AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO

DATE: June 25, 1997

TO: Air Pollution Control Board

SUBJECT: Adoption of Amendments to Rule 67.10 (Kelp Processing and Bio-Polymer Manufacturing Operations)

SUMMARY:

Rule 67.10 controls volatile organic compound (VOC) emissions from kelp processing and bio-polymer manufacturing operations. VOC's are smog precursors. In February 1996, the Environmental Protection Agency (EPA) notified the District that Rule 67.10 had been approved into the California State Implementation Plan (SIP) but would be given only a limited approval because of specified deficiencies. Revisions are proposed to correct these deficiencies. Failure to do so and receive full approval before October 15, 1997, will result in the imposition of federal sanctions in San Diego County (2.0 to 1.0 emission offset ratio for new and expanding major businesses and withholding of up to $75 million in federal transportation funds).

In addition, the rule amendments will implement the requirements of a Consent Decree entered into by EPA and NutraSweet Kelco, the only company affected by the rule. EPA and NutraSweet Kelco have insisted the requirements of the Consent Decree be so incorporated.

The proposed amendments will require VOC emission reductions from dryers in kelp processing lines by 90%, and from process mixers (incorporators) in bio-polymer processing lines by 80%. The amendments also delete the exemption of low volatility organic compounds, strengthen the liquid leak prevention program by applying a fugitive liquid leak definition to all mixer leaks, and require a visual monthly inspection of all process equipment and associated components at the facility.

In addition, the amended rule references an EPA approved test method for capture efficiency of an emission collection system, updates definitions and recordkeeping requirements, and adds a compliance schedule for installing additional control equipment required by the Consent Decree. It also makes the rule format consistent with other rules and deletes outdated provisions.

When implemented, the rule will reduce VOC emissions from kelp processing and bio-polymer manufacturing operations at NutraSweet Kelco by approximately 35% from current emission levels, or 432 tons per year.

An assessment of the socioeconomic impacts of the proposed amendments was prepared. The conclusion was that the proposed amendments will not have a significant economic impact on the affected company.

A workshop was held on February 5, 1997. The workshop report is attached.

SUBJECT: Adoption of Amendments to Rule 67.10 (Kelp Processing and Bio-Polymer Manufacturing Operations)

Issue

Should the Board amend Rule 67.10 to correct deficiencies identified by EPA and satisfy the requirements of the Consent Decree between EPA and NutraSweet Kelco?

Recommendation

AIR POLLUTION CONTROL OFFICER:

Adopt the resolution adding Rule 67.10 to the District Rules and Regulations and make appropriate findings:

(i) of necessity, authority, clarity, consistency, non-duplication and reference as required by Section 40727 of the State Health and Safety Code;

(ii) that adopting Rule 67.10 will alleviate a problem and will not interfere with attainment of ambient air quality standards (Section 40001 of the State Health and Safety Code);

(iii) that an assessment of the socioeconomic impact of the proposed amendments has been prepared and has been made available for public review and comment, and that the socioeconomic impacts of the proposed amendments have been actively considered and the District has made good faith effort to minimize adverse socioeconomic impacts; and

(iv) that there is no reasonable possibility that the amended rule may have a significant effect on the environment, and that adoption of amended Rule 67.10 is categorically exempt from the provisions of the California Environmental Quality Act pursuant to California Code of Regulations, Title 14, Sections 15308, as an action taken to assure the maintenance or protection of the environment and where the regulatory process involves procedures for protection of the environment.

Alternative

Not amend Rule 67.10. The deficiencies identified by EPA will not be corrected. EPA notified the District that failure to correct deficiencies and receive full approval before October 15, 1997, will result in the imposition of federal sanctions on San Diego county. In addition, EPA's and NutraSweet Kelco's request to incorporate the requirements of the Consent Decree in Rule 67.10 will not be met. Therefore, this alternative is not recommended.

Advisory Statement

The Air Pollution Control Advisory Committee met to consider the proposed amendments to Rule 67.10 on May 28, 1997. A quorum of the Committee was not present. The three committee members present recommended adoption of the proposed amendments.

Fiscal Impact

Adopting the proposed rule will have no fiscal impact on the District.

SUBJECT: Adoption of Amendments to Rule 67.10 (Kelp Processing and Bio-Polymer Manufacturing Operations)

Additional Information

Attachment I contains additional background information, information on compliance with Board policy on adopting new rules, additional information on Socioeconomic Impact Assessment requirements, and information on compliance with the California Environmental Quality Act.

Attachment II contains the Resolution amending Rule 67.10.

Attachment III contains the report for the workshop held on February 5, 1997.

Attachment IV contains a Socioeconomic Impact Assessment of the proposed amended Rule 67.10.

Concurrence:

LAWRENCE B. PRIOR III
Chief Administrative Officer

Respectfully submitted,

BY: ROBERT R. COPPER
Deputy Chief Administrative Officer

R. J. SOMMERVILLE
Air Pollution Control Officer

SUBJECT: Adoption of Amendments to Rule 67.10 (Kelp Processing and Bio-Polymer Manufacturing Operations)

LD 6/5/97

COUNTY COUNSEL APPROVAL: Form and Legality [X] Yes [ ] N/A
[ ] Standard Form [ ] Ordinance [X] Resolution

CHIEF FINANCIAL OFFICER/AUDITOR REVIEW: [ ] Yes [X] N/A
4 VOTES: [ ] Yes [X] No

CONTRACT REVIEW PANEL: [ ] Approved _____ [X] N/A

PREVIOUS RELEVANT BOARD ACTION: 6/15/94, APCB Item #1

BOARD POLICIES APPLICABLE: N/A

CONCURRENCES: N/A

ORIGINATING DEPARTMENT: San Diego County Air Pollution Control District

CONTACT PERSON: Richard Smith, Deputy Director (S50)694-3303 MS: 0-176

R. J. SOMMERVILLE, APCO
DEPARTMENT AUTHORIZED REPRESENTATIVE

JUNE 25, 1997
MEETING DATE

ATTACHMENT I

ADOPTION OF AMENDMENTS TO RULE 67.10 (KELP PROCESSING AND BIO-POLYMER MANUFACTURING OPERATIONS)

Additional Background Information

Rule 67.10 was originally adopted in 1985 to control volatile organic compound (VOC) emissions from kelp processing and bio-polymer manufacturing operations. It was approved by EPA and incorporated into California State Implementation Plan (SIP) in 1987.

The rule affects only one company in San Diego County - NutraSweet Kelco (Kelco), the largest stationary source of VOC emissions in the county. Based on the latest emission inventory, Kelco's current VOC emissions are approximately 1220 tons per year.

Rule 67.10 controls VOC emissions from Kelco's manufacturing facilities, including pilot plants, through a combination of add-on control technology, fugitive emissions control and specified housekeeping procedures. Process lines emitting less than 15 lbs per day of VOC's, and laboratory and pilot plant facilities used exclusively for research and development are exempt from the rule provided appropriate records are kept to verify the exemption.

In 1994, the District revised and strengthened Rule 67.10 to comply with the Federal Clean Air Act requiring major stationary sources to install reasonably available control technology. Subsequently, the revised rule was submitted to EPA for approval and incorporation into the SIP.

Even though EPA advised that the revised Rule 67.10 met federal requirements prior to 1994 adoption, in February 1996, EPA notified the District that the rule would be given only limited approval because of specified deficiencies. It stated further that failure to have revised Rule 67.10 approved into the SIP before October 15, 1997 will result in imposition of federal sanctions including a 2.0 to 1.0 emission offset ratio for new and modified major sources, and the withholding of up to $75 million in federal transportation funds.

On November 6, 1996, NutraSweet Kelco entered into a Consent Decree with EPA to resolve alleged violations of the California SIP. The Consent Decree requires the facility to install additional emission control equipment for certain processes and specifies control efficiency requirements, applicable test methods and a compliance schedule. EPA and NutraSweet Kelco have insisted the requirements of the Consent Decree be incorporated in Rule 67.10.

The proposed revisions correct deficiencies and incorporate the requirements of the Consent Decree. Specifically, the proposed amendments will delete the exemption for low volatility organic compounds, such as propylene glycol, and require uncontrolled emissions from dryers in kelp processing lines be reduced by at least 90%. They also apply the "fugitive liquid leak" definition to all leaks from process mixers (incorporators) in kelp processing lines, and require emissions from mixers be captured and reduced by at least 80%. In addition, the amendments require a visual monthly inspection of system components to ensure there are no fugitive liquid leaks and delete the stipulation that a test period shorter than 16 hours cannot be used for determining non-compliance. The amended rule will also reference an EPA approved test method for determining the capture efficiency of an emission collection system and add a compliance schedule for installing required control equipment for mixers and dryers.

Finally, the amendments will update recordkeeping requirements and definitions, including the "exempt compounds" definition, clarify the rule structure, delete outdated provisions and provide minor clarifications and changes.

Compliance with Board Policy on Adopting New Rules

On February 2, 1993, the Board directed that, with the exception of a regulation requested by business or a regulation for which a socioeconomic impact assessment is not required, no new or revised regulation shall be implemented unless specifically required by federal or state law. The proposed changes to Rule 67.10 are consistent with this Board directive because they are mandated by EPA.

Socioeconomic Impact Assessment

Section 40728.5 of the State Health and Safety Code requires the District to perform a socioeconomic impact assessment for new and revised rules and regulations significantly affecting air quality or emission limitations. A socioeconomic impact assessment was prepared by the District. The conclusion was that while the overall cost of implementing the amended rule is significant, it represents less than 1% of NutraSweet Kelco's total sales and would only marginally increase the cost of its products. Given this, the proposed amendments will not have a significant economic impact on this company.

If implemented, amended Rule 67.10 will reduce VOC emissions in San Diego County by about 1.2 tons per day (432 tons per year) at an estimated overall cost-effectiveness of $0.63 per pound of VOC reduced; well below the cost-effectiveness of recently adopted District rules applicable to other VOC sources. At the same time, significant VOC emission reductions achieved as a result of the Rule 67.10 amendments will benefit air quality in San Diego County, contributing to the attainment of both federal and state ambient air quality standards for ozone.

California Environmental Quality Act

The California Environmental Quality Act requires an environmental review for certain actions. No significant adverse impacts on the environment have been suggested; no such impacts are reasonably possible. Adopting the proposed amendments to Rule 67.10 will not have a significant effect on the environment and is categorically exempt from the provisions of the California Environmental Quality Act pursuant to California Code of Regulations, Title 14, Section 15308, as an action taken to assure the maintenance or protection of the environment where the regulatory process involves procedures for protection of the environment.

Resolution No. 97-194

Re Rules and Regulations of the)
Air Pollution Control District)
of San Diego County . . . . .)

WEDNESDAY, JUNE 25, 1997

**RESOLUTION AMENDING RULE 67.10
OF REGULATION IV
OF THE RULES AND REGULATIONS OF THE
SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT**

On motion of Member Jacob, seconded by Member Roberts the following resolution is adopted:

WHEREAS, the San Diego County Air Pollution Control Board, pursuant to Section 40702 of the Health and Safety Code, adopted Rules and Regulations of the Air Pollution Control District of San Diego County; and

WHEREAS, said Board now desires to amend said Rules and Regulations; and

WHEREAS, notice has been given and a public hearing has been had relating to the amendment of said Rules and Regulations pursuant to Section 40725 of the Health and Safety Code.

NOW THEREFORE IT IS RESOLVED AND ORDERED by the San Diego County Air Pollution Control Board that the Rules and Regulations of the Air Pollution Control District of San Diego County be and hereby are amended as follows:

Proposed amendments to Rule 67.10 are to read as follows:

RULE 67.10. KELP PROCESSING AND BIO-POLYMER MANUFACTURING OPERATIONS

(a) **APPLICABILITY**

(1) Except as otherwise provided in Section (b), this rule is applicable to any kelp processing or bio-polymer manufacturing line, or associated pilot plant facility, where volatile organic compounds (VOC's) are used as reactants, dissolvers or extractants or used to separate or purify the products of kelp processing or bio-polymer manufacturing line operations.

(2) Kelp processing and bio-polymer manufacturing operations subject to, or exempt from, this rule shall not be subject to Rule 66.

(b) **EXEMPTIONS**

The provisions of Sections (d), (e), and (g) of this rule shall not apply to:

(1) Any kelp processing or bio-polymer manufacturing line where emissions of VOC's, at the maximum design capacity of the line, are no greater than 15 pounds in any one day, provided total emissions of VOC's from all kelp processing or bio-polymer manufacturing equipment located at a stationary source are no greater than 100 pounds in a day. It shall be the

responsibility of a person claiming this exemption to maintain daily records necessary for the District to determine the applicability of such an exemption; and

(2) Fuel oil; and

(3) Laboratory facilities used exclusively for research and development provided that monthly records are kept of the usage of VOC-containing materials; and

(4) Any temporary equipment installed in a pilot plant facility and resulting in an emissions increase not exceeding 10 pounds of VOC's per day. It shall be the responsibility of a person claiming this exemption to maintain daily records necessary for the District to determine the applicability of such an exemption.

All records pursuant to Subsections (b)(1), (b)(3), and (b)(4) shall be retained on site for at least five years and shall be submitted to the District upon request.

(c) **DEFINITIONS**

For the purpose of this rule the following definitions shall apply:

(1) **"Approved Air Pollution Control Device"** means a single piece of equipment or combination of pieces of equipment which is designed to reduce the emissions of air contaminants and which is approved, in writing, by the Air Pollution Control Officer.

(2) **"Bio-polymer Manufacturing Line"** means one or more pieces of equipment linked by a process flow in which a bio-polymer or any of its precursors is dried, extracted, filtered, mixed or reacted with any VOC where the end product cannot be produced if any piece of equipment is removed or not functioning.

(3) **"Dryer"** means a device used to remove water and/or VOC's from a material by applying heat, by flowing unsaturated air, or by subjecting the material to vacuum, or any combination thereof.

(4) **"Exempt Compound"** means the same as defined in Rule 2.

(5) **"Fugitive Liquid Leak"** means a visible leak of liquid, containing greater than 10 percent by weight VOC, at a rate in excess of three drops per minute, or a visible mist. For the purposes of this rule, a liquid leak dropping into a capture system which is connected to an air pollution control device shall not be considered a fugitive liquid leak.

(6) **"Incorporator"** means a device in which a solid and a VOC introduced into the device are mixed, where it is not intended that the VOC chemically modify the solid.

(7) **"In-Process Tank"** means a tank, which is part of a kelp processing or bio-polymer manufacturing line or pilot plant facility and which is used to handle or transfer VOC-containing material. In-process tanks include spent pots, but exclude stationary storage tanks.

(8) **"Kelp Processing Line"** means one or more pieces of equipment linked by a process flow in which kelp or any of its derivatives is dried, extracted, filtered, mixed, or reacted with any VOC where the end product cannot be produced if any piece of equipment is removed or not functioning.

(9) **"Laboratory Facility"** means a facility which uses bench-scale or small-scale equipment for the purpose of conducting studies or tests for the research, development or evaluation of a product, process, or service.

(10) **"Pilot Plant Facility"** means a facility which uses small-scale or intermediate-scale process equipment.

(11) **"Press"** means a mechanical device for separating liquids from solids.

(12) **"Reactor"** means a device in which a chemical reaction takes place between two or more materials introduced into the device, where a VOC chemically modifies one or more materials.

(13) **"Research and Development"** means bench-scale or small-scale kelp and/or bio-polymer processing operations, including operations performed for purposes of testing and quality control, which are not used for production purposes to produce a salable product or service, other than the first-article product or service.

(14) **"Spent Pot"** means the container where VOC-containing liquid is initially collected after being discharged from a press.

(15) **"Stationary Source"** means the same as ~~is~~ defined in Rule 2.

(16) **"Stationary Storage Tank"** means any tank, reservoir, or other container used to store, but not transport, VOC. Stationary storage tanks do not include tanks used to separate solids from process streams or spent pots.

(17) **"Still"** means a device designed to separate, in whole or in part, the constituents of a mixture of miscible liquids by heating the liquid mixture and preferentially condensing and collecting the vapors.

(18) **"Temporary Equipment"**, for the purposes of the exemption in Subsection (b)(5), means equipment located at a pilot plant facility for a period not exceeding 90 days in any consecutive 12-month period.

(19) **"Volatile Organic Compound (VOC)"** means any volatile compound containing at least one atom of carbon excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonates, and exempt compounds which may be emitted to the atmosphere during operations subject to any provision of this rule.

(d) **STANDARDS**

(1) A person shall not operate any bio-polymer manufacturing line unless the total emissions of VOC's to the atmosphere from all dryers used in conjunction with all lines are reduced by at least 95 percent by weight by means of an approved air pollution control device. This requirement shall not apply to dryers whose exhaust contains VOC at an average concentration of 200 ppmv or less over a complete batch or cycle. Emissions of VOC occurring during the transfer of materials containing VOC into or out of a dryer shall be included when determining emissions from that dryer.

(2) A person shall not operate a kelp processing line unless the total emissions of VOC to the atmosphere from all dryers and reactors used in conjunction with all affected lines are reduced by means of an approved air pollution control device as follows:

(i) For all dryers in kelp processing lines or portions of lines where the primary VOC being emitted is not a process reactant or byproduct of a process reaction, by a total of at least 95 percent by weight.

(ii) For all reactors and dryers associated with those reactors in kelp processing lines or portions of lines where the primary VOC being emitted is a process reactant or byproduct of a process reaction, except propylene glycol, by a total of at least 80 percent by weight.

(iii) For all dryers in kelp processing lines where propylene glycol is being emitted, by a total of at least 90 percent by weight.

Emissions of VOC occurring during the transfer of materials containing VOC into or out of a dryer or reactor shall be included when determining emissions from the dryer or reactor.

(3) A person shall not operate any pilot plant facility unless the total emissions of VOC's to the atmosphere from all dryers used in conjunction with all lines are reduced by at least 95 percent by weight by means of an approved air pollution control device. This requirement shall not apply to dryers whose exhaust contains VOC at an average concentration of 200 ppmv or less over a complete batch or cycle. Emissions of VOC occurring during the pneumatic transfer of materials containing VOC into or out of a dryer shall be included when determining emissions from that dryer. Emissions of VOC occurring during manual transfer of materials containing VOC into or out of a dryer shall not be included when determining emissions from that dryer, provided the containers used to transfer the materials are covered after filling and prior to discharge.

(4) A person shall not operate any kelp processing or bio-polymer manufacturing line or pilot plant facility unless:

(i) The uncontrolled emissions of VOC to the atmosphere from presses and spent pots are captured by an emission collection system and the captured emissions are transported to an air pollution control device, and the combined emissions capture and control device efficiency is at least 75% by weight; and

(ii) The uncontrolled emissions of VOC to the atmosphere from incorporators are captured by an emission collection system and the captured emissions are transported to an air pollution control device, and the combined emissions capture and control device efficiency is at least 80% by weight; and

(iii) Pumps processing VOC-containing material are equipped with dual mechanical seals, or equipped with other leak-free technology that has been approved in writing by the Air Pollution Control Officer and provided that the equipment complies with Subsection (d)(8); and

(iv) Liquid process mixtures containing VOC's are maintained at a temperature not higher than 115°F (46°C) before entering a press; and

(v) Presses are equipped with sealing door covers.

Subsections (d)(4)(i) and (d)(4)(v) shall not apply during maintenance, cleaning, repair, or back flushing of the press systems.

(5) A person shall not operate any kelp processing or bio-polymer manufacturing line or pilot plant facility unless each in-process tank for material containing VOC is equipped

with an apparatus or cover which completely covers the tank but not necessarily provides a vapor tight seal, and which is closed or in place at all times except as necessary to meet operating requirements or for maintenance.

(6) A person shall not operate any kelp processing or bio-polymer manufacturing line unless all aboveground stationary storage tanks, having capacities greater than 20,000 gallons, containing VOC used in conjunction with the line are equipped with pressure-vacuum relief valves which have minimum relief settings of 5 oz/sq. in. (pressure) and 0.5 oz/sq. in. (vacuum). Tanks with capacities greater than 50,000 gallons shall have minimum relief settings of 0.5 oz/sq. in. (pressure) and 0.5 oz/sq. in. (vacuum).

(7) Equipment, devices and systems in use to transport and control VOC emissions pursuant to Subsections (d)(1), (d)(2), (d)(3), and (d)(4) shall be maintained so as to be free of visible holes, breaks, openings or separations between adjoining components, that are not consistent with their design and intended operating function, from which fugitive VOC vapors would be emitted to the atmosphere.

(8) A person shall not operate any kelp processing or bio-polymer manufacturing line or pilot plant facility unless all piping, valves, fittings, tanks, stills, process equipment and other devices used to transport, store, react or process VOC or materials containing VOC are free of fugitive liquid leaks, except for leaks which have been identified, recorded and tagged and are repaired in accordance with the schedule specified in this subsection. A visual inspection of these components shall also be performed at least monthly. A record of these inspections shall be maintained and made available to the District upon request. An alternative inspection schedule and program may be used provided such schedule and program have been approved, in advance, by the Air Pollution Control Officer.

Repair of a fugitive liquid leak may be delayed until the leaking equipment is next scheduled to be off-line, or a production cycle is completed, or within 72 hours of detection, whichever occurs first, provided:

(i) The time, date and location of the leak are recorded promptly following detection;

(ii) All practicable steps to minimize the magnitude of the leak are taken as soon as possible following detection; and

(iii) The record required by Subsection (d)(8)(i) is made available to the Air Pollution Control Officer upon request.

An unrecorded leak identified at the time of the District compliance inspection shall be considered a violation of this rule.

This subsection shall not apply to liquid losses occurring during maintenance, cleaning, repair or back flushing of process and storage equipment.

(9) An operation and maintenance program shall be submitted to the Air Pollution Control Officer for approval for new equipment required by Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii). An existing operation and maintenance program that has been approved by the Air Pollution Control Officer need not be resubmitted for approval as a result of amendments to this rule unless such approved operation and maintenance program is revised. Each program shall be implemented and maintained on approval of the Air Pollution Control Officer.

Each operation and maintenance program submitted for approval shall:

(i) Maintain the VOC emission reduction efficiency required under Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii); and

(ii) Identify and maintain all key system operating parameters. Key system operating parameters are those parameters, such as temperature, pressure, and/or flow rate, necessary to maintain the VOC emission reduction efficiency required under Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii); and

(iii) Include proposed inspection schedules, anticipated ongoing maintenance steps and proposed daily recordkeeping practices regarding the key system operating parameters.

Each program will apply only to the equipment necessary to meet the requirements of Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii), and need not include inspection, maintenance or recordkeeping relevant to compliance with Subsection (d)(7).

A copy of the most recent District-approved operation and maintenance program shall be maintained on site and made available to the Air Pollution Control Officer upon request.

(10) Compliance with Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii) shall be determined based upon tests or observations of the process equipment and air pollution control system during a period of at least 16 hours, but not more than 24 hours. Affirmative determination of compliance may be demonstrated through tests or observations for a shorter period of time provided such period of time has been determined appropriate in writing by the Air Pollution Control Officer.

(e) **RECORDKEEPING**

Any person subject to the requirements of Section (d) of this rule shall maintain the following records:

(1) A current list of VOC's, subject to this rule that are in use, and

(2) For air pollution control equipment, maintain records sufficient to document compliance, such as daily records of process and key system operating parameters and maintenance performed pursuant to Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii), and (d)(9) which will demonstrate continuous operation and compliance of the emission control device during periods of emission producing activities.

All records shall be retained on site for at least five years, and shall be made available to the District upon request.

(f) **VOC TEST METHODS**

(1) The VOC content of fluids subject to Subsections (c)(5) of this rule shall be determined in accordance with ASTM Standard Recommended Practices for General Gas Chromatography Procedures, E 260-73, General Techniques of Infrared Quantitative Analysis, E 168-67, or General Techniques of Ultraviolet Quantitative Analysis, E 169-63.

(2) Measurements of VOC emissions subject to Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii) of this rule shall be determined in accordance with EPA Test Methods 18 and 25 or 25A (40 CFR, Appendix A). Test procedures shall be performed in accordance with a protocol approved by the Air Pollution Control Officer. An alternative method to

EPA Test Method 18 may be used provided such method has been approved, in advance, by the Air Pollution Control Officer and U.S. Environmental Protection Agency for the specific processes being tested. Subsequent to an initial compliance demonstration, appropriate parameters as determined by the Air Pollution Control Officer may be used as indicators of the performance of an emission control system.

(3) The capture efficiency of the emission collection systems subject to Subsections (d)(4)(i), and (d)(4)(ii) of this rule shall be determined according to EPA's technical document, "Guidelines for Determining Capture Efficiency", January 9, 1995. Test procedures shall be performed in accordance with a protocol approved by the Air Pollution Control Officer. EPA Test Method 204 may be used if it is demonstrated to the satisfaction of the Air Pollution Control Officer that all criteria of the test applicability are met. An alternative method to "Guidelines for Determining Capture Efficiency" may be used provided such method has been approved, in advance, by the Air Pollution Control Officer and U.S. Environmental Protection Agency for the specific processes being tested. Subsequent to an initial compliance demonstration, appropriate parameters as determined by the Air Pollution Control Officer may be used as indicators of the performance of an emission collection system.

(g) COMPLIANCE SCHEDULE

(1) Any person operating an existing kelp processing line which is subject to Subsection (d)(4)(i) shall demonstrate compliance with Subsection (d)(4)(i) by June 15, 1997, except for the spent pots. Compliance with Subsection (d)(4)(i) for the spent pots shall be demonstrated by November 24, 1999.

(2) Any person operating an existing kelp processing line which is subject to Subsection (d)(2)(iii) shall demonstrate compliance with Subsection (d)(2)(iii) by November 24, 1999.

(3) Any person operating an existing kelp processing line which is subject to Subsection (d)(4)(ii) shall demonstrate compliance with Subsection (d)(4)(ii) by November 24, 1999.

(4) Any person operating an existing kelp processing line or bio-polymer manufacturing line which is subject to Subsection (d)(8) shall comply with the provisions of that subsection on [*date of adoption*], except for incorporators. Compliance with Subsection (d)(8) for incorporators shall be demonstrated by November 24, 1999.

(5) Any person installing a new kelp processing or bio-polymer manufacturing line or pilot plant facility which is subject to the provisions of Section (d) shall have equipment necessary to comply with the provisions of Section (d) installed and operating upon startup of the line or facility and shall demonstrate compliance within 180 days of startup.

IT IS FURTHER RESOLVED AND ORDERED that the subject amendments to Rule 67.10 of Regulation IV, shall take effect upon adoption.

PASSED AND ADOPTED by the Air Pollution Control Board of the San Diego County Air Pollution Control District, State of California, this 25th day of June, 1997 by the following votes:

AYES: Supervisors Jacob, Roberts, Horn

NOES: None

ABSENT: Supervisors Slater, Cox

APPROVED AS TO FORM AND LEGALITY
COUNTY COUNSEL
BY L. Sutton DEPUTY

This is a true certified copy of the original document on file or of record in my office. It bears the seal of the County of San Diego and signature of the Clerk of the Board of Supervisors, imprinted in purple ink.

Thomas J. Pastuszka
Clerk of the Board, San Diego County, California
Date: 7/8/97 By Deputy: [signature] 6/25/97 (AACB1)

AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO

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PROPOSED AMENDMENTS TO RULE 67.10

Proposed amendments to Rule 67.10 are to read as follows:

RULE 67.10. KELP PROCESSING AND BIO-POLYMER MANUFACTURING OPERATIONS

(a) APPLICABILITY

(1) Except as otherwise provided in Section (b), this rule is applicable to any kelp processing or bio-polymer manufacturing line, or associated pilot plant facility, where volatile organic compounds (VOC's) are used as reactants, dissolvers or extractants or used to separate or purify the products of kelp processing or bio-polymer manufacturing line operations.

(2) Kelp processing and bio-polymer manufacturing operations subject to, or exempt from, this rule shall not be subject to Rule 66.

(b) EXEMPTIONS

The provisions of Sections (d), (e), and (g) of this rule shall not apply to:

(1) Any kelp processing or bio-polymer manufacturing line where emissions of VOC's, at the maximum design capacity of the line, are no greater than 15 pounds in any one day, provided total emissions of VOC's from all kelp processing or bio-polymer manufacturing equipment located at a stationary source are no greater than 100 pounds in a day. It shall be the responsibility of a person claiming this exemption to maintain daily records necessary for the District to determine the applicability of such an exemption; and

(2) Fuel oil; and

(3) Laboratory facilities used exclusively for research and development provided that monthly records are kept of the usage of VOC-containing materials; and

~~(4) Any low volatility organic compound which has a normal boiling point of 185°C or greater. Any person claiming this exemption shall maintain written records which substantiate the claim such as applicable manufacturer's specifications or, for pure compounds, standard reference texts.~~

~~(5)~~(4) Any temporary equipment installed in a pilot plant facility and resulting in an emissions increase not exceeding 10 pounds of VOC's per day. It shall be the responsibility of a person claiming this exemption to maintain daily records necessary for the District to determine the applicability of such an exemption.

All records pursuant to Subsections (b)(1), (b)(3), and (b)(4)~~, and (b)(5)~~ shall be retained on site for at least five years and shall be submitted to the District upon request.

(c) DEFINITIONS

For the purpose of this rule the following definitions shall apply:

(1) **"Approved Air Pollution Control Device"** means a single piece of equipment or combination of pieces of equipment which is designed to reduce the emissions of air contaminants and which is approved, in writing, by the Air Pollution Control Officer.

(2) **"Bio-polymer Manufacturing Line"** means one or more pieces of equipment linked by a process flow in which a bio-polymer or any of its precursors is dried, extracted, filtered, mixed or reacted with any VOC where the end product cannot be produced if any piece of equipment is removed or not functioning.

(3) **"~~Drier~~ Dryer"** means a device used to remove water and/or VOC's from a material by applying heat, by flowing unsaturated air, or by subjecting the material to vacuum, or any combination thereof.

(4) **"Exempt Compound"** means the same as defined in Rule 2.

~~any of the following compounds or classes of compounds: 1,1,1 trichloroethane, methylene chloride, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), trifluoromethane (HFC-23), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), chloropentafluoroethane (CFC-115), chlorodifluoromethane (HCFC-22), dichlorotrifluoroethane (HCFC-123), dichlorofluoroethane (HCFC-141b), 1,1,1,2 tetrafluoroethane (HFC-134a), 1,1,2,2 tetrafluoroethane (HFC-134), chlorodifluoroethane (HCFC-142b), 2-chloro-1,1,1,2 tetrafluoroethane (HCFC-124), pentafluoroethane (HFC-125), 1,1,1 trifluoroethane (HFC-143a), 1,1-difluoroethane (HFC-152a), and the following four classes of perfluorocarbon (PFC) compounds:~~

~~(i) cyclic, branched, or linear, completely fluorinated alkanes;~~

~~(ii) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;~~

~~(iii) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and~~

~~(iv) sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.~~

(5) **"Fugitive Liquid Leak"** means a visible leak of liquid, containing greater than 10 percent by weight VOC, at a rate in excess of three drops per minute, or a visible mist. For the purposes of this rule, a liquid leak dropping into a capture system which is connected to an air pollution control device shall not be considered a fugitive liquid leak.

(6) **"Incorporator"** means a device in which a solid and a VOC introduced into the device are mixed, where it is not intended that the VOC chemically modify the solid.

(7) **"In-Process Tank"** means a tank, which is part of a kelp processing or bio-polymer manufacturing line or pilot plant facility and which is used to handle or transfer VOC-containing material. In-process tanks include spent pots, but exclude stationary storage tanks.

(8) **"Kelp Processing Line"** means one or more pieces of equipment linked by a process flow in which kelp or any of its derivatives is dried, extracted, filtered, mixed, or reacted with any VOC where the end product cannot be produced if any piece of equipment is removed or not functioning.

(9) **"Laboratory Facility"** means a facility which uses bench-scale or small-scale equipment for the purpose of conducting studies or tests for the research, development or evaluation of a product, process, or service.

(10) **"Pilot Plant Facility"** means a facility which uses small-scale or intermediate-scale process equipment.

(11) **"Press"** means a mechanical device for separating liquids from solids.

(12) **"Reactor"** means a device in which a chemical reaction takes place between two or more materials introduced into the device, where a VOC chemically modifies one or more materials.

(13) **"Research and Development"** means bench-scale or small-scale kelp and/or bio-polymer processing operations, including operations performed for purposes of testing and quality control, which are not used for production purposes to produce a salable product or service, other than the first-article product or service.

(14) **"Spent Pot"** means the container where VOC-containing liquid is initially collected ~~immediately~~ after being discharged from a press.

(15) **"Stationary Source"** means the same as ~~is~~ defined in Rule 2.

(16) **"Stationary Storage Tank"** means any tank, reservoir, or other container used to store, but not transport, VOC. Stationary storage tanks do not include tanks used to separate solids from process streams or spent pots.

(17) **"Still"** means a device designed to separate, in whole or in part, the constituents of a mixture of miscible liquids by heating the liquid mixture and preferentially condensing and collecting the vapors.

(18) **"Temporary Equipment"**, for the purposes of the exemption in Subsection (b)(5), means equipment located at a pilot plant facility for a period not exceeding 90 days in any consecutive ~~twelve~~ 12-month period.

(19) **"Volatile Organic Compound (VOC)"** means any volatile compound containing at least one atom of carbon excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonates, and exempt compounds which may be emitted to the atmosphere during operations subject to any provision of this rule.

(d) **STANDARDS**

~~(1) A person shall not operate any kelp processing or bio-polymer manufacturing line unless all aboveground stationary storage tanks, having capacities greater than 20,000 gallons, containing VOC used in conjunction with the line are equipped with pressure-vacuum relief valves which have minimum relief settings of 5 oz/sq. in. (pressure) and 0.5 oz/sq. in. (vacuum). Tanks with capacities greater than 50,000 gallons shall have minimum relief settings of 0.5 oz/sq. in. (pressure) and 0.5 oz/sq. in. (vacuum).~~

moved to new Subsection (d)(6)

~~(2) A person shall not operate any kelp processing or bio-polymer manufacturing line or pilot plant facility unless all piping, valves, fittings, tanks, stills, process equipment and other devices used to transport, store, react or process VOC or materials containing~~

~~VOC are free of fugitive liquid leaks. A fugitive liquid leak from incorporators shall only be considered a violation of this rule if the liquid contains more than 50 percent by weight of VOC.~~ ***moved to new Subsection (d)(8)***

~~Repair of a fugitive liquid leak may be delayed until the leaking equipment is next scheduled to be off-line, or a production cycle is completed, or within 72 hours of detection, whichever occurs first, provided:~~

~~(i) The time, date and location of the leak are recorded promptly following detection;~~

~~(ii) All practicable steps to minimize the magnitude of the leak are taken as soon as possible following detection; and~~

~~(iii) The record required by Subsection (d)(2)(i) is made available to the Air Pollution Control Officer upon request.~~

~~An unrecorded leak shall be considered a violation of this rule. The provisions of this subsection shall become effective June 15, 1997 for presses in a kelp processing manufacturing line.~~

~~This subsection shall not apply to liquid losses occurring during maintenance, repair or back-flushing of process and storage equipment.~~

~~(3) A person shall not operate any kelp processing or bio-polymer manufacturing line or pilot plant facility unless each in-process tank for material containing VOC is equipped with an apparatus or cover which completely covers the tank but not necessarily provides a vapor tight seal, and which is closed or in place at all times except as necessary to meet operating requirements or for maintenance.~~ ***moved to new Subsection (d)(5)***

~~(4)~~(1) A person shall not operate any bio-polymer manufacturing line unless the total emissions of VOC's to the atmosphere from all ~~driers~~ dryers used in conjunction with all lines are reduced by at least 95 percent by weight by means of an approved air pollution control device. This requirement shall not apply to ~~driers~~ dryers whose exhaust contains VOC at an average concentration of 200 ppmv or less over a complete batch or cycle. Emissions of VOC occurring during the transfer of materials containing VOC into or out of a ~~drier~~ dryer shall be included when determining emissions from that ~~drier~~ dryer.

~~(5)~~(2) A person shall not operate a kelp processing line unless the total emissions of VOC to the atmosphere from all ~~driers~~ dryers and reactors used in conjunction with all affected lines are reduced by means of an approved air pollution control device as follows:

(i) For all dryers in kelp processing lines or portions of lines where the primary VOC being emitted is not a process reactant or byproduct of a process reaction, by a total of at least 95 percent by weight.

(ii) For all reactors and dryers associated with those reactors in kelp processing lines or portions of lines where the primary VOC being emitted is a process reactant or byproduct of a process reaction, except propylene glycol, by a total of at least 80 percent by weight.

(iii) For all dryers in kelp processing lines where propylene glycol is being emitted, by a total of at least 90 percent by weight.

Emissions of VOC occurring during the transfer of materials containing VOC into or out of a ~~drier~~ dryer or reactor shall be included when determining emissions from the ~~drier~~ dryer or reactor.

~~(6)~~(3) A person shall not operate any pilot plant facility unless the total emissions of VOC's to the atmosphere from all ~~driers~~ dryers used in conjunction with all lines are reduced by at least 95 percent by weight by means of an approved air pollution control device. This requirement shall not apply to ~~driers~~ dryers whose exhaust contains VOC at an average concentration of 200 ppmv or less over a complete batch or cycle. Emissions of VOC occurring during the pneumatic transfer of materials containing VOC into or out of a ~~drier~~ dryer shall be included when determining emissions from that ~~drier~~ dryer. Emissions of VOC occurring during manual transfer of materials containing VOC into or out of a ~~drier~~ dryer shall not be included when determining emissions from that ~~drier~~ dryer, provided the containers used to transfer the materials are covered after filling and prior to discharge.

(4) A person shall not operate any kelp processing or bio-polymer manufacturing line or pilot plant facility unless:

(i) The uncontrolled emissions of VOC to the atmosphere from presses and spent pots are captured by an emission collection system and the captured emissions are transported to an air pollution control device, and the combined emissions capture and control device efficiency is at least 75% by weight; and

(ii) The uncontrolled emissions of VOC to the atmosphere from incorporators are captured by an emission collection system and the captured emissions are transported to an air pollution control device, and the combined emissions capture and control device efficiency is at least 80% by weight; and

(iii) Pumps processing VOC-containing material are equipped with dual mechanical seals, or equipped with other leak-free technology that has been approved in writing by the Air Pollution Control Officer and provided that the equipment complies with Subsection (d)(8); and

(iv) Liquid process mixtures containing VOC's are maintained at a temperature not higher than 115°F (46°C) before entering a press; and

(v) Presses are equipped with sealing door covers.

Subsections (d)(4)(i) and (d)(4)(v) shall not apply during maintenance, cleaning, repair, or back flushing of the press systems.

(5) A person shall not operate any kelp processing or bio-polymer manufacturing line or pilot plant facility unless each in-process tank for material containing VOC is equipped with an apparatus or cover which completely covers the tank but not necessarily provides a vapor tight seal, and which is closed or in place at all times except as necessary to meet operating requirements or for maintenance.

(6) A person shall not operate any kelp processing or bio-polymer manufacturing line unless all aboveground stationary storage tanks, having capacities greater than 20,000 gallons, containing VOC used in conjunction with the line are equipped with pressure-vacuum relief valves which have minimum relief settings of 5 oz/sq. in. (pressure) and 0.5 oz/sq. in. (vacuum). Tanks with capacities greater than 50,000 gallons shall have minimum relief settings of 0.5 oz/sq. in. (pressure) and 0.5 oz/sq. in. (vacuum).

(7) Equipment, devices and systems in use to transport and control VOC emissions pursuant to Subsections (d)~~(4)~~(1), (d)~~(5)~~(2), ~~and~~ (d)~~(6)~~(3), and (d)(4) shall be maintained so as to be free of visible holes, breaks, openings or separations between adjoining components, that are not consistent with their design and intended operating function, from which fugitive VOC vapors would be emitted to the atmosphere.

(8) A person shall not operate any kelp processing or bio-polymer manufacturing line or pilot plant facility unless all piping, valves, fittings, tanks, stills, process equipment and other devices used to transport, store, react or process VOC or materials containing VOC are free of fugitive liquid leaks, except for leaks which have been identified, recorded and tagged and are repaired in accordance with the schedule specified in this subsection. A visual inspection of these components shall also be performed at least monthly. A record of these inspections shall be maintained and made available to the District upon request. An alternative inspection schedule and program may be used provided such schedule and program have been approved, in advance, by the Air Pollution Control Officer.

Repair of a fugitive liquid leak may be delayed until the leaking equipment is next scheduled to be off-line, or a production cycle is completed, or within 72 hours of detection, whichever occurs first, provided:

(i) The time, date and location of the leak are recorded promptly following detection;

(ii) All practicable steps to minimize the magnitude of the leak are taken as soon as possible following detection; and

(iii) The record required by Subsection (d)(8)(i) is made available to the Air Pollution Control Officer upon request.

An unrecorded leak identified at the time of the District compliance inspection shall be considered a violation of this rule.

This subsection shall not apply to liquid losses occurring during maintenance, cleaning, repair or back flushing of process and storage equipment.

~~(8)~~(9) An operation and maintenance program shall be submitted to the Air Pollution Control Officer for approval for new equipment required by Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii) ~~(d)(5) (d)(6), and (d)(11)~~. An existing operation and maintenance program that has been approved by the Air Pollution Control Officer need not be resubmitted for approval as a result of amendments to this rule unless such approved operation and maintenance program is revised. Each program shall be implemented and maintained on approval of the Air Pollution Control Officer.

Each operation and maintenance program submitted for approval shall:

(i) Maintain the VOC emission reduction efficiency required under Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii) ~~(d)(5) (d)(6), and (d)(11)~~; and

(ii) Identify and maintain all key system operating parameters. Key system operating parameters are those parameters, such as temperature, pressure, and/or flow rate, necessary to maintain the VOC emission reduction efficiency required under Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii), ~~(d)(5) (d)(6), and (d)(11)~~; and

(iii) Include proposed inspection schedules, anticipated ongoing maintenance steps and proposed daily recordkeeping practices regarding the key system operating parameters.

Each program will apply only to the equipment necessary to meet the requirements of Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii), ~~(d)(5) (d)(6), and (d)(11)~~ and need not include inspection, maintenance or recordkeeping relevant to compliance with Subsection (d)(7).

A copy of the most recent District-approved operation and maintenance program shall be maintained on site and made available to the Air Pollution Control Officer upon request.

~~(9)~~(10) Compliance with Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii), ~~(d)(5) (d)(6), and (d)(11)~~ shall be determined based upon tests or observations of the process equipment and air pollution control system during a period of at least 16 hours, but not more than 24 hours. Affirmative determination of compliance may be demonstrated through tests or observations for a shorter period of time provided such period of time has been determined appropriate in writing by the Air Pollution Control Officer. ~~Such a shorter test period shall not be the basis for determining non-compliance.~~

~~(10) A person shall not operate any kelp processing or bio-polymer manufacturing line or pilot plant facility unless:~~

~~(i) Pumps processing VOC-containing material are equipped with dual mechanical seals, or equipped with other leak-free technology that has been approved in writing by the Air Pollution Control Officer and provided that the equipment complies with Subsection (d)(2); and~~

~~(ii) Liquid process mixtures containing VOC's are maintained at a temperature not higher than 115°F (46°C) before entering a press; and~~

~~(iii) Presses are equipped with sealing door covers.~~
moved to new Subsection (d)(4)(iii) , (d)(4)(iv) and (d)(4)(v)

~~(11) A person shall not operate any kelp processing or bio-polymer manufacturing line or pilot plant facility unless:~~

~~(i) The total uncontrolled emissions of VOC to the atmosphere from presses, and spent pots are captured by an emission collection system and the captured emissions are transported to an air pollution control device; and~~

~~(ii) The combined emissions capture and control device efficiency is at least 75% by weight.~~ ***moved to new Subsection (d)(4)(i)***

(e) **RECORDKEEPING**

Any person subject to the requirements of Section (d) of this rule shall maintain the following records:

(1) A current list of VOC's, subject to this rule that are in use, and

(2) For air pollution control equipment, maintain records sufficient to document compliance, such as daily records of process and key system operating parameters and maintenance performed pursuant to Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii),

~~(d)(5),~~ and (d)(9) ~~(d)(6), (d)(8), and (d)(11)~~ which will demonstrate continuous operation and compliance of the emission control device during periods of emission producing activities.

All records shall be retained on site for at least five years, and shall be made available to the District upon request.

(f) **VOC TEST METHODS**

(1) The VOC content of fluids subject to Subsections (c)(5) ~~and (d)(2)~~ of this rule shall be determined in accordance with ASTM Standard Recommended Practices for General Gas Chromatography Procedures, E 260-73, General Techniques of Infrared Quantitative Analysis, E 168-67, or General Techniques of Ultraviolet Quantitative Analysis, E 169-63.

~~(2) The determination of the normal boiling point of an organic compound pursuant to Subsection (b)(4) shall be conducted in accordance with ASTM Standard Test Method for Distillation Range of Volatile Organic Liquids, D 1078-86 or, for pure compounds, may be made from technical data contained in standard reference texts.~~

~~(3)~~(2) Measurements of VOC emissions subject to Subsections (d)(1), (d)(2), (d)(3), (d)(4)(i), and (d)(4)(ii), ~~(d)(5) (d)(6), and (d)(11)~~ of this rule shall be determined in accordance with EPA Test Methods 18 and 25 or 25A (40 CFR, Appendix A) ~~as they exist on June 15, 1994~~. Test procedures shall be performed in accordance with a protocol approved by the Air Pollution Control Officer. An alternative method to EPA Test Method 18 may be used provided such method has been approved, in advance, by the Air Pollution Control Officer and U.S. Environmental Protection Agency for the specific processes being tested. Subsequent to ~~the~~ an initial compliance demonstration ~~period~~, appropriate parameters as determined by the Air Pollution Control Officer may be used as indicators of the performance of ~~the~~ an emission control system.

(3) The capture efficiency of the emission collection systems subject to Subsections (d)(4)(i), and (d)(4)(ii) of this rule shall be determined according to EPA's technical document, "Guidelines for Determining Capture Efficiency", January 9, 1995. Test procedures shall be performed in accordance with a protocol approved by the Air Pollution Control Officer. EPA Test Method 204 may be used if it is demonstrated to the satisfaction of the Air Pollution Control Officer that all criteria of the test applicability are met. An alternative method to "Guidelines for Determining Capture Efficiency" may be used provided such method has been approved, in advance, by the Air Pollution Control Officer and U.S. Environmental Protection Agency for the specific processes being tested. Subsequent to an initial compliance demonstration, appropriate parameters as determined by the Air Pollution Control Officer may be used as indicators of the performance of an emission collection system.

(g) **COMPLIANCE SCHEDULE**

~~(1) Any person operating an existing bio-polymer manufacturing line or pilot plant facility which is subject to the provisions of Subsections (d)(6), (d)(10) and/or (d)(11) shall meet the following increments of progress:~~

~~(i) By December 15, 1994, submit to the Air Pollution Control Officer an application for Authority to Construct and Permit to Operate the equipment specified in Subsections (d)(6), (d)(10) and/or (d)(11).~~

~~(ii) By June 15, 1995, demonstrate compliance with Subsections (d)(6), (d)(10), and/or (d)(11).~~

~~(2)~~(1) Any person operating an existing kelp processing line which is subject to ~~the provisions of~~ Subsections ~~(d)(10) and/or~~ (d)~~(11)~~(4)(i) shall ~~meet the following increments of progress:~~ demonstrate compliance with Subsection (d)(4)(i) by June 15, 1997, except for the spent pots. Compliance with Subsection (d)(4)(i) for the spent pots shall be demonstrated by November 24, 1999.

~~(i) By June 15, 1995, submit to the Air Pollution Control Officer an application for Authority to Construct and Permit to Operate the equipment specified in Subsections (d)(10) and/or (d)(11).~~

~~(ii) By December 15, 1995, demonstrate compliance with Subsection (d)(10).~~

~~(iii) By June 15, 1997, demonstrate compliance with Subsection (d)(11).~~

(2) Any person operating an existing kelp processing line which is subject to Subsection (d)(2)(iii) shall demonstrate compliance with Subsection (d)(2)(iii) by November 24, 1999.

(3) Any person operating an existing kelp processing line which is subject to Subsection (d)(4)(ii) shall demonstrate compliance with Subsection (d)(4)(ii) by November 24, 1999.

(4) Any person operating an existing kelp processing line or bio-polymer manufacturing line which is subject to Subsection (d)(8) shall comply with the provisions of that subsection on [*date of adoption*], except for incorporators. Compliance with Subsection (d)(8) for incorporators shall be demonstrated by November 24, 1999.

~~(3)~~(5) Any person installing a new kelp processing or bio-polymer manufacturing line or pilot plant facility which is subject to the provisions of Section (d) shall have equipment necessary to comply with the provisions of Section (d) installed and operating upon startup of the line or facility and shall demonstrate compliance within 180 days of startup.

AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO

RULE 67.10 - KELP PROCESSING AND BIO-POLYMER MANUFACTURING OPERATIONS

WORKSHOP REPORT

A workshop notice was mailed to the one company known to be involved in kelp processing and bio-polymer manufacturing operations in San Diego County. Notices were also mailed to all Economic Development Corporations and Chambers of Commerce in San Diego County, the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (ARB), and other interested parties.

A workshop was held on February 5, 1997. Written comments from the affected company and from EPA were provided. Additional comments were presented at the workshop. The comments and District responses are as follows:

1. WORKSHOP COMMENT:

The exemption for temporary equipment in Subsection (b)(4) should be amended to allow a volatile organic compound (VOC) emissions increase of 27 pounds per day instead of 10 pounds per day. This would be consistent with the 5 tons per year District Rule 11 exemption being developed for the biotechnology industries.

DISTRICT RESPONSE:

The exemption from permit requirements proposed in Rule 11 for the biotechnology industry (5 tons per year of VOC or less) applies to the entire stationary source. It does not apply to each piece of equipment as does Subsection (b)(4) or Rule 67.10. Applying the same exemption criteria to Rule 67.10 as is proposed for the biotechnology industry in Rule 11 would make Rule 67.10 more stringent than it currently is for the one affected facility. Since this facility clearly has stationary source emissions greater than 5 tons per year, applying this criteria would mean no equipment would be exempt from the requirements of Rule 67.10.

It should also be noted that the exemption proposed in Rule 11 for the biotechnology industry is from permit requirements only. It provides no exemption from the requirements of other applicable rules.

The existing 10 pound per day exemption limit is consistent with the District's New Source Review threshold for Best Available Control Technology (BACT) required by the California Health and Safety Code. Revising the exemption level in Rule 67.10 from 10 to 27 pounds per day would not exempt the equipment from complying with BACT requirements.

Lastly, allowing an exemption increase from 10 to 27 pounds per day per piece of equipment, as this comment proposes, would be considered a relaxation of the federal State Implementation Plan for San Diego county. The EPA would not approve such a relaxation.

2. WORKSHOP COMMENT:

Definition (c)(5) for "fugitive liquid leaks" includes a criterion of three drops per minute. Is this consistent with the standard used for other industries in San Diego County?

DISTRICT RESPONSE:

Yes. District rules related to storage and transfer of fuels or solvents (Rule 61 series), Rule 67.8 (Dry Cleaning Facilities Using Halogenated Organic Solvent), and Rule 67.19 (Coatings and Printing Inks Manufacturing Operations) define a "fugitive liquid leak" as a rate in excess of three drops per minute. The three drops per minute standard for fugitive liquid leaks is one of EPA's reasonably available control technology (RACT) requirements for fugitive emission controls.

3. WORKSHOP COMMENT:

Definition (c)(14) for "spent pot" should be revised and the word "distillation" deleted. The current definition could mistakenly be interpreted to apply to large settling tanks.

DISTRICT RESPONSE:

The District agrees. The word "distillation" has been deleted from definition (c)(14) for "spent pot".

4. WORKSHOP COMMENT:

Definition (c)(18) for "temporary equipment" should be revised by deleting the restriction that it apply only to equipment located at a pilot plant facility. The exemption in Subsection (b)(4) for temporary equipment should also delete reference to a pilot plant facility.

DISTRICT RESPONSE:

The District disagrees. The definition and exemption for temporary equipment in a pilot plant facility was included when the rule was revised in 1994. At that time, the District agreed that some research and development work needed to be done in a pilot plant. This research and development work could require the use of different pieces of equipment for short periods of time and could be allowed provided that each piece of equipment did not result in more than 10 pounds per day VOC emissions increase. Revising the definition as suggested would expand this exemption from Rule 67.10 to include temporary equipment located anywhere at the facility, not just at a pilot plant. The District does not believe such an expanded exemption from the requirements of Rule 67.10 is appropriate. In addition, even if this exemption were expanded as suggested, such temporary equipment would still require a permit to operate and be subject to the District's New Source Review rules.

5. WORKSHOP COMMENT:

Is it the District's intent to exclude exempt compounds identified in Rule 2(b)(20) from the VOC definition in Subsection (c)(19)? Is acetone included as an exempt compound?

DISTRICT RESPONSE:

Yes. Definition (c)(19) excludes any non-photochemically reactive "exempt" compound from being considered a VOC. Definition (c)(4) for "exempt compound" has been revised and now references District Rule 2 which was updated for consistency with the recent EPA definition. It now includes acetone as an exempt compound.

6. WORKSHOP COMMENT:

The provisions of Subsection (d)(4) should not apply to emissions or liquid losses occurring during maintenance, cleaning, repair, or back flushing of the press systems. A statement specifying this should be added to Subsection (d)(4).

DISTRICT RESPONSE:

Since only Subsections (d)(4)(i) and (d)(4)(v) regulate emissions from the presses, the suggested language relates specifically to those subsections. Wording has been added to Subsection (d)(4) to exclude emissions from press systems occurring during maintenance, cleaning, repair, or back flushing. Liquid losses are occurring during maintenance, cleaning, repair, or back flushing of equipment are excluded under Subsection (d)(8).

7. WORKSHOP COMMENT:

The proposed revision to Subsection (d)(8) no longer states that a fugitive liquid leak from an incorporator is considered a violation of the rule only if the liquid contains more than 50% by weight VOC. Control equipment for the incorporators are not scheduled to be installed until November, 1999. Since there is no compliance schedule for Subsection (d)(8), it would become effective upon adoption of the rule and result in a period of non-compliance. It is requested that Subsection (d)(8) be included in the compliance schedule and allow until November, 1999 for installation of control equipment.

DISTRICT RESPONSE:

The District agrees. The rule has been revised to include a compliance schedule in Section (g) for incorporators subject to Subsection (d)(8). The compliance schedule provides until November, 1999 for incorporators to comply with the new liquid leak requirements of Subsection (d)(8) .

8. WORKSHOP COMMENT:

The new language "identified at the time of the District compliance inspection" added to Subsection (d)(8) is an unnecessary tightening of the rule and is contrary to State Assembly Bill (AB) 2937 which allows regulatory discretion by the District to issue a Notice to Comply instead of a Notice of Violation for minor violations.

DISTRICT RESPONSE:

The District disagrees. The addition of this language to Subsection (d)(8) is not a tightening of the rule. The intent of the provision remains unchanged. This language was added merely to clarify previous misunderstandings regarding this provision.

Although AB 2937 has been signed into law, the program necessary to implement it is still in its early stages. The District's Compliance Division is participating in a Statewide Committee to develop a model rule to implement AB 2937 in a consistent manner throughout the state. However, it is important to note that, to date, the committee has agreed that any excess emission incident will not be categorized as a minor violation. A notice to comply is only a different means of handling a violation. The non-compliance incident is still considered to be a violation.

Implementation of AB 2937 is outside the scope of this specific rule to address. Interested parties will have an opportunity to participate when the Statewide Committee develops a model rule and submits it for public workshops.

9. WORKSHOP COMMENT:

Subsection (d)(8) contains an exemption for liquid losses occurring during maintenance, repair, or back flushing of process and storage equipment. This exemption should also apply to liquid losses during cleaning of process and storage equipment. It is also unclear whether distillation units are considered process equipment.

DISTRICT RESPONSE:

The District agrees. The word "cleaning" has been added. The District considers process equipment to include distillation units.

10. WORKSHOP COMMENT:

Subsection (d)(8) as proposed will require weekly inspection of all facility components which may contain VOC or materials containing VOC. This is a tremendous task due to the number of components and some of these are not easily accessible. It is requested that Subsection (d)(8) replace the list of components with the phrase "components in the inspection program."

DISTRICT RESPONSE:

The suggested revision is vague and unenforceable. There is no requirement in the rule to provide an inspection program and therefore the components that require regular inspection would remain unidentified. The District recognizes the magnitude of this task and the problem of inaccessibility. The District has addressed this concern by including language in Subsection (d)(8) to allow for an alternative inspection schedule as approved by the Air Pollution Control Officer.

11. WORKSHOP COMMENT:

Subsection (d)(8) should further be revised to replace the requirement that the equipment be "visually free of fugitive liquid leaks" with "inspected and repaired in accordance with this subsection."

DISTRICT RESPONSE:

The District disagrees. The purpose of Subsection (d)(8) is precisely to ensure that the equipment be free of fugitive liquid leaks. The proposed addition of an inspection schedule is in response to an EPA-identified deficiency to make the standard enforceable and more precise. The inspection, therefore, is not the ultimate goal, but the means of assuring the goal.

The suggested language would be a relaxation of the rule and make it unapprovable by EPA.

12. WORKSHOP COMMENT:

The inspection frequency specified in Subsection (d)(8) should be revised to monthly.

DISTRICT RESPONSE:

The District agrees. Subsection (d)(8) has been revised as suggested.

13. WORKSHOP COMMENT:

Subsection (f)(3) which specifies the test method for capture efficiency of an emission collection system should not apply to Subsections (d)(1), (d)(2), and (d)(3).

DISTRICT RESPONSE:

The District agrees. The reference to Subsections (d)(1), (d)(2), and (d)(3) has been removed from Subsection (f)(3).

14. WORKSHOP COMMENT:

Subsection (f)(3) should be revised to specify that one or more of the alternative or reference protocols or methods within EPA's document "Guidelines for Determining Capture Efficiency" can be used. Additionally, language stating that alternate methods or protocols acceptable to the APCO should be added.

DISTRICT RESPONSE:

Subsection (f)(3) specifies the use of "Guidelines for Determining Capture Efficiency" to determine the efficiency of emission collection systems. Any protocol or method within that document is therefore acceptable if it is demonstrated to the satisfaction of the District that all criteria of the test applicability are met.

The use of alternate methods or protocols approved only by the District would be unacceptable to EPA. EPA has been reluctant in the past to accept any alternate test methods not reviewed and approved by EPA. Language has been added to Subsection (f)(3) to allow for alternate test methods as approved by EPA. As a result, the affected facility will need to make an equivalency demonstration directly to EPA.

15. WORKSHOP COMMENT:

It is requested that the compliance schedules in Subsections (g)(2) and (g)(3) be extended to November 24, 1999 for demonstration of compliance with the incorporator and propylene glycol emissions control requirements.

DISTRICT RESPONSE:

The compliance schedule has been extended as requested.

16. WORKSHOP COMMENT:

Subsection (d)(8) prohibits fugitive liquid leaks and requires regular inspection of all components. Some components may contain or transport propylene oxide (PO) which is a hazardous air pollutant (HAP) while others contain or transport isopropyl alcohol (IPA) which is a VOC. The requirements of Subsection (d)(8) are very stringent for IPA. Is this inspection program for IPA consistent with EPA guidelines?

DISTRICT RESPONSE:

EPA's CTG for "Control of VOC Leaks from Synthetic Organic Chemicals and Polymer Manufacturing Equipment" requires that components in VOC service be free of leaks and monitored regularly. The only distinction in frequency of monitoring is for components in light liquid service compared to components in heavy liquid service. IPA is a light liquid as defined in this CTG.

Subsection (d)(8) has been revised to allow a modified monitoring frequency and inspection plan to be issued if approved by the District.

17. WORKSHOP COMMENT:

The existing format of Rule 67.10 is very familiar and is preferred.

DISTRICT RESPONSE:

The comment is noted. However, in an effort to make the format of all District rules consistent, the revised format will be retained.

18. EPA COMMENT:

The definitions in Subsection (c)(4) for "exempt compound" and (c)(15) for "stationary source" refer to definitions in District Rule 2. Only rules that have been incorporated into the SIP may be referenced. The current Rule 2 in the SIP was adopted on September 2, 1983.

DISTRICT RESPONSE:

Revised District Rule 2 was adopted on May 15, 1996, and submitted to EPA for inclusion in the SIP on October 18, 1996. District Rule 2 was proposed for inclusion in the SIP on March 27, 1997 and will become effective May 27, 1997. The District will therefore retain references to Rule 2.

19. EPA COMMENT:

The Consent Decree entered into with EPA by the affected facility requires that the emission collection system specified in Subsection (d)(4)(ii) meet the criteria for permanent total enclosure in EPA Method 204. For consistency with the Consent Decree, Subsection (d)(4)(ii) should require that the design of the emission collection system comply with the criteria of Method 204.

DISTRICT RESPONSE:

The proposed language in Subsection (f)(3) of Rule 67.10 does not preclude the use of Test Method 204. If the source demonstrates that the emission collection system required under Subsection (d)(4)(ii) meets the criteria of Test Method 204, then the District will accept the design of that equipment as meeting the criteria of that Test Method.

Test Method 204 is part of EPA's document "Guidelines for Determining Capture Efficiency" and, therefore, reference to that document is appropriate.

20. EPA COMMENT:

The recordkeeping provisions of Section (b) and Section (e) require that records be retained on site for at least two years. For consistency with federal policy and Title V, this should be revised to require records for at least five years.

DISTRICT RESPONSE:

The District agrees. Section (b) and Section (e) have been revised accordingly.

ADDENDUM

21. WRITTEN COMMENT:

Subsection (d)(2) requires that VOC emissions from dryers and reactors in kelp processing lines be reduced by means of an air pollution control device with a specified efficiency. In actual operation, some of the emissions are bypassed and are not routed to the air pollution control device. Historically, this procedure has been specified by permit conditions and considered to be acceptable. However, the rule language does not appear to provide such flexibility.

DISTRICT RESPONSE:

Rule 67.10 requires that the total VOC emissions from all dryers and reactors be reduced by means of an approved control device with a specified overall efficiency. To provide flexibility in the selection and design of the VOC capture and control system, the rule does not address specific operation details of the control device which may differ depending on the type of control device and the nature of processes being controlled. The determination of the control device's operational parameters, such as flow rates, temperature, etc., is left to a permitting engineer with the requirement that the control system and permit conditions ensure that the emission control system operates in compliance with the overall emission control rule requirements. It is expected that this procedure will be followed when determining acceptability of some emissions not being routed to the control device in Plant B.

SOCIOECONOMIC IMPACT ASSESSMENT

PROPOSED AMENDED RULE 67.10 -

KELP PROCESSING AND BIO-POLYMER MANUFACTURING OPERATIONS

FINAL

JUNE 1997

Prepared by

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SOCIOECONOMIC IMPACT ASSESSMENT

PROPOSED AMENDED RULE 67.10 -

KELP PROCESSING AND BIO-POLYMER MANUFACTURING OPERATIONS

EXECUTIVE SUMMARY

This report presents the results of a socioeconomic impact analysis (SIA) of the San Diego County Air Pollution Control District's proposed amendments to Rule 67.10 (Kelp Processing and Bio-Polymer Manufacturing Operations). The rule only applies to one company in San Diego county - the NutraSweet Kelco Company. The Rule 67.10 amendments correct rule deficiencies identified by the federal Environmental Protection Agency (EPA) and implement requirements of a Consent Decree entered into by the affected company and EPA.

The proposed revisions to Rule 67.10 will impose additional requirements to reduce volatile organic compound (VOC) emissions from kelp processing operations and improve the rule enforceability.

While the overall cost of implementing the amended rule represents significant capital and annual expenses for the affected company, it would only marginally increase the cost of its products. It is also expected that the proposed Rule 67.10 amendments will not have a significant economic impact on the affected company because of its high profitability and large sales volume.

If implemented, amended Rule 67.10 will reduce VOC emissions in San Diego county by about 1.2 tons per day at an estimated overall cost-effectiveness of $0.63 per pound of VOC reduced, well below the cost-effectiveness of recently adopted District rules applying to other VOC sources. At the same time, the VOC emission reductions achieved as a result of the Rule 67.10 amendments will benefit air quality in San Diego county contributing to the attainment of federal and state ambient air quality standards for ozone.

INTRODUCTION

Rule 67.10 regulates volatile organic compound (VOC) emissions from kelp processing and bio-polymer manufacturing operations. It applies only to one facility in San Diego county, the NutraSweet Kelco Company, part of Monsanto Company. The rule is being amended to correct deficiencies identified by the federal Environmental Protection Agency (EPA) and to incorporate the requirements of a Consent Decree entered into by EPA and Monsanto Company resolving alleged violations of the California State Implementation Plan (SIP). The majority of the amendments will result in stricter VOC emission limitations for kelp processing operations.

Section 40728.5 of the State Health & Safety Code requires the Air Pollution Control District (District) to perform a socioeconomic impact assessment for any new or amended rules that will significantly affect air quality or emission limitations.

The Health and Safety Code specifies the following elements to be included in the socioeconomic impact assessment:

1. The type of industries or business, including small business, affected by the rule or regulation.

2. The range of probable costs, including costs to industry or business, including small business, of the rule or regulation.

3. The emission reduction potential of the rule or regulation.

4. The necessity of adoption, amending, or repealing the rule or regulation in order to attain state and federal ambient air quality standards.

This report represents the results of the District socioeconomic impact assessment of the proposed amendments to Rule 67.10.

INDUSTRY DESCRIPTION

The NutraSweet Kelco Company (Kelco) manufactures specialized products (alginates or algins, and biogums) which are used as additives and "performance-enhancers" in food, dairy, pharmaceutical and industrial products. Algins and biogums also find application as processing aids in oil field operations and textile, paper and ink manufacturing.

Algins are manufactured from kelp (a type of seaweed) and are used in a powder form for thickening, stabilizing, suspending and gelling food and industrial products. Xanthan gum is produced from corn syrup (bio-polymer) and is added to a variety of food products, cleaners and polishes, oil field drilling fluids and agricultural chemicals. Gellan, Welan and Rhamsan gums, which are comparatively new products for Kelco, also come from natural sources and are used as food or industrial products additives[1]. Recently, Kelco also began introducing its products into manufacturing of "nutra-ceuticals" or dietary products.

All Kelco products in San Diego county are manufactured by proprietary technology which combines biotechnology with organic and inorganic chemical processes.

In 1995, Kelco, which was a part of Merck & Co., since 1972, was acquired by Monsanto Company and joined its NutraSweet Division. In addition to its San Diego plant, the NutraSweet Kelco Company has another bio-polymer processing plant in Okmulgee, Oklahoma, and two kelp processing and one biogum manufacturing plants in the United Kingdom. Together these plants are the world's largest manufacturer of algins and biogums. They employ approximately 1300 people worldwide, with 400 people in San Diego county. In 1994, Kelco had estimated sales of $300 million[2]. According to industry publications,[3] Kelco has "twice the market share of the nearest competitor" in its many markets.

RULE 67.10 HISTORY AND THE NECESSITY OF AMENDING THE RULE

Currently, San Diego county does not meet the National Ambient Air Quality Standard (NAAQS) for ozone. San Diego county also does not meet the more stringent state ambient air quality standard for ozone. The county is classified by both EPA and ARB as a serious ozone non-attainment area. Ozone formation in the atmosphere is a result of the reactions between volatile organic compounds and oxides of nitrogen in the presence of sunlight and therefore VOC's are

considered ozone precursors. Reducing emissions of VOC's to the atmosphere has been a key part of the San Diego's ozone attainment strategy.

The Kelco facility is the largest stationary source of VOC emissions in San Diego county. Based on the District Emission Inventory, Kelco emitted approximately 1220 tons of volatile organic compounds in 1995, mostly isopropyl alcohol (IPA), propylene glycol (PG) and propylene oxide (PO).

Kelp processing and bio-polymer manufacturing operations at Kelco are regulated by Rule 67.10. This rule was initially adopted in 1985 and became a part of the State Implementation Plan for San Diego county in 1987. Rule 67.10 controls Kelco's VOC emissions from both kelp processing and bio-polymer manufacturing operations, including the pilot plants, through a combination of add-on control technology, fugitive emissions control and specified housekeeping procedures. Process lines emitting less than 15 lbs per day of VOC's, and laboratory and pilot plant facilities used exclusively for research and development, are exempt from the rule provided that appropriate records are kept to verify exemption eligibility.

Rule 67.10 was amended in 1991 to correct deficiencies identified by EPA. In 1994, the District revised the rule to comply with Federal Clean Air Act requirements that all major stationary sources of VOC emissions be regulated by rules reflecting Reasonable Available Control Technology (RACT). EPA has determined that for major VOC sources, such as Kelco, that are not covered by an EPA Control Technique Guidelines document (CTG's), a RACT level rule must provide at least 81% VOC emission reduction from the uncontrolled level. The current Rule 67.10 submitted to EPA in October 1994 for inclusion into SIP satisfied this requirement.

In February 1996, EPA notified the District[4] that Rule 67.10 had been approved into the SIP but the rule would be given only a limited approval because of specified deficiencies. These were:

- Exemption of VOC's with boiling points of 185^{o} C or greater from the emission standards. This exemption presently applies to propylene glycol which was found to be emitted in significant amounts as an aerosol from one of the kelp processing operations.
- Exemption from the requirements to control fugitive liquid leaks from incorporators if the liquid contains 50% (wt) or less of VOC's.
- The absence of a provision specifying the frequency of monitoring or inspection.
- The absence of a specified test reference method for determining the capture efficiency of any emission collection system.
- The rule provision that the results of source tests having less than 16 hours duration cannot be used to determine whether the rule has been violated.

EPA stated that a failure to have revised Rule 67.10 approved by EPA on or before October 15, 1997 will result in imposition of federal sanctions including a 2.0 to 1.0 emission offset ratio for new and modified for major sources and the withholding of up to $75 million in federal transportation funds.

On November 6, 1996, the Merck and Monsanto companies settled out of court with EPA on pending EPA enforcement action and entered into a Consent Decree with EPA to resolve alleged

violations of the California State Implementation Plan. As a result of the Consent Decree stipulations, Monsanto Company has agreed to further reduce VOC emissions from the Kelco facility by implementing additional VOC control measures for kelp processing operations.

The proposed amendments to Rule 67.10 correct the EPA identified deficiencies in the rule. In addition, they incorporate the mandatory requirements of the Consent Decree referenced above.

DESCRIPTION OF THE AMENDMENTS

The proposed amendments to Rule 67.10 will accomplish the following:

- Delete the exemption for low volatility organic compounds having a normal boiling point of 185°C or higher.
- Require uncontrolled emissions of propylene glycol and other compounds from dryers in kelp processing lines be reduced by at least 90%.
- Require uncontrolled VOC emissions from incorporators in kelp processing lines be captured and reduced by at least 80%.
- Require a visual monthly inspection of system components to ensure they are free of fugitive liquid leaks.
- Delete the provision specifying that a fugitive liquid leak from incorporators is considered a violation of the rule only if the liquid contains more than 50% by weight of VOC's.
- Delete the stipulation that a test period shorter than 16 hours cannot be used as the basis for determining non-compliance.
- Include a test method reference for determining the capture efficiency of an emission collection system.
- Add a compliance schedule for the installation of the newly required control equipment for incorporators and dryers.

The amendments also update recordkeeping requirements and some definitions, including the definition of "exempt compounds", clarify the rule format, and delete outdated provisions.

IMPACT OF RULE 67.10 AMENDMENTS

Type of Industries Affected by Amended Rule 67.10

Amended Rule 67.10 will directly affect only one facility in San Diego county - the NutraSweet Kelco Company (SIC 2833).

The proposed amendments to Rule 67.10 may also indirectly affect Kelco's customers in a variety of industries mentioned above which use algins and biogums in their products or processes. The anticipated cost impacts on Kelco and its customers are discussed later in this report.

Emission Reduction Potential

The proposed Rule 67.10 amendments are expected to further reduce VOC emissions in the kelp processing operations by 409 tons per year. These projections are based on the District's 1995 Emission Inventory and the control system efficiencies required by the amended rule. It is also expected that the implementation of a monthly fugitive leaks monitoring inspection program will result in 23 tons per year of additional VOC emission reductions. Overall, total VOC emissions from Kelco will be reduced by approximately 35% from the 1995 emission level, or by 432 tons per year.

Economic Impacts and Range of Probable Costs

The main economic impact of the amended rule will be the cost of the additional emission controls for kelp processing operations required by the proposed amendments and, to a lesser degree, the cost of the monthly liquid leak monitoring and inspection program. Costs anticipated as a result of Rule 67.10 implementation were developed using data provided by Kelco[5] and are listed in Table 1 below.

Table 1: VOC Emission Reductions & Cost Effectiveness of Proposed Rule 67.10 Amendments

VOC Control Strategy	Capital Cost*, $	Operation & Maintenance Cost, $/Year	Annualized Cost, $/Year	Amount of VOC's Reduced, Tons	Cost Effectiveness $/Ton VOC Reduced
Add-on Control Equipment	$2,000,000	$200,000	$528,000	409	1,340
Monthly Monitoring Program	N/A	$15,600	$15,600	23	680

* Capital costs include $1, 000, 000 for a regenerative catalytic oxidizer (with installation), $600,000 for ancillary equipment and $400,000 for engineering costs[5].

a. Add-on Control Equipment

The amendments to Rule 67.10 will require the facility to reduce VOC emissions from incorporators and dryers by installing add-on control equipment. The currently uncontrolled VOC emissions from incorporators will be captured by an emission collection system and transported to a control device providing a combined collection and destruction efficiency of at least 80% by weight. The planned emission collection system will also satisfy the proposed amended rule requirement to reduce fugitive liquid leaks from incorporators containing 50% VOC's, or less.

The VOC emissions from dryers consist mostly of propylene glycol and its polymers, propylene oxide, isopropyl alcohol, and small amounts of propylene chlorohydrins. The amended rule requires all dryers in kelp processing lines where propylene glycol is being emitted to be connected to an emission control device which reduces VOC emissions by at

least 90% by weight. Kelco proposes to comply with these requirements by constructing a permanent total enclosure for incorporators which captures practically 100% VOC emissions, and connecting this collection system to an emission control device. The same device will be used to reduce emissions of propylene glycol and any other VOC's emitted from the dryers in kelp processing lines.

There are several types of VOC reduction technology proven in the field and suitable for the processes used at Kelco: thermal oxidation, catalytic oxidation and liquid absorption using water scrubbers. The company is proposing to install a regenerative catalytic oxidizer to control emissions from both incorporators and dryers.

The initial total capital cost for the emission collection and control system is estimated by Kelco to be $2,000,000, with annual operation and maintenance costs for both systems expected to be approximately $200,000. The total annualized cost of the control equipment based on these data will be approximately $528,000 per year.

b. Fugitive Liquid Leaks Monitoring

The current rule requires that Kelco's manufacturing or pilot plant lines be free of fugitive liquid leaks. It also specifies that any unrecorded leak will be considered a rule violation but does not specify a monitoring schedule. The proposed amendments to Rule 67.10 will add a requirement for a visual monthly inspection of system components such as pumps, piping, valves, connectors and flanges to ensure that they are free of fugitive liquid leaks.

The cost of the monthly fugitive inspection leak program was estimated by the District using the EPA methodology described in the CTG document "Control of Volatile Organic Compound Leaks in Synthetic Organic Chemical and Polymer Manufacturing Equipment".[6] An average time for a single component visual inspection was assumed to be 0.5 person-minute and the number of components to be monitored was estimated using the CTG methodology for model plants. Using a labor cost of $30/hr (including overhead), and 350 working days per year, the annual cost for plant-wide monthly inspections was estimated to be $15,600.

Full implementation of the proposed amended Rule 67.10 will result in an additional VOC emission reduction of approximately 432 tons per year, or 35% of the total 1995 emissions from kelp and bio-polymer manufacturing operations. As a result of the proposed amendments, Kelco is expected to incur a capital expenditure of approximately $2 million and additional annual operating costs of $543,600. The estimated overall cost-effectiveness of the amendments will be $1,260 per ton of VOC's reduced ($0.63 per pound).

The economic data, such as company's profitability or other financial indicators, necessary for the quantitative determination of probable economic impacts of the proposed amendments to Rule 67.10 on Kelco operations were not available to the District. However, one of Merck's annual reports stated that Kelco is "one of the most successful and profitable specialty chemical companies in the world". As mentioned previously, total annual Kelco sales are approximately $300 million. Thus, the annual compliance cost (about $0.54 million) of the proposed amended Rule 67.10 would represent less than 0.2% of the annual sales. The estimated cost-effectiveness of the rule amendments ($0.63 per pound of VOC reduced) is also well below the cost-effectiveness of $2.50 per pound for recently adopted District rules reflecting federal RACT requirements for major VOC sources. Therefore, while the overall capital and annual cost of the amended rule represents significant capital

and annual expenses for Kelco, it is expected that the rule would not have significant impact on the affected company. Moreover, all costs associated with emission controls have already been agreed by Kelco in its Consent Decree with EPA.

It is also expected that the increase in the cost of Kelco products will be minimal. While the cost of compliance with amended Rule 67.10 will likely be passed on to the company's worldwide customers and ultimately to the consumer, biogums and alginates are used in comparatively small amounts being small volume additives in food and other products. Given this, and the worldwide extent of the market, the expected small increase in the price of Kelco products would not likely have a significant effect on either its business customers or individual consumers.

CONCLUSIONS

The proposed amendments to Rule 67.10 will achieve significant emission reductions (approximately 1.2 tons per day) at an estimated cost-effectiveness of $0.63 per pound of VOC reduced, which is well below the cost-effectiveness of recently adopted District rules regulating VOC emitting sources. The amended rule will considerably benefit air quality in San Diego County, contributing to the attainment of federal and state ambient air quality standards for ozone.

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