiving water to mitigate any adverse effect on AGR uses (subject to state antideg policy).
- 8) Irrigation water is the largest single source of new salt loads to ground waters in the Central Valley. Some salinity degradation is both inevitable and unavoidable. Irrigation practices designed to move salts past the root zone are considered an integral part of the AGR beneficial use. It is appropriate to require BMPs to minimize salt loading to the vadoze zone but irrigation and leaching should not be deemed "waste transport" per se.

Outcome Sought

- 1) A salinity control strategy that provides "reasonable protection" for all existing and reasonably probable future AGR uses in the Central Valley in a manner consistent with the decision criteria describe in §13000 of the California Water Code.
- 2) A salinity control strategy that preserves the economic viability of the greater agricultural industry while minimizing or mitigating the adverse effects of increasing salinity on any particular crop
- 3) A salinity control strategy that is implemented through an objective, transparent and consistent process to evaluate the real-world probability for the occurrence of adverse effects resulting from increasing salinity loads in ground water.
- 4) A salinity control strategy that recognizes the intrinsic differences between surface water and ground water and provides the flexibility to regulate each in accordance with those distinctions.
- 5) A salinity control strategy that recognizes the unique characteristics of the AGR beneficial use, particularly the ability to adapt to changing environmental conditions, that bear upon the question of what constitutes "reasonable protection."

Caveats

- 1) Nothing in the proposed approach to managing salinity in ground water is intended to revise any other numeric water quality objectives for salinity that have been previously established for surface water bodies in the Central Valley Region (including those adopted for the Bay Delta as part of the SWRCB's 1995 Salinity Plan).
- 2) The proposed approach for managing salinity in ground water is intended to implement, not circumvent, the statewide Antidegradation Policy (Res. No. 68-16).
- 3) Establishing more flexible salinity standards for the AGR use in ground water does not waive the legal obligation to comply with more stringent salinity standards where necessary to protect other designated uses (e.g. MUN, IND, PRO).
- 4) As always, the Regional Board retains the authority and the discretion to establish appropriate Waste Discharge Requirements, Receiving Water Limitations or Effluent Limits based on site-specific conditions.

First Principles

- 1) Given the enormous number of relevant factors and complex interrelationships between these factors, it is difficult to establish a single numeric water quality objective for salinity in ground waters designated AGR. Therefore, it is appropriate to continue regulating salinity discharges to ground water using a narrative implementation procedure.
- 2) Absent a specific numeric water quality objective for salinity in ground waters designated AGR, and particularly where there is little or no reliance on local ground water to irrigate existing crops, the primary focus should be on preserving existing quality in a manner consistent with the statewide Antidegradation Policy. This policy allows the Regional Board to authorize higher salinity under certain conditions. The first of these conditions is that lowering water quality cannot unreasonably affect beneficial uses. Thus, the AD policy incorporates the requirement to protect existing uses and encourages a more site-specific analysis. Second, lowering water quality must provide "maximum benefit" to the people of California. This allows a more holistic assessment of both the costs and benefits of increasing salinity in groundwater. Finally, the AD policy requires dischargers to Best Practicable Treatment or Controls to minimize water quality degradation. The 3-part AD test
- 3) While salinity concentrations <700 uS/cm are presumed to fully protect nearly all crops, salinity concentrations greater than 700 uS/cm do not necessarily render water quality "unsuitable" for the AGR use. Ground water salinity in the range between 700-1,500 uS/cm (500-1,000 mg/L as TDS) remains suitable for all but the most salt-sensitive crops. The obligation to apply cost-effective and reasonable BMPs applies equally to all stakeholders (dischargers and water users) in order to assure the most efficient use and reuse of available water supplies in the Region.
- 4) There is a long-standing working assumption that designing water quality objectives to protect the most sensitive species or sub-populations will also protect other less sensitive species and the general population. This assumption does not work well when applied to commercial agriculture where crop yield is the primary measure of use attainment or impairment. While it is true that conservative salinity objectives will protect the yields of both salt-sensitive and salt-tolerant crops, the cost reducing salinity to protect the most salt-sensitive crops may alter the economic viability of many other crops. If the result is a net loss of commercial production, the general AGR use has been adversely affected despite the best intentions.
- 5) The salinity guidelines recommended by Ayers & Westcott and the FWPCA are best employed as thresholds to trigger more detailed water quality analysis rather than as direct translators of the current narrative objective for chemical constituents (as shown in the following flowchart).

Evaluating Whether Salinity is Unreasonably Affecting Existing AGR Uses

(Example to illustrate conceptual flowchart)

- | | |
|---|---|
| 1) Salinity in discharge is <700 $\mu\text{S}/\text{cm}$ at First Encountered Groundwater. | ➔ 1) AGR is fully presumed to be fully protected; burden-of-proof is on those who oppose the discharge to demonstrate otherwise. |
| 2) Salinity in discharge is less than average salinity in receiving water (and particularly in the discharger's Zone-of-Influence) | ➔ 2) Discharge does not lower water quality and the AGR beneficial use is not unreasonably affected. Burden of proof is on opponents of the discharge. |
| 3) Salinity in discharge is >700 $\mu\text{S}/\text{cm}$ and <1000 $\mu\text{S}/\text{cm}$ but there is assimilative capacity available <u>and</u> the average salinity concentration in the receiving water will remain <700 $\mu\text{S}/\text{cm}$. | ➔ 3) Discharge lowers water quality but does not unreasonably affect the AGR use. Burden-of-Proof is on discharger; must also make other Antideg demonstrations (e.g. BPTC & Max. Benefit). |
| 4) Salinity in discharge is >700 $\mu\text{S}/\text{cm}$ and <1000 $\mu\text{S}/\text{cm}$, but there is assimilative capacity available <u>and</u> the average salinity concentration in the receiving water will remain <1000 $\mu\text{S}/\text{cm}$ and there are no existing salt-sensitive crops dependent on groundwater in the discharger's Zone-of-Influence. | ➔ 4) Discharge lowers water quality but does not unreasonably affect the existing AGR use. Burden of proof is on discharger to demonstrate availability and adequacy of assimilative capacity and the absence of salt-sensitive crops in the Zone-of-Influence. |
| 5) Salinity in discharge is >1000 $\mu\text{S}/\text{cm}$ | ➔ 5) Discharge lowers water quality and may adversely affect existing beneficial uses. Burden of proof is on discharger to demonstrate otherwise. Demonstration can be made by submitting affidavits from ag operators within the Zone-of-Influence certifying that their crop yields are not unreasonably affected or the operator has received acceptable mitigation. |



The following table (adapted from FWPCA, 1968 and from Ayers and Westcot, 1985) describes one possible appropriate construct for evaluating salinity-related risks along a continuum for the purpose of interpreting compliance with and attainment of the narrative water quality objectives established to protect the AGR use.

Unrestricted AGR Use	Managed AGR Use	Limited AGR Use	Severely Restricted AGR
EC < 700 uS/cm	EC @ 700-1,500 uS/cm	EC @ 1,500 - 3,000 uS/cm	EC > 3,000 uS/cm
TDS < 500 mg/L	500-1,000 mg/L TDS	1,000-2,000 mg/L TDS	> 2,000 mg/L TDS
Salinity levels below this threshold impose no significant restriction on AGR use. Changes in salinity concentrations that remain below this threshold are presumed to pose no risk of impairment to any existing or potential AGR use. This presumption is rebuttable on a case-by-case basis with the burden of proof falling on those claiming that EC levels less than 700 uS/cm do not provide reasonable protection of the AGR use in specific circumstances.	Salinity in this range may impose some limited restrictions on the time, place and manner where such water could be used for irrigation but, with modern management practices, remains suitable for all but the most salt-sensitive crops. This presumption is rebuttable on a case-by-case basis with the burden of proof falling on those claiming that EC levels in this range provides reasonable protection for the actual and expected AGR uses in a given management zone.	Salinity concentrations in this range may adversely affect the expected yield of many crops and, as such, imposes significant limitations on the use of such supplies for agricultural irrigation. Very careful consideration must be given to crop selection where EC exceeds 1,500 uS/cm. The Regional Board will actively discourage EC levels from degrading beyond 1,500 uS/cm where existing water quality is currently better than that threshold value and will prohibit further degradation where EC levels already exceed 1,500 uS/cm.	Salinity concentrations in this range effectively preclude the AGR use from being attained except in the most extreme circumstances. EC levels greater than 3,000 uS/cm are presumed to impair the AGR beneficial use for all but the most salt-tolerant crops. This presumption is not rebuttable except in instances where EC levels exceed 3,000 uS/cm due to natural causes.

CALIFORNIA WATER CODE
Section 13000

“...activities and factors which may affect the quality of the waters of the state shall be regulated to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible.”

CALIFORNIA WATER CODE
Section 13241

“It is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses. Factors to be considered by a regional board in establishing water quality objectives shall include, but not necessarily be limited to, all of the following:

- a) Past, present, and probable future beneficial uses of water.
- b) Environmental characteristics of the hydrographic unit under consideration, including quality of water available thereto.
- c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.
- d) Economic considerations.
- e) The need for developing housing within the region
- f) The need to develop and use recycled water.”

