

CV-SALTS Subcommittee Meeting



Central Valley Best Management Practices Subcommittee

When: Friday, April 8th, 2011 from 3:00 to 4:30 PM

Location: Conference Call only

Conference #: (218) 339-4600 Participant Code: 927571#

Agenda

1. Welcome and Introductions
2. Select Subcommittee Chair
3. Review and make changes to the draft ***Management Practices Evaluation Approach for Salt and Nutrients (Nitrate)*** Document
4. Review example BMP Documents and structures
5. Structure and content of Attachment 1
6. Next Meeting/Call : May, _____ at _____

CV-SALTS BMP Subcommittee

Management Practices Evaluation

Approach for Salt and Nutrients (Nitrate)

Version - 2

The BMP Subcommittee's charter is to assist CV-SALTS to improve salt and nitrate management through industry and community management practices, identifying, characterizing and evaluating the management alternatives to improve implementation and monitoring of results. This document is part of the Best Management Practice Document Review developed in the Spring 2010.

1 Management Practice Review Approach

At the recommendation of the CV-SALTS Committees or in accordance with the sector schedule below the Subcommittee will evaluate a management practices in accordance with the following process and standards. These will be used to develop a "toolbox" of Management Practices or actions (BMPs) which have been vetted in the CV-SALTS process to assist others in reducing salinity and nitrate. This "toolbox" would provide a range of options and their document effectiveness or expected reductions.

2 Process

The process for new or developing and validated practices are different in their requirements and efforts. Each process is described in summary below (additional details to be described by the subcommittee). Practices are evaluated for acceptance in the "toolbox" as a salt or nitrate management practice. They may be included in the "toolbox" as a management practice or action if they are found to be an improved or advanced practice for a given process and circumstances.

2.1 Sector Review Schedule

The Pilot Salt and Nitrate Source Implementation Study identified sources of salt and each primary or significant source of salt shown in the report will be scheduled for review. Sources (industries or communities) which have prepared Best Management Practice documents will be reviewed in priority to other sources. The Subcommittee will establish the final schedule for review of practices and technologies in each sector, at a pace that is manageable but which reviews all significant sources alternatives prior to the implementation plan development.

Source	Preliminary Date
1. Surface Irrigation and Drinking Water	January 2011
2. Groundwater Drinking and Irrigation Water	January 2011
3. Irrigated agriculture/Fertilizer	May 2011
4. Non-point source/stormwater	May 2011
5. Wetlands	May 2011
6. Wastewater/Industrial dischargers	October 2011
7. Food processing industries	October 2011
8. Wastewater/Residential dischargers	January 2012
9. Dairy and CAFO	January 2012
10. Water treatment and softening	May 2012
11. Septic tank discharges	May 2012
12. Other point sources and discharges to land	October 2012
13. Atmospheric deposition and other sources	January 2013

3 Practice Types

To simplify review and inclusion in the “toolbox” the various practices have been separated into several types. Each type represents a different stage or expectation for the documentation and analysis. There may be additional or subtypes developed in the future.

3.1 Validated Practices

Management practices which are established and can provide information shown in Attachment 1 (to be developed by the Subcommittee) should submit under validated practices. The standards (described below) for effectiveness and broadly demonstrated field implementation should be thoroughly met through any variety of sources of documentation including scientific studies, university research, trade research publications and monitoring or other verifiable sources. These practices will allow the greatest implementation flexibility and lowest monitoring requirements. Attachment 1 (to be developed) will provide an evaluation framework and formats for information to be submitted. The result will be a compendium of information concerning the practice or action that makes it amenable to implementation.

Management Practices which have been evaluated by other Best Management Practice programs may submit documentation for concurrence in the formats provided in Attachment 1.

3.2 New or Developing Practices

Many management practices to address salt and nitrate are new or are still being developed, demonstrated or validated. The identification of a practice as new or developing should not detract from its perceived effectiveness or value, but only indicates its status of implementation and review. New or developing practices will not have all documentation under the standards section and will not generally have monitoring necessary for full validation information. The practices will be listed as new or developing and included in that section of the “toolbox” meaning additional monitoring or information may need to be provided by implementing industries or communities.

3.3 Indirect or Policy Practices

Another grouping of practices includes practices which are deemed appropriate and necessary but may not directly impact salt or nitrates in the environment and for which quantification other than broad societal estimates are not reliable. For these practices inclusion in the “toolbox” will be based on industry recommendation or regulatory requirement or where they are a clear adjunct to other actions. Such actions and practices may include public outreach and awareness for urban and rural water users and wastewater dischargers. Rate structures and other economic incentives to reduce salt and nitrate that could become released to the environment. Because of their status cost effectiveness may be impossible to determine.

4 Standards

Effectiveness and superiority to general practice must be shown for management practices for salt and nitrate. The Demonstration of Best Practices may be situational or not be able to be determined until implemented in several locations. (The Subcommittee will develop these further in the coming meetings.)

4.1 Technical Effectiveness

Demonstrating Technical effectiveness is critical for a management practice to be implemented and accepted by industry or communities. Evidence of technical effectiveness is demonstrated by lab, pilot and demonstration studies and evaluation of the studies.

4.2 Implementability

Implementability includes both feasibility as well as well as broad applicability. Satisfactory implementability is shown by evidence of implementation by industries and communities as wells as other issues related to cost and efficiency covered in other sections.

4.3 Cost effectiveness

Cost effectiveness is critical to being a best practice, low efficiency costly practices are not likely to be able to be broadly implemented due to the value of implementation. High value practices will likely be implemented with minimal regulatory requirements. The assessment of effectiveness related to cost is not always a simple as dollars per ton of salt or pound of nitrate, often it is the cost to implement, operate and maintain and the availability of technically trained workforce to implement the practice.

4.4 Monitoring

Both ability to monitor as well as the length and breadth of the monitoring history will be identified in this standard, primarily related to validated or developing.

4.5 Other Regulatory or Non-Regulatory Approvals

CV-SALTS may be able to defer to prior decisions made by Waterboards, industrial societies and accreditation groups for validation. Where appropriate this should be done to reduce the cost and delays associated with duplication of validation.

5 Management Practice List

The Subcommittee will establish and update a list of management practices and alternatives that are known to the Subcommittee. This list will be used to track management practices, alternatives and technologies. The list will be maintained by the Subcommittee and CVSC. The list will be available on the cvsalinity.org website and track the status of evaluation and verification or monitoring. The Preliminary list of practices is shown as Attachment 2, this list will be replaced by committee efforts.

6 CV-SALTS Management Practice or Technology Presentations

Technologies appropriate for presentation to CV-SALTS Technical Committee or Executive Committee are technologies and approaches that have been reviewed in accordance with the process set forth above and found to merit wider application. Presentation opportunities are limited to available meeting time and may take several months to schedule. Technologies warranting presentation should normally be validated or have had several pilot deployments with monitoring data to demonstrate effectiveness. Exceptions may be granted by the committee for alternatives and technologies that show special promise or that are strongly recommended by an Executive Committee Member.

Vendors or technology proponents who wish to have their salt and nitrate alternatives or technologies evaluated for presentation should contact the Central Valley Salinity Coalition or the Committee Chair.

7 Additional Recommendations and Questions for Consideration

The CV-SALTS committees should consider the following recommendations and questions:

1. We recommend the Technical Committee discuss the level of expertise needed to review the practices and make recommend where that expertise is available to CV-SALTS.
2. We recommend CV-SALTS consider who should best implement this effort, from a technical and management or policy approach. Should it be contracted or done by volunteers and if so what funding and support is available from the State/Regional Board or industry.
3. We recommend the Executive Committee and Regional Board determine what information is needed from this process for the Basin Plan amendment and how will the results be integrated into the Basin Plan or supplemental documents.
4. What accounting methods are needed for the implementation of the BMPs and what credit or allowances will be provided to those who have implemented the BMP's or commit to do so?
5. We recommend the Regional Board both CV-SALTS and other regulatory areas provide guidance on how they review such practices related to permits issued by their agencies
6. We recommend that CV-SALTS and the Regional Board determine what the "toolbox" practices with the Regional Board and its programs?
7. We recommend the committees discuss the importance of the Indirect BMPs in the Basin Plan context and their proposed inclusion in the "toolbox".
8. If an entity commits to implement a specific management practice with a documented efficiency will they be held to achieve that reduction? What if the basin plan counts of that reduction for salt management or balance?

Attachment 1

This attachment provides information on the review of Management Practices for inclusion in the CV-SALTS “toolbox” for reductions in salt and nitrate that are significant to the basin plan.

Outline

Evaluation Framework

The committee should develop an evaluation framework for review and documentation.

1. Screening
2. Preliminary Assessment
3. Detailed/Expert Review
4. Science Review if needed
5. Committee actions
6. Toolbox update
7. Implementation
 - 7.1 Operations and Maintenance
 - 7.2 Monitoring
 - 7.3 Reporting
 - 7.4 Continuous improvement

Data Formats

Standardization of information on Management Practices is of value for both review of the practices as well as for management of the implementation and effects to overall salinity management in the basin plan. The following areas should be more completely developed by the committee:

1. Title
2. Description
3. Constituent salt or nutrient
4. Applicability
5. Effects and Results
6. Effectiveness calculation or narrative discussion
7. Studies and research (compendium format)
8. Implementation monitoring (completed and required)
9. Critical factors to efficiency
10. Implementation Costs (range per _____)
11. Cost effectiveness (range per ton?)

Attachment 2

A very preliminary list of potential management practices, actions, efforts and alternatives to manage salt and nitrate. This list is sourced from brainstorming, web research and other sources no attempt at screening or evaluation was conducted. This list should be replaced with a list developed by the Subcommittee.

1. Irrigation efficiency/reduce irrigation – Would reduce salt from imported or evapotranspiration of groundwater
2. Tailwater reuse/Drainage recirculation – reduced discharged salt may increase
3. Growing Salt tolerant Crops – reduces imported water and maintains some production
4. Evaporation Ponds, solar evaporators – isolates the salt
5. Land disposal and retirement uses land to store salt and retired
6. Biologic and filtration drainage treatment systems to remove salt and selenium
7. Enhanced evaporation systems – Isolate salts for management
8. Salt separation and utilization – fractionate and create products
9. Drain water and brackish water desalination Isolates salt for Management
10. Detergent reformulation - source control
11. Industrial biomass and brine management – isolates salts and potentially reuses salts
12. Plasma converter – creates fuel and products
13. Reduce Imported Feed for CAFO's – reduces salt import from feedsources
14. Reduce Seepage from Conveyance - reduces dissolution of salt from soils
15. Industrial Salt Source reduction/reuse – reduces salts for production
16. Increase export of salt containing products - exports salt unless salt is brought in to produce products
17. Increase salt export in surface water leaving the region, San Joaquin River and State Water Project- export of salts could be hampered by toxic constituents and flow required
18. Increase Outdoor Landscape Irrigation efficiency – reduces imported water and groundwater use with salts
19. Increase indoor water use efficiency – reduces imported water and groundwater use with salts
20. Reduce water softening need or shift to ocean disposal of brine – reduces salt from residential indoor plumbing
21. Water preconditioning, Lime softening and management at water plant – reduces softening need and salt related to softeners
22. Salt collection and Landfill disposal – Disposal and removal from basins
23. Increase salt discharge at EBMUD – ocean discharge and removal from basins
24. Salt collection and treatment (ocean qualified brine) for ocean discharge – ocean discharge and removal from basins
25. Deep well injection for storage and recovery of salts – Removal of salt from basins, with recovery when economic
26. Various source controls - Reduce salt imported and discharged

27. Legislation to require any new industrial use of salt to use salt produced in “salt surplus” areas of the state, as public policy to reduce transportation and minimize import
28. Tax imported salt and credit salt that is produced from salt surplus areas and exported.
29. Sell the salt to the melting polar ice cap areas to help offset the dilution of ocean water with melting ice
30. Concentrate and market to Canada, Toronto alone uses 150,000 tones of salt annually, or trade them for low TDS water.
31. Digestion and Co-digestion of wastes containing salt – Concentrates salt for removal
32. Credit or offset program, cap and trade programs to geographically or temporally shift salts

This list likely should be converted to a matrix by type of management effort, application and result

Salt Reuse Opportunities

Nutrient or Flavor

baking, breakfast cereals, butter and cheese, canning, cattle blocks, flour mixes, heat tablets, isotonic solutions, livestock feeds, oleomargarine, pickles, potash substitute, salted nuts, table salt, spices and flavoring

Preservative

cheese making, cucumber salting, fish bait curing, fish curing, hay preserving, hide curing, meat curing, sausage

Food Processing Material

blanching seafood & vegetables, chicken de-boning, crabmeat pickling, egg preservative, fish striking agent, gravity separation, oyster shucking, wine stabilization, yeast processing

Chemical Manufacturing

Calcium hypochlorite, Chlorine dioxide, Sodium chlorate, Sodium fluosilicate, Sodium hypochlorite, Sodium Perchlorate

Freezing Point Depressant

coal antifreeze, highway de-icing, ice cream making, ice manufacture, iron ore antifreeze, refrigerating brines, refrigerating cars

Metallurgical Processing

chloride roasting, drawing lubricant, foam killer, heat treating baths, iron ore cementation, metallurgical flux, mill scale remover, molten metal cover, rare metal refining, sink and float baths

Miscellaneous Processing

artificial seawater, coal briquettes, dehydrating agent, dye processing, dyestuff carrier, electrolytic milling, emulsion breaker, etching aluminum foil, herbicides, ion exchange regeneration, leather tanning, rubber coagulant, soap salting-out agent, soil stabilizer, starch manufacture, synthetic leather manufacture, textile dyeing, tile glazing, water softening, weed killing, well drilling fluids.

Soda Ash - Na₂CO₃

abrasives, adhesives, batteries, ceramics, cleansers, cosmetics, degreasers, dyes, explosives, fats and oils, fertilizers, fire extinguishers, inhibitors, insecticides, leather, metal fluxes, ore refining, paint removers, paper, petroleum, pigments, soap, textiles, water softeners

Sodium - Na

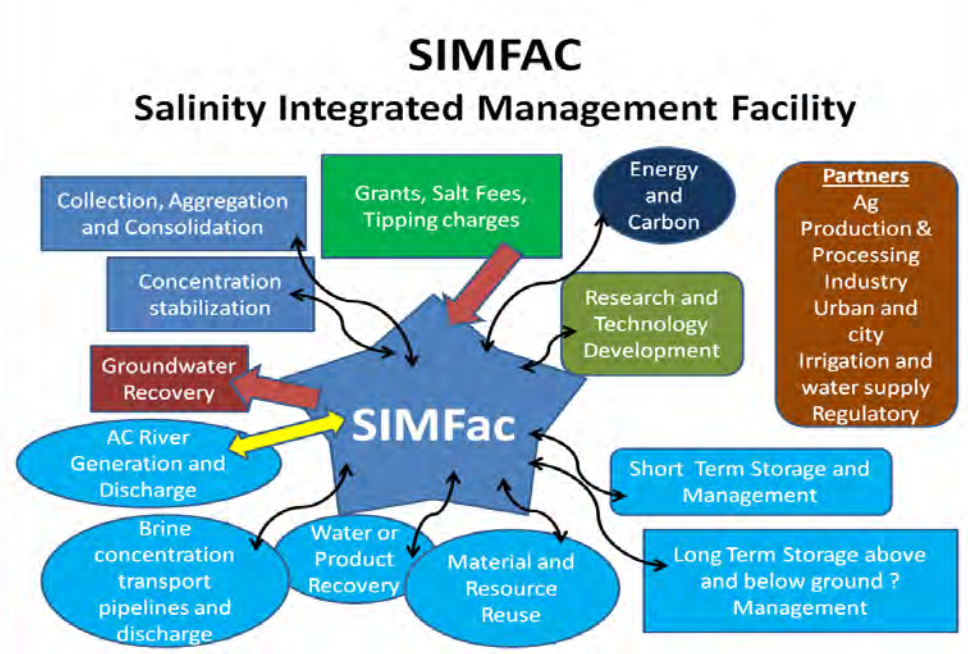
bactericides, case hardening, cosmetics, detergents, dye fixation, dyes, flour conditioning, fumigation, heat

transfer, ore refining, organic synthesis, paints, pharmaceuticals, photography, pigments, plating salts, pulp bleaching, starch conversion, tetraethyl lead, textile bleaching, titanium metal, zirconium metal

Sodium Sulphate - Na₂SO₄

ceramics, detergents, dyes, explosives, fertilizers, metal fluxes, paper, pharmaceuticals, photography, pigments, plating salts, rubber, soap, textiles

Business or Enterprise Model to Combine Alternative Technologies or Processes



Best Management Practice Review for Salinity and Nitrate/Nutrients **DRAFT 5**

Background and Purpose

Best Management Practices (BMP) guidelines are developed in many industries and groups for the purpose of leadership and consistency of approaches to solving process problems. BMP guidelines take various forms, differ in detail and intent, and are applicable for different purposes. They may provide very specific practices in compliance with product standards or very broadly describe guidelines for methods of process improvement. Once widely accepted they are by and industry of group they are significant because acceptance of the practices as can represent the highest level practice for a process or activity. CV-SALTS can leverage the effectiveness of the BMPs to encourage CV-SALTS participants to demonstrate a range of best practices for the management of nitrate and salinity for their group or industry. In this document CV-SALTS will clarify its role and interests in the review and endorsement of BMPs.

CV-SALTS Role and Interests

The primary goal of CV-SALTS is the planning and implementation of efforts that will manage salinity and nitrates in waters of the Central Valley. This effort focuses on two areas:

1. Developing plans and studies leading to the development and approval of Basin Plan Amendments (BPA) for salt and nitrates/nutrients in the Central Valley,
2. Develop and implement projects and programs which reduce and manage salts and nitrates in a coordinated regional manner in the Central Valley through regulatory and non-regulatory methods.

The second area encompasses BMPs as part of the “early implementation efforts” which ensures that progress can be made in the management of salt and nutrients before the BPAs are completed. Preparing and reviewing BMP documents for industry and group implementation are considered early implementation efforts within CV-SALTS.

Consistent with CV-SALTS mission and goals CV-SALTS BMP review interests are as follows:

1. Consider reviewing BMPs when groups or industry request endorsement,
2. Identify BMPs which assist the region with early implementation,
3. Provide a forum for the technical discussion and understanding of the BMP and its effects on the region, and
4. Endorse BMPs with demonstrated value to assist CV-SALTS in meeting salt and nitrate management needs for the Region.

A BMP review by CV-SALTS is voluntary and not a CV-SALTS or Regional Board regulatory requirement. The Committees will consider reviewing BMP documents on request and subject to resources constraints. Requested additional technical efforts may require financial support by the industry or group.

Disclaimer

The submission of a BMP document for review, even upon endorsement, does not indicate that the guideline is applicable to all facilities or for any purpose other than for which it was developed. While similarities in facilities, processes and practices may be useful to others, different industries or groups should prepare documents to be reviewed and not rely on other's BMPs. Because of variability in facilities and circumstances, BMP guidelines for an industry or group cannot be implemented rigidly across all facilities even in that industry or group. Any BMP guideline should clearly indicate clearly its applicability. The endorsement of the CV-SALTS Technical and Executive Committee does not indicate technical or policy appropriateness for every area or a regulatory or permitting guarantee. However, it should significantly streamline the review of the BMPs as part of a permitting process because the endorsement of a BMP indicates that the practices contained therein are sound and will help CV-SALTS reach its goals to manage salt and nitrate in the region.

BMP Document Development Recommendations

Existing plans and BMP documents vary in content and applicability. CV-SALTS will work with existing documents on a case by case basis. As a general guideline CV-SALTS recommends groups or industries analyze and document the following important areas in preparing or updating BMP documents:

1. Describe general processes and operations in the group or industry and the main sources or concentrators of salt and nutrients leaving the facility or entering the environment.
2. Identify historical and current management practices, and detail the range of possible management practices available for reducing or managing salt and nutrients
3. Of the practices that were considered indicate how the most effective (best) practice was identified. For each processes area, within the normal range of conditions, identify the information needed to determine BMP applicability and implementation success factors
4. Evaluate or demonstrate effectiveness of the BMPs and the suite of likely BMPs to be implemented by the group or industry's members; indicate the salt and nutrients reduced or removed and the magnitude of the reduction
5. Demonstrate or evaluate the expected cost effectiveness of the BMP or suite of BMPs for the industry or group in removing or reducing salt and nutrients
6. Describe the data documenting the BMP effectiveness and implementation is available and its completeness or which should be collected. Also indicate monitoring, reporting and analysis that will be performed by the industry or group and how it will be reported or be available to CV-SALTS

BMP documents and plans which contain the information above will be conducive to CV-SALTS review and more likely to gain prompt approval from regulatory entities. Plans that do not contain all elements may still be reviewed but may be more difficult to complete or raise additional questions from the Committees.

Form Instructions

This format is for the CV-SALT Committees to document their process and content review for industry, area, group or other parties that submit a draft Best Management Practice Document and request the endorsement of CV-SALTS Committees. This would ideally be done when the document is still a draft.

Process

Questions 1 through 10 are to be completed by the applicant based on the information contained in the BMP or supplemental documents submitted by the applicant and listed in question 1. The documents listed in response to question 1 and provided by the applicant will what is used by CV-SALTS for the Technical Committee review process. When complete a presentation to the Technical and Economic and Social Cost Committees will be scheduled. After presentation and discussion and any comments are provided the requesting industry or group may modify the document and responses to the questions.

Questions 11-17 are to be completed by or for the Committee Chair and provided to the Committee for review and approval. Upon Technical Committee approval the completed form and BMP documents will be placed on the next Executive Committee agenda for review and approval. Based on the comments of the Executive Committee, the Chair and requesting group or industry may make any changes appropriate to the form. Upon approval of the Executive Committee the BMP will carry the endorsement of the CV-SALTS Initiative.

Further Explanation of Questions

Most of the questions are self explanatory, however more detail and intent is needed for several questions. Questions 5-6 attempts to fulfill the need for the Committee's review to identify the impact and extent to which the BMP helps CV-SALTS achieve management of salt and nitrates. Effectiveness can be difficult to gauge. Effectiveness could be expressed as the percentage reduction in constituent for the suite of practices in the BMP multiplied by the percentage of facilities that will implement the BMPs; if know. For BMPs that offer a range of practices an estimate may be needed. This estimate should be followed by reporting of the number of facilities and observed reductions. Magnitude as used in the form is intended to be the total of the impact or reduction in salt and nitrate from all facilities and years of implementation up to the lifetime of the process or 30 years.

BMP Technology Evaluation

For submissions to the Regional Board which are required to be developed or implemented for regulatory compliance will utilize technical guidelines developed by CV-SALTS. CV-SALTS will provide the framework and technical analysis requirements for Beneficial/Best Management Practices submitted. To develop these requirements/guidelines the Technical Committee may wish to utilize and evaluate methods from stormwater BMP development.

ASCE/EPA BMP development process, Performance Evaluation Measures, Performance Monitoring

BMP Technology Evaluation will be developed as a separate task along with the process for recommending identifying Best Practical Treatment or Control for salt and nitrate, as required in the CV-SALTS Initiative 2010 Milestones.

Document and Practice Description

This section will include the questions to be answered from the document or by the organization proposing the BMP.

1. BMP Document Names, Date, Version and Web links

Document	Date	Version	Link to Document

2. Describe in summary how the BMP as proposed improves the management of salt and nitrate and how was it determined that this BMP or set of BMPs was best.

3. Describe the coverage of the BMPs: by industry, processes, practices, area , state or localized



- 4. Describe the applicability, all facilities or processes, most facilities, optional or describe requirements for determining applicability and provide references to the documents

- 5. Describe the anticipated range of effectiveness of the BMPs and expected overall effectiveness of the combination of practices recommended in the BMPs document.

- 6. What is the magnitude of the change proposed, what volume of Salt or Nitrates/Nutrients that will be affected? What total quantity will be reduced or not enter the environment over the implementation?

7. Describe why is this plan sufficiently better than the status quo to implement it now?

8. Describe the overall cost effectiveness of the salt or nitrate management practices in the BMP document? What are the average expected capital and operating cost per unit of salt and nitrate removed? Indicate references to the documents which detail this information.

9. What are the safeguards and monitoring and the opportunity to modify the BMP as needed?

10. Describe Tracking/Monitoring and where documentation is or will be submitted and its format

Committee Review Process

This section will be answered by the Committees and document the review and endorsement.

11. CV-SALT Committees document their process in Review of Best Management Practice.

Date of First Presentation	
Date of Final Disposition	

12. When was the document presented to the CV-SALTS Committees?

13. Were significant technical or policy issues raised by Committee members or other stakeholders? Could the Committee determine the technical adequacy of the documentation? List any issues

14. How were issues in #13 resolved?

15. Are there sufficient safeguards and monitoring and the opportunity to modify the BMP as needed?

Yes		
No		

16. Does the Committee concur with the description in Section 1? Comments

Yes		
No		

17. Describe the Recommendation of the Technical Committee

18. Describe the Executive Committee agreement or modification of the recommendation?