New York State Department of Environmental Conservation
Facility DEC ID: 9144600019

PERMIT
Under the Environmental Conservation Law (ECL)

IDENTIFICATION INFORMATION

Permit Type: Air State Facility
Permit ID: 9-1446-00019/00021
Mod 0 Effective Date: 06/10/1998 Expiration Date: No expiration date.

Mod 1 Effective Date: 12/11/2001 Expiration Date: No expiration date.

Mod 2 Effective Date: 09/02/2004 Expiration Date: No expiration date.

Mod 3 Effective Date: 09/15/2005 Expiration Date: No expiration date.

Permit Issued To: ISLECHEM LLC
2801 LONG ROAD
GRAND ISLAND, NY 14072

Contact: CHARLES G RADER
2801 LONG ROAD
GRAND ISLAND, NY 14072
(716) 773-8100

Facility: ISLECHEM LLC
2801 LONG RD
GRAND ISLAND, NY 14072

Description:
This permit modification contains three actions:

Chromium fluoride, to be produced in the existing fluorination process FL2, will be screened and packaged into various size containers. Any fugitive dust from the screening and packaging equipment will be vented to a dust collector (emission source/control DC002) which will then be vented through a new emission point, FC022.

Alkyl acid phosphates are produced in the existing permitted distillation process DI6. Downstream of the reactor is a condenser which will condense out any organic materials carried out of the reactor. Carbon is used to adsorb 98 to 99% of the remaining organic contaminants. Since carbon will only adsorb 20% of methanol or ethanol, the carbon unit will be bypassed when these two materials are processed.

This project also converts the data for emission point 00013 for the #2 Boiler, originally approved on 6/10/97, from an AIR 100 emission point based permit to the AFS facility based permit.

New York State Department of Environmental Conservation
Facility DEC ID: 9144600019

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, the General Conditions specified and any Special Conditions included as part of this permit.

Permit Administrator: DAVID S DENK
DIVISION OF ENVIRONMENTAL PERMITS
270 MICHIGAN AVE
BUFFALO, NY 14203-2999

Authorized Signature: _____ Date: ___ / ___ / _____

Notification of Other State Permittee Obligations

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification

The permittee expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit

The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits

The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights

This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

New York State Department of Environmental Conservation
Facility DEC ID: 9144600019

LIST OF CONDITIONS

DEC GENERAL CONDITIONS
General Provisions
Facility Inspection by the Department
Facility Inspection by the Department
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Permit Modifications, Suspensions and Revocations by the Department
Permit Modifications, Suspensions, and Revocations by the Department
Facility Level
Submission of Applications for Permit Modification or Renewal -REGION 9 HEADQUARTERS

DEC GENERAL CONDITIONS
****** General Provisions ******
GENERAL CONDITIONS - Apply to ALL Authorized Permits.

Condition 1-1: Facility Inspection by the Department
Applicable State Requirement: ECL 19-0305

Item 1-1.1:
The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71-0301 and SAPA 401(3).

Item 1-1.2:
The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

Item 1-1.3:
A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

Condition 1: Facility Inspection by the Department
Applicable State Requirement: ECL 3-0301.2(g)

Expired by Mod No: 2

Item 1.1:
The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71-0301 and SAPA 401(3).

Item 1.2:
The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when written or verbal notification is provided by the Department at least 24 hours prior to such inspection.

Item 1.3:
A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

Condition 2: Relationship of this Permit to Other Department Orders and Determinations
Applicable State Requirement: ECL 3-0301.2(m)

Item 2.1:

Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

Condition 2-1: Applications for Permit Renewals and Modifications
Applicable State Requirement: 6NYCRR 621.13

Item 2-1.1:
The permittee must submit a separate written application to the Department for renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing.

Item 2-1.2:
The permittee must submit a renewal application at least 180 days before expiration of permits for Title V Facility Permits, or at least 30 days before expiration of permits for State Facility Permits.

Item 2-1.3:
Permits are transferrable with the approval of the department unless specifically prohibited by the statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

Condition 3: Applications for Permit Renewals and Modifications
Applicable State Requirement: 6NYCRR 621.13(a)

Expired by Mod No: 2

Item 3.1:
The permittee must submit a separate written application to the Department for renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing.

Item 3.2:
The permittee must submit a renewal application at least 180 days before expiration of permits for Title V Facility Permits, or at least 30 days before expiration of permits for State Facility Permits.

Condition 2-2: Permit Modifications, Suspensions and Revocations by the Department
Applicable State Requirement: 6NYCRR 621.14

Item 2-2.1:
The Department reserves the right to modify, suspend, or revoke this permit in accordance with 6NYCRR Part 621. The grounds for modification, suspension or revocation include:

a) materially false or inaccurate statements in the permit application or supporting papers;
b) failure by the permittee to comply with any terms or conditions of the permit;
c) exceeding the scope of the project as described in the permit application;
d) newly discovered material information or a material change in environmental conditions,

relevant technology or applicable law or regulations since the issuance of the existing permit;
e) noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

Condition 4: Permit Modifications, Suspensions, and Revocations by the Department
Applicable State Requirement: 6NYCRR 621.14

Expired by Mod No: 2

Item 4.1:
The Department reserves the right to modify, suspend, or revoke this permit. The grounds for modification, suspension or revocation include:

a) the scope of the permitted activity is exceeded or a violation of any condition of the permit or provisions of the ECL and pertinent regulations is found;
b) the permit was obtained by misrepresentation or failure to disclose relevant facts;
c) new material information is discovered; or
d) environmental conditions, relevant technology, or applicable law or regulation have materially changed since the permit was issued.

****** Facility Level ******

Condition 5: Submission of Applications for Permit Modification or Renewal -REGION 9 HEADQUARTERS
Applicable State Requirement: 6NYCRR 621.5(a)

Item 5.1:
Submission of applications for permit modification or renewal are to be submitted to:
NYSDEC Regional Permit Administrator
Region 9 Headquarters
Division of Environmental Permits
270 Michigan Avenue
Buffalo, NY 14203-2999
(716) 851-7165

New York State Department of Environmental Conservation
Permit ID: 9-1446-00019/00021 Facility DEC ID: 9144600019

Permit Under the Environmental Conservation Law (ECL)

ARTICLE 19: AIR POLLUTION CONTROL - AIR STATE FACILITY PERMIT

IDENTIFICATION INFORMATION

Permit Issued To: ISLECHEM LLC
2801 LONG ROAD
GRAND ISLAND, NY 14072

Facility: ISLECHEM LLC
2801 LONG RD
GRAND ISLAND, NY 14072

Authorized Activity By Standard Industrial Classification Code:
2869 - INDUSTRIAL ORGANIC CHEMICALS,NEC

Mod 0 Permit Effective Date: 06/10/1998 Permit Expiration Date: No expiration date.

Mod 1 Permit Effective Date: 12/11/2001 Permit Expiration Date: No expiration date.

LIST OF CONDITIONS

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EU=1-SUF01,EP=00015

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EU=2-DRUM1,EP=00017

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Mod 2 Permit Effective Date: 09/02/2004 Permit Expiration Date: No expiration date.

Mod 3 Permit Effective Date: 09/15/2005 Permit Expiration Date: No expiration date.

FEDERALLY ENFORCEABLE CONDITIONS
****** Facility Level ******

NOTIFICATION OF GENERAL PERMITTEE OBLIGATIONS
This section contains terms and conditions which are federally enforceable. Permittees may also have other obligations under regulations of general applicability

Item A: Sealing - 6NYCRR Part 200.5

The Commissioner may seal an air contamination source to prevent its operation if compliance with 6 NYCRR Chapter III is not met within the time provided by an order of the Commissioner issued in the case of the violation. Sealing means labeling or tagging a source to notify any person that operation of the source is prohibited, and also includes physical means of preventing the operation of an air contamination source without resulting in destruction of any equipment associated with such source, and includes, but is not limited to, bolting, chaining or wiring shut control panels, apertures or conduits associated with such source.

No person shall operate any air contamination source sealed by the Commissioner in accordance with this section unless a modification has been made which enables such source to comply with all requirements applicable to such modification.

Unless authorized by the Commissioner, no person shall remove or alter any seal affixed to any contamination source in accordance with this section.

Item B: Acceptable Ambient Air Quality - 6NYCRR Part 200.6

Notwithstanding the provisions of 6 NYCRR Chapter III, Subchapter A, no person shall allow or permit any air contamination source to emit air contaminants in quantities which alone or in combination with emissions from other air contamination sources would contravene any applicable ambient air quality standard and/or cause air pollution. In such cases where contravention occurs or may occur, the Commissioner shall specify the degree and/or method of emission control required.

Item C: Maintenance of Equipment - 6NYCRR Part 200.7

Any person who owns or operates an air contamination

source which is equipped with an emission control device shall operate such device and keep it in a satisfactory state of maintenance and repair in accordance with ordinary and necessary practices, standards and procedures, inclusive of manufacturer's specifications, required to operate such device effectively.

Item D: Unpermitted Emission Sources - 6NYCRR Part 201-1.2

If an existing emission source was subject to the permitting requirements of 6NYCRR Part 201 at the time of construction or modification, and the owner and/or operator failed to apply for a permit for such emission source then the following provisions apply:

(a) The owner and/or operator must apply for a permit for such emission source or register the facility in accordance with the provisions of Part 201.

(b) The emission source or facility is subject to all regulations that were applicable to it at the time of construction or modification and any subsequent requirements applicable to existing sources or facilities.

Item E: Emergency Defense - 6NYCRR Part 201-1.5

An emergency constitutes an affirmative defense to an action brought for noncompliance with emissions limitations or permit conditions for all facilities in New York State.

(a) The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An emergency occurred and that the facility owner and/or operator can identify the cause(s) of the emergency;
(2) The equipment at the permitted facility causing the emergency was at the time being properly operated;
(3) During the period of the emergency the facility owner and/or operator took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and
(4) The facility owner and/or operator notified the Department within two working days after the event

occurred. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(b) In any enforcement proceeding, the facility owner and/or operator seeking to establish the occurrence of an emergency has the burden of proof.

(c) This provision is in addition to any emergency or upset provision contained in any applicable requirement.

Item F: **Recycling and Salvage - 6NYCRR Part 201-1.7**

Where practical, any person who owns or operates an air contamination source shall recycle or salvage air contaminants collected in an air cleaning device according to the requirements of 6 NYCRR.

Item G: **Prohibition of Reintroduction of Collected Contaminants to the Air - 6NYCRR Part 201-1.8**

No person shall unnecessarily remove, handle, or cause to be handled, collected air contaminants from an air cleaning device for recycling, salvage or disposal in a manner that would reintroduce them to the outdoor atmosphere.

Item H: **Proof of Eligibility for Sources Defined as Exempt Activities - 6 NYCRR Part 201-3.2(a)**

The owner and/or operator of an emission source or unit that is eligible to be exempt, may be required to certify that it operates within the specific criteria described in 6 NYCRR Subpart 201-3. The owner or operator of any such emission source must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility which contains emission sources or units subject to 6 NYCRR Subpart 201-3, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations, or law.

Item I: **Proof of Eligibility for Sources Defined as Trivial Activities - 6 NYCRR Part 201-3.3(a)**

The owner and/or operator of an emission source or unit that is listed as being trivial in 6 NYCRR Part 201 may be required to certify that it operates within the specific

criteria described in 6 NYCRR Subpart 201-3. The owner or operator of any such emission source must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility which contains emission sources or units subject to 6 NYCRR Subpart 201-3, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations, or law.

Item J: Required Emission Tests - 6 NYCRR Part 202-1.1

An acceptable report of measured emissions shall be submitted, as may be required by the Commissioner, to ascertain compliance or noncompliance with any air pollution code, rule, or regulation. Failure to submit a report acceptable to the Commissioner within the time stated shall be sufficient reason for the Commissioner to suspend or deny an operating permit. Notification and acceptable procedures are specified in 6NYCRR Part 202-1.

Item K: Visible Emissions Limited - 6 NYCRR Part 211.3
Except as permitted by a specific part of this Subchapter and for open fires for which a restricted burning permit has been issued, no person shall cause or allow any air contamination source to emit any material having an opacity equal to or greater than 20 percent (six minute average) except for one continuous six-minute period per hour of not more than 57 percent opacity.

Item L: Open Fires - 6 NYCRR Part 215
No person shall burn, cause, suffer, allow or permit the burning in an open fire of garbage, rubbish for salvage, or rubbish generated by industrial or commercial activities.

Item M: Permit Exclusion - ECL 19-0305
The issuance of this permit by the Department and the receipt thereof by the Applicant does not and shall not be construed as barring, diminishing, adjudicating or in any way affecting any legal, administrative or equitable rights or claims, actions, suits, causes of action or demands whatsoever that the Department may have against the Applicant for violations based on facts and circumstances alleged to have occurred or existed prior to the effective date of this permit, including, but not

limited to, any enforcement action authorized pursuant to the provisions of applicable federal law, the Environmental Conservation Law of the State of New York (ECL) and Chapter III of the Official Compilation of the Codes, Rules and Regulations of the State of New York (NYCRR). The issuance of this permit also shall not in any way affect pending or future enforcement actions under the Clean Air Act brought by the United States or any person.

Item N: **Federally Enforceable Requirements - 40 CFR 70.6(b)**
All terms and conditions in this permit required by the Act or any applicable requirement, including any provisions designed to limit a facility's potential to emit, are enforceable by the Administrator and citizens under the Act. The Department has, in this permit, specifically designated any terms and conditions that are not required under the Act or under any of its applicable requirements as being enforceable under only state regulations.

FEDERAL APPLICABLE REQUIREMENTS
The following conditions are federally enforceable.

Condition 1: **False statement**
Effective between the dates of 06/10/1998 and Permit Expiration Date

Applicable Federal Requirement: 6NYCRR 200.3

Item 1.1:
No person shall make a false statement in connection with applications, plans, specifications and/or reports submitted pursuant to this Subchapter.

Condition 1-2: **Emissions from two or more devices through one emission point**
Effective between the dates of 12/11/2001 and Permit Expiration Date

Applicable Federal Requirement: 6NYCRR 212.5(a)

Replaces Condition(s) 26

Item 1-2.1:
Where air contaminants from two or more devices or contrivances are emitted to the outdoor atmosphere through a single emission point, the permissible emission rate or degree of air cleaning required is determined by using the sum of the process weights or emission rate potentials for all such devices or contrivances

Condition 3-1: Compliance Demonstration
Effective between the dates of 09/15/2005 and Permit Expiration Date

Applicable Federal Requirement: 6NYCRR 212.6(a)

Item 3-1.1:
The Compliance Demonstration activity will be performed for the Facility.

Item 3-1.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:

No person shall cause or allow emissions having an average opacity during any six consecutive minutes of 20 percent or greater from any process emission source, except only the emission of uncombined water. The Department reserves the right to perform or require the performance of a Method 9 opacity evaluation at any time during facility operation.

The permittee will conduct observations of visible emissions from the emission unit, process, etc. to which this condition applies at the monitoring frequency stated below while the process is in operation. The permittee will immediately investigate any instance where there is cause to believe that visible emissions above those that are normal and in compliance are occurring or have occurred from a process source.

If visible emissions above those that are normal (this may be zero percent opacity for many or all emission sources) and in compliance with section 212.6(a) are detected, the permittee shall determine the cause, make the necessary correction, and verify that the excess visible emissions problem has been corrected.

If visible emissions above those that are normal and in compliance continue to be present after corrections are made, the permittee will immediately notify The Department and conduct a Method 9 assessment within 24 hours to determine the degree of opacity.

Records of these observations, investigations and corrective actions will be kept on-site in a format acceptable to the Department and the semiannual progress

report and annual compliance certifications required of all permittees subject to Title V must include a summary of theses instances.

Monitoring Frequency: MONTHLY
Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

****** Emission Unit Level ******

Condition 3-2: Compliance Demonstration
Effective between the dates of 09/15/2005 and Permit Expiration Date

Applicable Federal Requirement: 6NYCRR 212.11(b)(3)

Replaces Condition(s) 30

Item 3-2.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-SUF01

Regulated Contaminant(s):
CAS No: 0NY998-00-0 VOC

Item 3-2.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: INTERMITTENT EMISSION TESTING
Monitoring Description:
A carbon adsorption unit will be used to adsorb 98% of the VOC contaminants. This outlet stream will be tested weekly.

Parameter Monitored: VOC
Upper Permit Limit: 500 parts per million (by volume)
Reference Test Method: EPA Method 21
Monitoring Frequency: WEEKLY
Averaging Method: MAXIMUM - NOT TO BE EXCEEDED AT ANY TIME (INSTANTANEOUS/DISCRETE OR GRAB)
Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 3-3: Compliance Demonstration
Effective between the dates of 09/15/2005 and Permit Expiration Date

Applicable Federal Requirement: 6NYCRR 212.9(b)

Item 3-3.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-SUF01 Emission Point: 00015

Regulated Contaminant(s):
CAS No: 007446-09-5 SULFUR DIOXIDE
CAS No: 007647-01-0 HYDROGEN CHLORIDE
CAS No: 007664-39-3 HYDROGEN FLUORIDE
CAS No: 007782-50-5 CHLORINE
CAS No: 0NY210-00-0 OXIDES OF NITROGEN
CAS No: 010035-10-6 HYDROGEN BROMIDE

Item 3-3.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: WORK PRACTICE INVOLVING SPECIFIC OPERATIONS
Monitoring Description:
A two stage scrubbing system will be used at all times during operation of the processes associated with emission unit 1-SUF01. The scrubber liquor will be maintained at a pH above 12 by controlling the caustic concentration above 3% at all times. Maintenance of the proper pH will assure compliance with the specific control requirement, based on environmental ratings, for each contaminant as noted below:

Chlorine - Environmental rating "A" - 99% control
Hydrogen bromide - Environmental rating "B" - 91% control
Hydrogen chloride - Environmental rating "B" - 94% control
Hydrogen fluoride - Environmental rating "A" - 99% control
Sulfur dioxide - Environmental rating "B" - 91% control
Oxides of nitrogen - Environmental rating "B" - 91% control

Work Practice Type: PARAMETER OF PROCESS MATERIAL
Process Material: LIQUOR
Parameter Monitored: CONCENTRATION
Lower Permit Limit: 3.0 percent by weight
Monitoring Frequency: PER SHIFT
Averaging Method: MINIMUM - NOT TO FALL BELOW STATED

VALUE AT ANY TIME
Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 3-4: Compliance Demonstration
Effective between the dates of 09/15/2005 and Permit Expiration Date

Applicable Federal Requirement: 6NYCRR 212.4(c)

Item 3-4.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 1-SUF01 Emission Point: FC022
Process: FL2 Emission Source: DC002

Regulated Contaminant(s):
CAS No: 001308-38-9 CHROME (III) OXIDE
CAS No: 001333-82-0 CHROMIUM OXIDE
CAS No: 007788-97-8 CHROMIUM (III) FLUORIDE
CAS No: 0NY075-00-5 PM-10

Item 3-4.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE
Monitoring Description:
The screening and packaging equipment will be exhausted through a dust collector, identified as emission source/control DC002, containing high efficiency filter bags to capture any fugitive dust. The pressure drop across the filters will be monitored once per work shift. The process will be shut down prior to the pressure drop exceeding 10 inches of water. The filters wil be changed or cleaned according to manufacturer's recommendations. Maintaining the dust collector pressure drop to no more than 10 inches of water will assure compliance with the particulate emission standard of 0.050 grains per dry standard cubic feet per 6 NYCRR Part 212.4(c).

Parameter Monitored: PRESSURE
Upper Permit Limit: 10 inches of water
Monitoring Frequency: PER SHIFT
Averaging Method: MAXIMUM - NOT TO BE EXCEEDED AT ANY TIME (INSTANTANEOUS/DISCRETE OR GRAB)
Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 1-16: Emissions from new emission sources and/or modifications

Effective between the dates of 12/11/2001 and Permit Expiration Date

Applicable Federal Requirement: 6NYCRR 212.4(a)

Item 1-16.1:
This Condition applies to Emission Unit: 2-DRUM1 Emission Point: 00017

Item 1-16.2:
No person shall cause or allow emissions that exceed the applicable permissible emission rate as determined from Table 2, Table 3, or Table 4 of 6 NYCRR Part 212 for the environmental rating issued by the commissioner.

Condition 3-5: Compliance Demonstration
Effective between the dates of 09/15/2005 and Permit Expiration Date

Applicable Federal Requirement: 6NYCRR 212.9(b)

Item 3-5.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 2-DRUM1 Emission Point: 00017

Regulated Contaminant(s):
CAS No: 007791-25-5 SULFURYL CHLORIDE

Item 3-5.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE
Monitoring Description:
A caustic scrubber system, identified as emission source/control SC003, will be used at all times during drumming and/or venting down of trailers or isotainers. The scrubber liquor will be maintained at a pH above 12 to maintain the caustic concentration above 3% at all times. The scrubber liquor pH will be monitored as needed during each day of operation but no less than once per shift. Maintenance of the proper pH will assure compliance with the 91% control requirement, based on an environmental rating of "B" for sulfuryl chloride.

Parameter Monitored: CONCENTRATION
Lower Permit Limit: 3 percent by weight
Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Averaging Method: MINIMUM - NOT TO FALL BELOW STATED

VALUE AT ANY TIME
Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 3-6: Compliance Demonstration
Effective between the dates of 09/15/2005 and Permit Expiration Date

Applicable Federal Requirement: 6NYCRR 212.4(c)

Item 3-6.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: 3-COPPR Emission Point: C0021
Process: CGR Emission Source: DC001

Regulated Contaminant(s):
CAS No: 007440-50-8 COPPER

Item 3-6.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE
Monitoring Description:
All of the air from the room will be exhausted through a dust collector, identified as emission source/control DC001, containing HEPA after filters to capture any airborne copper dust and then out through emission point #C0021. The copper collected in the system will be recycled to the process. Pressure drop across the filters will be monitored at least once per shift. The process wil be shut down prior to the pressure drop exceeding 2 inches of water. The filters will be changed or cleaned according to the manufacturer's recommendations. Maintaining the dust collector pressure drop to no more than 2 inches of water will assure compliance with the particulate emission standard of 0.050 grains per dry standard cubic feet per 6 NYCRR Part 212.4(c).

Manufacturer Name/Model Number: DWYER/MAG
Parameter Monitored: PRESSURE
Upper Permit Limit: 2 inches of water
Monitoring Frequency: PER SHIFT
Averaging Method: MAXIMUM - NOT TO BE EXCEEDED AT ANY TIME (INSTANTANEOUS/DISCRETE OR GRAB)
Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 3-7: Compliance Demonstration

Effective between the dates of 09/15/2005 and Permit Expiration Date

Applicable Federal Requirement: 6NYCRR 227-1.3(a)

Item 3-7.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: B-BOIL2

Item 3-7.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE

Monitoring Description:

No person shall cause or allow emissions having an average opacity during any six consecutive minutes of 20 percent or greater from any emission source, except only the emission of uncombined water. The Department reserves the right to perform or require the performance of a Method 9 opacity evaluation at any time during facility operation.

The permittee will conduct observations of visible emissions from the emission unit B-BOIL2 on a monthly basis. The permittee will immediately investigate any instance where there is cause to believe that visible emissions above those that are normal and in compliance are occurring or have occurred.

If visible emissions above those that are normal (this may be zero percent opacity for many or all emission sources) and in compliance with 6NYCRR Part 227.1.3(a) are detected, the permittee shall determine the cause, make the necessary correction, and verify that the excess visible emissions problem has been corrected.

If visible emissions above those that are normal and in compliance continue to be present after corrections are made, the permittee will immediately notify the Department and conduct a Method 9 assessment within 24 hours to determine the degree of opacity.

Records of these observations, investigations and corrective actions will be kept on-site in a format acceptable to the Department.

Parameter Monitored: OPACITY
Upper Permit Limit: 20 percent
Monitoring Frequency: MONTHLY
Averaging Method: MAXIMUM - NOT TO EXCEED STATED VALUE - SEE MONITORING DESCRIPTION
Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 3-8: Compliance Demonstration
Effective between the dates of 09/15/2005 and Permit Expiration Date

Applicable Federal Requirement: 40CFR 60.48c(a), NSPS Subpart Dc

Item 3-8.1:
The Compliance Demonstration activity will be performed for:

Emission Unit: B-BOIL2

Item 3-8.2:
Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:

The owner and operator of each affected facility shall submit notification of the date of construction or reconstruction, anticipated startup, and actual startup, as provided by 40 CFR 60.7 of this part. This notification shall include:

(1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

(2) If applicable, a copy of any Federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under 40 CFR 60.42c., or 40 CFR 60.43c.

(3) The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.

Monitoring Frequency: SINGLE OCCURRENCE
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

STATE ONLY ENFORCEABLE CONDITIONS
****** Facility Level ******

NOTIFICATION OF GENERAL PERMITTEE OBLIGATIONS
This section contains terms and conditions which are not federally enforceable. Permittees may also have other obligations under regulations of general applicability

Item A: **Public Access to Recordkeeping for Facilities With State Facility Permits - 6NYCRR Part 201-1.10(a)**
Where emission source owners and/or operators keep records pursuant to compliance with the operational flexibility requirements of 6 NYCRR Subpart 201-5.4(b)(1) , and/or the emission capping requirements of 6 NYCRR Subparts 201-7.2(d), 201-7.3(f), 201-7.3(g), 201-7.3(h)(5), 201-7.3(i) and 201-7.3(j), the Department will make such records available to the public upon request in accordance with 6 NYCRR Part 616 - Public Access to Records. Emission source owners and/or operators must submit the records required to comply with the request within sixty working days of written notification by the Department of receipt of the request.

Item B: **General Provisions for State Enforceable Permit Terms and Condition - 6 NYCRR Part 201-5**
Any person who owns and/or operates stationary sources shall operate and maintain all emission units and any required emission control devices in compliance with all applicable Parts of this Chapter and existing laws, and shall operate the facility in accordance with all criteria, emission limits, terms, conditions, and standards in this permit. Failure of such person to properly operate and maintain the effectiveness of such emission units and emission control devices may be sufficient reason for the Department to revoke or deny a permit.

The owner or operator of the permitted facility must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility regulated by this Subpart, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations or

law.

STATE ONLY APPLICABLE REQUIREMENTS
The following conditions are state only enforceable.

Condition 2-7: Contaminant List
Effective between the dates of 09/02/2004 and Permit Expiration Date

Applicable State Requirement: ECL 19-0301

Item 2-7.1:
Emissions of the following contaminants are subject to contaminant specific requirements in this permit(emission limits, control requirements or compliance monitoring conditions).

CAS No: 007782-50-5
Name: CHLORINE

CAS No: 001308-38-9
Name: CHROME (III) OXIDE

CAS No: 007788-97-8
Name: CHROMIUM (III) FLUORIDE

CAS No: 001333-82-0
Name: CHROMIUM OXIDE

CAS No: 007440-50-8
Name: COPPER

CAS No: 010035-10-6
Name: HYDROGEN BROMIDE

CAS No: 007647-01-0
Name: HYDROGEN CHLORIDE

CAS No: 007664-39-3
Name: HYDROGEN FLUORIDE

CAS No: 0NY210-00-0
Name: OXIDES OF NITROGEN

CAS No: 0NY075-00-5
Name: PM-10

CAS No: 007446-09-5

Name: SULFUR DIOXIDE

CAS No: 007791-25-5
Name: SULFURYL CHLORIDE

CAS No: 0NY998-00-0
Name: VOC

Condition 2-8: Unavoidable noncompliance and violations
Effective between the dates of 09/02/2004 and Permit Expiration Date

Applicable State Requirement: 6NYCRR 201-1.4

Item 2-8.1:
At the discretion of the commissioner a violation of any applicable emission standard for necessary scheduled equipment maintenance, start-up/shutdown conditions and malfunctions or upsets may be excused if such violations are unavoidable. The following actions and recordkeeping and reporting requirements must be adhered to in such circumstances.

(a) The facility owner and/or operator shall compile and maintain records of all equipment maintenance or start-up/shutdown activities when they can be expected to result in an exceedance of any applicable emission standard, and shall submit a report of such activities to the commissioner's representative when requested to do so in writing or when so required by a condition of a permit issued for the corresponding air contamination source except where conditions elsewhere in this permit which contain more stringent reporting and notification provisions for an applicable requirement, in which case they supercede those stated here. Such reports shall describe why the violation was unavoidable and shall include the time, frequency and duration of the maintenance and/or start-up/shutdown activities and the identification of air contaminants, and the estimated emission rates. If a facility owner and/or operator is subject to continuous stack monitoring and quarterly reporting requirements, he need not submit reports for equipment maintenance or start-up/shutdown for the facility to the commissioner's representative.

(b) In the event that emissions of air contaminants in excess of any emission standard in 6 NYCRR Chapter III Subchapter A occur due to a malfunction, the facility owner and/or operator shall report such malfunction by telephone to the commissioner's representative as soon as possible during normal working hours, but in any event not later than two working days after becoming aware that the malfunction occurred. Within 30 days thereafter, when requested in writing by the commissioner's representative, the facility owner and/or operator shall submit a written report to the commissioner's representative describing the malfunction, the corrective action taken, identification of air contaminants, and an estimate of the emission rates. These reporting requirements are superceded by conditions elsewhere in this permit which contain reporting and notification provisions for applicable requirements more stringent than those above.

(c) The Department may also require the owner and/or operator to include in reports described under (a) and (b) above an estimate of the maximum ground level concentration of each air contaminant emitted and the effect of such emissions depending on the deviation of the malfunction and the air contaminants emitted.

(d) In the event of maintenance, start-up/shutdown or malfunction conditions which result in emissions exceeding any applicable emission standard, the facility owner and/or operator shall take appropriate action to prevent emissions which will result in contravention of any applicable ambient air quality standard. Reasonably available control technology, as determined by the commissioner,. shall be applied during any maintenance, start-up/shutdown or malfunction condition subject to this paragraph.

(e) In order to have a violation of a federal regulation (such as a new source performance standard or national emissions standard for hazardous air pollutants) excused, the specific federal regulation must provide for an affirmative defense during start-up, shutdowns, malfunctions or upsets.

Condition 40: Emission Unit Definition
Effective between the dates of 06/10/1998 and Permit Expiration Date

Applicable State Requirement: 6NYCRR 201-5

Item 40.1(From Mod 3):
The facility is authorized to perform regulated processes under this permit for:
Emission Unit: 1-SUF01
Emission Unit Description:
The Grand Island Scale-Up Facility (SUF) will be used to scale-up laboratory processes, develop design data for production at other facilities, and provide samples for potential customers. Process units will consist of 7 sets of equipment, ranging in size from 10 gallons to 100 gallons. Each set of equipment will consist of a reactor, column, product condenser, receivers and a vent condenser. Types of reactions that could be conducted include chlorinations, fluorinations, brominations, nitrations, sulfonations, and distillations. Depending on the vapor pressures, and freezing points of the materials handled, the vent condensers will be operated at a low enough temperature to condense out as many organics as possible. All of the offgases will be vented to one of two caustic (NaOH or KOH) scrubbing systems, each of which consists of either a subsurface injector or a siphon ejector and followed by a spray tower. Each caustic scrubbing system will vent through a carbon adsorption unit to remove organic contaminants. These two streams will then combine to vent through the final emission point 00015.

Building(s): SUF BUILD

Item 40.2(From Mod 3):
The facility is authorized to perform regulated processes under this permit for:
Emission Unit: 2-DRUM1
Emission Unit Description:
Emission unit 2DRUM1 consists of drumming products

contained in trailers or isotainers by transfering the material into containers such as 55 gallon drums. Materials to be drummed include: (1) sulfuryl chloride, and (2) organic chemicals such as Halso 99 (Chlorotoluene) and 3,5-Dichloro Benzoyl Chloride. None of these materials are hazardous air pollutants (HAPS). Halso 99 and 3,5-Dichloro Benzoyl Chloride are classified as volatile organic compounds (VOC). The drumming operation of each material will be limited to 500 hours per year.

As required in 6NYCRR Part 212.9(b), the ventilation of acidic vapors during the drumming process will be controlled by a caustic (potassium or sodium hydroxide) scrubber, identified as emission source SC003. In addition, when a trailer or isotainer containing an acidic compound has been emptied, residual nitrogen pressure will be vented through the trailer and ultimately through the caustic scrubber. The caustic scrubber will vent through emission point 00017.

As indicated in 6NYCRR Part 212.10, emissions from the drumming of VOC products, such as Halso 99 (Chlorotoluene) and 3,5-DiChloroBenzoyl Chloride, do not require the use of pollution control equipment. When a trailer or isotainer has been emptied, residual nitrogen pressure on the trailer will be vented through the drumming vent and into the atmosphere. The VOC drumming station will vent through emission point 00018.

Building(s): DRUM STAT

Item 40.3(From Mod 3):
The facility is authorized to perform regulated processes under this permit for:
Emission Unit: 3-COPPR
Emission Unit Description:

The unit produces copper metal by reduction of a copper salt in a glycol. The slurry from this reaction is then fed to a rotary pressure filter where it is filtered, washed, and dried. Deionized water is used in the first wash. Methanol is used in the second wash to displace the water from the product. The cake is then dried with a continuous stream of heated nitrogen. As the filter drum rotates, the dried copper cake is continuously scraped from the filter cloth and discharged into drums. After the copper is filtered, it is loaded onto trays and placed in a tray drying chamber for about 3 hours to complete the drying cycle. The dry product is then ground, screened,

and packaged in a special clean room. Any dust particles generated in this room will be captured in a dust collector containing HEPA afterfilters. Copper collected will be recycled to the process. The system also includes a methanol recovery still to reduce the amount of liquid waste.

Building(s): SUF BUILD
SUF CLN LA

Item 40.4(From Mod 3):
The facility is authorized to perform regulated processes under this permit for:
Emission Unit: B-BOIL2
Emission Unit Description:
This emission unit consists of #2 Boiler - a Johnson Standard Burner Dual Swirler Unit. This generates 12 lb. steam to heat the offices and laboratories as well as supply the heating source for the process equipment in the laboratories and the SUF (Scale Up Facility) of the IsleChem facility. The unit is capable of burning only natural gas. It was previously capable of burning #2 fuel oil, but the supply lines and underground storage tanks were removed in December 2001.

Building(s): R&D Center

Condition 21: Air pollution prohibited
Effective between the dates of 06/10/1998 and Permit Expiration Date

Applicable State Requirement: 6NYCRR 211.2

Item 21.1:
No person shall cause or allow emissions of air contaminants to the outdoor atmosphere of such quantity, characteristic or duration which are injurious to human, plant or animal life or to property, or which unreasonably interfere with the comfortable enjoyment of life or property. Notwithstanding the existence of specific air quality standards or emission limits, this prohibition applies, but is not limited to, any particulate, fume, gas, mist, odor, smoke, vapor, pollen, toxic or deleterious emission, either alone or in combination with others.

****** Emission Unit Level ******

Condition 43: Emission Point Definition By Emission Unit
Effective between the dates of 06/10/1998 and Permit Expiration Date

Applicable State Requirement: 6NYCRR 201-5

Item 43.1(From Mod 3):
The following emission points are included in this permit for the cited Emission Unit:

Emission Unit: 1-SUF01

Emission Point: 00015
Height (ft.): 45 Diameter (in.): 4
NYTMN (km.): 4774.22 NYTME (km.): 174.529 Building: SUF BUILD

Emission Point: 0015A
Height (ft.): 25 Diameter (in.): 2
NYTMN (km.): 4774. NYTME (km.): 174.5 Building: SUF BUILD

Emission Point: FC022
Height (ft.): 28 Diameter (in.): 6
NYTMN (km.): 4774. NYTME (km.): 174.5 Building: SUF BUILD

Item 43.2(From Mod 3):
The following emission points are included in this permit for the cited Emission Unit:

Emission Unit: 2-DRUM1

Emission Point: 00017
Height (ft.): 14 Diameter (in.): 2
NYTMN (km.): 4774. NYTME (km.): 174.5 Building: DRUM STAT

Emission Point: 00018
Height (ft.): 14 Diameter (in.): 2
NYTMN (km.): 4774. NYTME (km.): 174.5 Building: DRUM STAT

Item 43.3(From Mod 3):
The following emission points are included in this permit for the cited Emission Unit:

Emission Unit: 3-COPPR

Emission Point: C0019
Height (ft.): 26 Diameter (in.): 3
NYTMN (km.): 4774. NYTME (km.): 174.5 Building: SUF BUILD

Emission Point: C0020
Height (ft.): 26 Diameter (in.): 2
NYTMN (km.): 4774. NYTME (km.): 174.5 Building: SUF BUILD

Emission Point: C0021
Height (ft.): 14 Diameter (in.): 18
NYTMN (km.): 4774. NYTME (km.): 174.5 Building: SUF CLN LA

Item 43.4(From Mod 3):
The following emission points are included in this permit for the cited Emission Unit:

Emission Unit: B-BOIL2

Emission Point: 00013
Height (ft.): 34 Diameter (in.): 22
NYTMN (km.): 4774. NYTME (km.): 174.5 Building: R&D Center

Condition 44: Process Definition By Emission Unit
Effective between the dates of 06/10/1998 and Permit Expiration Date

Applicable State Requirement: 6NYCRR 201-5

Item 44.1(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 1-SUF01
Process: BR3 Source Classification Code: 3-01-999-98
Process Description:
BROMINATION: One or more vessels are charged with an organic chemical. Bromine is fed into the vessels at a maximum rate of 100 lb/hour. Hydrogen bromide is formed as a byproduct. The offgas, consisting mainly of hydrogen bromide, is scrubbed with a caustic solution. The two stage caustic scrubbing system, consisting of either a subsurface injector or a siphon ejector and followed by a spray tower, should remove > 99% of the acidic components. Carbon will adsorb 98 to 99% of the organic contaminants.

Emission Source/Control: BROMO - Process

Emission Source/Control: SC001 - Process
Design Capacity: 600 pounds per day

Emission Source/Control: SC002 - Process
Design Capacity: 600 pounds per day

Item 44.2(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 1-SUF01
Process: CL1 Source Classification Code: 3-01-999-98
Process Description:
CHLORINATION: One or more vessels are charged with an organic chemical. Chlorine is fed into the vessels at a

maximum rate of 100 lb/hour. Hydrogen chloride is formed as a byproduct. The offgas, consisting mainly of hydrogen chloride, is scrubbed with a caustic solution. The two stage caustic scrubbing system, consisting of either a subsurface injector or a siphon ejector and followed by a spray tower, should remove > 99% of the acidic components. Carbon will adsorb 98 to 99% of the organic contaminants.

Emission Source/Control: CHLOR - Process

Emission Source/Control: SC001 - Process
Design Capacity: 600 pounds per day

Emission Source/Control: SC002 - Process
Design Capacity: 600 pounds per day

Item 44.3(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 1-SUF01
Process: DI6 Source Classification Code: 3-01-840-01
Process Description:

Any of several alcohols (such as methanol, butanol, phenol, amyl alcohol, ethanol, or 2-ethyl hexanol) is charged to the reactor. Solid phosphorous pentoxide is then fed to the reactor. The phosphorous pentoxide reacts with the alcohol to produce an alkyl acid phosphate. The process generates no emissions other than that caused by the vapor pressure of the components. Vapors are first vented through a condenser cooled by city water. They are then vented through a carbon adsorption unit where 98% of any remaining contaminants are adsorbed. Since carbon will only adsorb 20% of methanol or ethanol, the carbon unit will be bypassed when these two materials are processed.

Emission Source/Control: DISTI - Process

Emission Source/Control: SC004 - Process
Design Capacity: 75 pounds

Item 44.4(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 1-SUF01
Process: FL2 Source Classification Code: 3-01-999-99
Process Description:

FLUORINATION: One or more vessels are charged with an

organic or an inorganic chemical. Hydrogen fluoride is fed into the vessels at a maximum rate of 100 lb/hour. If a non-chlorinated inorganic material is being fluorinated, water is formed as a byproduct. If a chlorinated material is being fluorinated, Hydrogen chloride is formed as a byproduct. The off gas, consisting mainly of hydrogen chloride (if formed) and excess hydrogen fluoride, is scrubbed with a caustic solution. The two stage caustic scrubbing system, consisting of either a subsurface injector or a siphon ejector and followed by a spray tower, should remove > 99% of the acidic components. If an organic material is being fluorinated, the caustic scrubber will be vented through a carbon adsorption unit to adsorb 98 to 99% of the organic contaminants. If an inorganic material is being fluorinated the caustic scrubber will be vented directly to the atmosphere.

Emission Source/Control: DC002 - Control
Control Type: ACTIVATED CARBON ADSORPTION

Emission Source/Control: FLUOR - Process

Emission Source/Control: SC001 - Process
Design Capacity: 600 pounds per day

Emission Source/Control: SC002 - Process
Design Capacity: 600 pounds per day

Item 44.5(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 1-SUF01
Process: NI4 Source Classification Code: 3-01-999-98
Process Description:
NITRATION OR CHLORODENITRATION: Either chlorine (at a maximum rate of 40 lb/hour) or nitric acid (at a maximum rate of 100 lb/hour) are fed to the process and are reacted with an organic chemical. Nitrogen dioxide is formed as a byproduct. The offgas, consisting mainly of nitrogen dioxide, is scrubbed with a caustic solution. The two stage caustic scrubbing system, consisting of either a subsurface injector or a siphon ejector and followed by a spray tower, should remove > 90% of the NO2. Carbon will adsorb 98 to 99% of the organic contaminants.

Emission Source/Control: NITRO - Process

Emission Source/Control: SC001 - Process
Design Capacity: 600 pounds per day

Emission Source/Control: SC002 - Process
Design Capacity: 600 pounds per day

Item 44.6(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 1-SUF01
Process: SU5 Source Classification Code: 3-01-999-98
Process Description:
SULFONATION: One or more vessels are charged with an organic chemical. Sulfur trioxide or oleum is fed into the vessels at a maximum rate of 100 lb/hour. Sulfur dioxide is formed as a byproduct. The offgas, consisting mainly of sulfur dioxide, is scrubbed with a caustic solution. The two stage caustic scrubbing system, consisting of either a subsurface injector or a siphon ejector and followed by a spray tower, should remove > 99% of the SO2 and the acidic components. Carbon will adsorb 98 to 99% of the organic contaminants.

Emission Source/Control: SC001 - Process
Design Capacity: 600 pounds per day

Emission Source/Control: SC002 - Process
Design Capacity: 600 pounds per day

Emission Source/Control: SULFO - Process

Item 44.7(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 2-DRUM1
Process: DR1
Process Description:
SULFURYL CHLORIDE DRUMMING: Drums of sulfuryl chloride will be filled on a weigh scale at a drumming station. The sulfuryl chloride will be transferred from the trailer or isotainer by nitrogen pressure. The drum will be vented through a caustic scrubber (SC003) to emission point 00017.

Emission Source/Control: SC003 - Control
Control Type: GAS SCRUBBER (GENERAL, NOT CLASSIFIED)

Emission Source/Control: SC005 - Process

Item 44.8(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 2-DRUM1
Process: DR2
Process Description:
ORGANIC CHEMICAL DRUMMING: Drums of organic chemicals (such as chlorotoluene) will be filled on a weigh scale at a drumming station. The organic chemical will be transferred from a trailer or isotainer by nitrogen pressure. The drum will be vented to emission point 00018.

Emission Source/Control: SC006 - Process

Item 44.9(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 2-DRUM1
Process: TR1
Process Description:
SULFURYL CHLORIDE - TRAILER VENTING: When the trailer or isotainer of sulfuryl chloride is emptied, it will be vented through caustic scrubber (SC003) to emission point #00017.

Emission Source/Control: SC003 - Control
Control Type: GAS SCRUBBER (GENERAL, NOT CLASSIFIED)

Emission Source/Control: SC007 - Process

Item 44.10(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 2-DRUM1
Process: TR2
Process Description:
ORGANIC CHEMICAL - TRAILER VENTING: When the trailer or isotainer of organic chemical (such as chlorotoluene) is emptied, it will be vented through emission point #00018.

Emission Source/Control: SC003 - Control
Control Type: GAS SCRUBBER (GENERAL, NOT CLASSIFIED)

Emission Source/Control: SC008 - Process

Item 44.11(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 3-COPPR
Process: CFD
Process Description:

The copper product is filtered, washed and dried in a rotary pressure filter. Water is used in the first wash. Methanol is used in the second wash to displace the water from the product. The cake is then dried with a continuous stream of hot nitrogen. As the filter drum rotates, the dried copper cake is continuously scraped from the filter cloth and discharged into drums. When the recycle nitrogen stream exits the filter dryer, it is first cooled in a river water condenser to condense out part of the methanol, then a refrigerated vent condenser operating at 12 degrees C to condense out the majority of the remaining methanol, and then reheated to start the cycle again. A make-up stream of 2 scfm will be bled into the feed. The equivalent amount of nitrogen will then be vented through emission point #C0020. River water is used for cooling the first condenser. The vapor pressure of methanol at 30 degrees C (summer conditions) is 164 mm Hg. The refrigerated vent condenser will be operated at 12 degrees C. The vapor pressure of methanol at 12 degrees C is 62 mm Hg. After the copper is filtered, it is loaded onto trays and placed in a tray drying chamber for about 3 hours. Afterwards, it is removed from the trays as a solid sheet of copper approximately 1/2 inch thick. The dryer is vented through the same 12 degrees C refrigerated vent condenser as the filter. In addition to the emissions during the operation of the filter/dryer, the program SARACALC has been used to calculate emissions during a 2 hour period once a shift should the filtrate be pumped to a 55 gallon drum instead of directly to the still. These emissions have been included in the total emissions in the emissions unit emissions summary.

Emission Source/Control: VC003 - Process

Item 44.12(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 3-COPPR
Process: CGR

Process Description:

Copper product from trays is fed to a grinder and then flows to a Sweco two-stage screener and finally packaged. This operation is completed in an enclosed room exhausted through a dust collector - DC001-containing HEPA afterfilters to capture any airborne copper dust and then out through emission point #C0021. Any copper collected will be recycled to the process.

Emission Source/Control: DC001 - Control
Control Type: HIGH EFFICIENCY PARTICULATE AIR FILTER

Emission Source/Control: SCR01 - Process

Item 44.13(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 3-COPPR
Process: CUR
Process Description:

The reactor is charged with a glycol and a catalyst, heated to 100 degrees C and a solid copper salt is fed to the reactor. The reactor is then heated to 180 degrees C to accomplish the reduction. During the reduction reaction, water, carbon dioxide, and excess glycol are directed to the primary condenser, then to a jacketed receiver. River water is used for cooling. The vapor pressure of glycol at 30 degrees C (summer conditions) is 0.16 mm Hg. This process is vented through emission point #C0019. In addition to the emissions created during the reaction, the program SARACALC has been used to calculate emissions during the daily 6 minute period of charging the glycol to the reactor, and are included in the total emissions in the emissions unit emissions summary.

Emission Source/Control: C0001 - Process

Item 44.14(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 3-COPPR
Process: MDI
Process Description:

The purpose of the methanol recovery system is to reduce the amount of methanol liquid waste. The system is a batch distillation to remove water and glycol from the methanol wash liquid. Recovered methanol is recycled to

the wash system. The primary condenser is then vented through a refrigerated vent condenser to recover additional methanol and then out through emission point #C0020. River water is used for cooling the primary condenser. The vapor pressure of methanol at 30 degrees C (summer conditions) is 164 mm Hg. The refrigerated vent condenser will be operated at 10 degrees C. The vapor pressure of methanol at 12 degrees C is 62 mm Hg. In addition to the emissions created during the distillation, the program SARACALC has been used to calculate emissions during the daily 2.5 minute period of charging material to the 50 gallon still, and the weekly 5 minute period to charge the distillate receiver with the make-up methanol needed as a feed for the filter. These emissions have been included in the total emissions in the emissions unit emissions summary.

Emission Source/Control: VC002 - Process

Item 44.15(From Mod 3):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: B-BOIL2
Process: B02
Process Description:

#2 Boiler - a Johnson Standard Burner Dual Swirler Unit generates 12 lb. steam to heat the offices and laboratories as well as supply the heating source for the process equipment in the laboratories and the SUF (Scale Up Facility) of the IsleChem facility. This unit has a heat input of 14.65 MM BTU/hr and was installed in 1993. The unit is capable of burning only natural gas. It was previously capable of burning #2 fuel oil, but the supply lines and underground storage tanks were removed in December 2001.

Emission Source/Control: BOIL2 - Combustion
Design Capacity: 14.65 million Btu per hour

Item 44.16(From Mod 2):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 1-SUF01
Process: DU7 Source Classification Code: 3-01-999-98
Process End Date: 8/1/2005
Process Description:

DUREZ BRIGHTON REACTOR: The Brighton Reactor is charged

with an organic material such as phenol. Formaldehyde is then fed into the vessel to react to form a phenolic resin. Downstream from the product condenser is a vent condenser. The vent condenser will be run at a low temperature in order to condense out organic materials. A two stage caustic scrubbing system consisting of a syphon ejector and a spray tower should remove 90% of any remaining formaldehyde. Carbon will adsorb 98 to 99% of the organic contaminants.

Emission Source/Control: SC001 - Process
Design Capacity: 600 pounds per day

Emission Source/Control: SC002 - Process
Design Capacity: 600 pounds per day

Item 44.17(From Mod 2):
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: 1-SUF01
Process: SL5 Source Classification Code: 3-01-999-98
Process End Date: 8/1/2005
Process Description:

SULFONATION: One or more vessels are charged with an organic chemical. Sulfur trioxide or oleum is fed into the vessels at a maximum rate of 100 lb/hour. Sulfur dioxide is formed as a byproduct. The offgas, consisting mainly of sulfur dioxide, is scrubbed with a caustic solution. The two stage caustic scrubbing system, consisting of a syphon ejector and a spray tower, should remove > 99% of the SO2 and the acidic components. Carbon will adsorb 98 to 99% of the organic contaminants.

Emission Source/Control: SC001 - Process
Design Capacity: 600 pounds per day

Emission Source/Control: SC002 - Process
Design Capacity: 600 pounds per day