California Environmental Protection Agency
Department of Toxic Substances Control

HAZARDOUS WASTE FACILITY PERMIT MODIFICATION

Facility:

Phibro-Tech, Inc.
a.k.a. Entech Recovery, Inc.
a.k.a. Southern California Chemical
Santa Fe Springs Facility
8851 Dice Road
Santa Fe Springs, CA 90670

HAZARDOUS WASTE FACILITY PERMIT	
Permit No.: 91-3-TS-002	
Permit Modification No. 03	
EPA ID Number:	CAD00848802
Effective Date:	July 12 2016

Operator:

Phibro-Tech, Inc.
a.k.a. Entech Recovery, Inc.
a.k.a. Southern California Chemical
Santa Fe Springs Facility
8851 Dice Road
Santa Fe Springs, CA 90670

Pursuant to Section 25200 of the California Health and Safety Code, this Hazardous Waste Facility Permit Modification is hereby issued to Phibro-Tech, Inc.

This Permit Modification approves the 2015 Pond 1 Closure Plan which includes plans for the closure of Pond 1 and Tanks W-1, W-2, W-3, and W-4, a filter press, and changes in this Permit as indicated.

Phillip Blum, P.E.
Chatsworth Permitting Branch
Department of Toxic Substances Control

Date: June 7, 2016

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3 Scope of Work for Construction Completion Reports

4 Scope of Work for Operation and Maintenance Plans

5 Scope of Work for Corrective Measure Completion Reports

6 Deed Restriction Notice

7 1988 Modified Closure/Post Closure Plan for Pond 1 (Superseded by the 2015 Pond 1 Closure Plan)

8 October 15, 1992 Amended General Industrial Activities Storm Water Permit

ATTACHMENT A

Draft Hazardous Waste Facility Permit
for
Entech Recovery Inc., a.k.a.
Southern California Chemical Company
8851 Dice Road
Santa Fe Springs, CA 90670
CAD008488025

I. DESCRIPTION OF FACILITY

A. Ownership, Operation and Location

Entech Recovery Inc., a.k.a. Southern California Chemical Company (SCC) located in Santa Fe Springs, California hereinafter called the "owner", "operator" and "permittee" have applied to the Department of Health Services for continued operation of their off-site storage, treatment and transfer facility.

The facility manages off-site wastes from several industries, including but not limited to, the electronic, chemical and aerospace industries.

SCC's hazardous waste treatment, storage and transfer facility is located on a 4.9-acre parcel at 8851 Dice Road, in the City of Santa Fe Springs, Los Angeles County, California. The facility is located in a predominantly industrial and commercial area.

The Part B Application describes several facility modifications that SCC proposes to make during the next two years. These modifications include replacement of existing storage/treatment tanks and addition of new tanks which will result in increase in storage and treatment capacities.

The existing and proposed units are/will be regulated under state hazardous waste control laws, the federal Resource Conservation and Recovery Act, and their implementing regulations.

The major modifications of the facility will be done in both storage and treatment capacities. SCC presently stores hazardous waste in nine storage tanks with cumulative maximum storage capacity of 229,500 gallons and treats hazardous waste in nine treatment tanks with a cumulative maximum treatment capacity of 104,700 gallons per day. There will be a total of twelve storage tanks and eleven treatment tanks in the final modernized facility. After these modifications, the final total storage capacity will change from [illegible] to [illegible],500 gallons and the final total treatment [illegible] 700 to [illegible] gallons per day.

Waste management units at the existing facility include a copper chloride and copper ammonium chloride area, ferric chloride process area, copper

sulfate process area, metal recovery area, wastewater treatment unit, two drum storage areas and a transfer station.

- SCC also proposes a new waste treatment unit which will destroy cyanide plating solutions by converting cyanides to carbon dioxide and nitrogen gases upon the addition of virgin alkaline material. The resultant solution then will be treated in the metal recovery treatment unit and SCC's wastewater treatment unit to remove any heavy metals prior to discharge to the sewer. The construction and operation of this treatment unit will not occur pursuant to this permit and will be subject to EPA and DHS joint approval of the completion of the final corrective measure study report (which is discussed under Section V of this permit) and receipt of a written notification from both agencies to begin the construction.

The wastewater treatment system consists of four tanks, a three stage clarifier and a frame filter press. Two of the wastewater treatment tanks, the filter press and the three stage clarifier operate under a hazardous waste permit variance issued by the Department on February 23, 1988.

B. Compliance With California Environmental Quality Act (CEQA)

The Department of Health Services has proposed a negative declaration in accordance with the California Environmental Quality Act (Public Resource Code, Section 2100, et. seq.) and the State guidelines.

II. GENERAL CONDITIONS

A. References and Terminology

All parts in this permit are identified by Roman numerals. The items set forth in each part shall apply to the owner, operator, and/or facility in addition to the items set forth in any preceding and/or following part of this permit. Unless explicitly stated otherwise, all cross-reference to items in this permit shall refer only to items occurring within the same part.

B. Effect of Permit

1. The Department's issuance of this permit does not release the owner or operator from any liability or duty imposed by federal or state statutes and regulations or local ordinances, except the obligation to obtain this permit. In particular, unless otherwise specifically provided in this permit, the owner or operator shall comply with the provisions of Chapter 6.5 of Division 20 of the Health and Safety (H&S) Code, and Title 22, CCR, Division 4, Chapter 30.

2. The Department's issuance of this permit does not prevent the Department from adopting or amending regulations, issuing administrative orders, or obtaining judicial orders which impose requirements which are in addition to or more stringent than those in existence at the time this permit was issued. The owner or operator shall comply with any such additional or more stringent requirements in addition to the requirements and conditions specified in the permit.

3. The Department's issuance of this permit does not convey property rights of any sort or any exclusive privilege, nor does it authorize any injury to persons or property or any invasion of other private rights.

4. The owner or operator is permitted to store, treat, and transfer hazardous waste in accordance with the conditions of this permit. The owner or operator shall perform the hazardous waste management activities authorized by this permit in accordance with the plans and specifications approved by the Department. Any management of hazardous waste not authorized in this permit is prohibited.

C. Permit Actions

[illegible] permit [illegible] reissued, or terminated for cause as specified in Section [illegible], [illegible], and 66335, Title 22, California Code of Regulations (CCR). The filing of a request for a permit modification, revocation and reissuance, or termination or the notification of planned changes or anticipated noncompliance on any

part of the owner or operator does not stay the applicability or enforceability of any permit condition.

D. Need to Halt or Reduce Activity

It shall not be a defense for the owner or operator in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

E. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstance and the remainder of this permit shall not be affected thereby.

F. Operation Plan

1. By the issuance of the permit, the Operation Plan dated November 8, 1988, revised May 4, 1990, and June 21, 1990, is hereby approved. Specific sections of this Operation Plan are referenced elsewhere in this permit.

2. The owner or operator shall operate and maintain the facility in accordance with the Operation Plan.

3. In the event of any conflict between this permit and the Operation Plan referred herein, the provisions of the permit shall be controlling.

4. The Operation Plan shall be maintained at the facility and place of business at all times until closure is completed.

5. By the issuance of this Permit Modification dated June, 7, 2016, the Operation Plan is revised to include the "Phibro-Tech, Inc., CAD 008 488 025, Santa Fe Springs, California, TSD Facility, Pond 1 Closure Plan, September 2015, (With Updated Appendices B (figures) and G)", (2015 Pond 1 Closure Plan). The approved 2015 Pond 1 Closure Plan supersedes the 1988 Modified Closure/Post Closure Plan for Pond 1 included in this Permit as Attachment 7.

G. General Responsibilities of Operator

1. Compliance

   a. The owner or operator shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit or approved by the Department. Any permit noncompliance constitutes grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application.

   b. Compliance with city requirements

      The owner or the operator shall comply with all the requirements of the agreement (Attachment B to this permit) between the facility and the City of Santa Fe Springs dated January 11, 1991.

2. Reapplication

If the owner or operator wishes to continue an activity regulated by this permit after the expiration date of this permit, the owner or operator must submit a completed application for a new permit at least 180 days before this permit expires.

3. Permit Expiration

This permit shall be effective for five years. This permit and all conditions therein will remain in effect beyond the permit expiration or termination date if the owner or operator has submitted a timely, completed application and, through no fault of the owner or operator, the Department has not issued a new permit and the Department has given the owner or operator written approval to continue past the time of permit expiration.

4. Transfer of Permit

This permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to Section 66382(b)(2) or 66385(d), Title 22, CCR. The owner or operator shall notify the Department of a proposed change in ownership of this facility at least 30 days prior to the date of the transfer. Furthermore, before transferring ownership or operation of the facility during its operating life, the owner or operator shall notify the new owner or operator in writing of the requirements of this permit and the permitting process. A copy of this notification shall be submitted to the Department.

5. Mitigation

The owner or operator shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

6. Operation and Maintenance

a. The facility shall be maintained at all times and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to air, soil, surface water, or ground water which could threaten human health or the environment.

b. All equipment, pipes, and lines used at the facility to handle, transfer, pump, or store hazardous wastes shall be maintained in a manner that prevents the leaking and spilling of hazardous wastes.

c. The owner or operator shall at all times properly operate and maintain all facilities of treatment and control (and related appurtenances) which are installed or used by the owner or operator to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facility or similar systems only when necessary to achieve compliance with the conditions of the permit.

7. Submittal of Requested Information

The owner or operator shall furnish to the Department, within the requested time frame, any relevant information which the Department may inquire to determine whether cause exists for modifying, revoking and reissuing, terminating this permit, or to determine compliance with this permit. The owner or operator shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

8. Hazardous Waste List

a. The owner or operator shall maintain a current list of hazardous wastes that can be accepted by the facility. The owner or operation shall, as necessary, update the hazardous waste list presented in the approved Operation Plan. Any additions to the list must be approved by the Department prior to their inclusion.

Tabs 12 and 13 of the Operation Plan contain the description of waste materials accepted by the permittee for treatment in accordance with EPA and California Waste Codes. The Permittee may store these wastes in containers/tanks at the facility subject to the terms of this Permit. There is no maximum volume of a specific waste type, but the total volume cannot exceed the equivalent of 3,146 55-gallon drums which amounts to approximately [illegible] gallons

9. Inspection and Entry

The owner or operator shall allow authorized representatives of the Department, the State Water Resources Control Board, a

Regional Water Quality Control Board, or the local health agency, upon the presentation of credentials and other documents as may be required by law to:

a. Enter at reasonable times upon the owner's or operator's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or, as otherwise authorized by law, any substances or parameters at any location.

10. Planned Changes

The owner or operator shall obtain approval from the Department as soon as possible and at least 30 days in advance of any planned physical alterations or additions affecting operation of the hazardous waste area of the permitted facility.

11. Anticipated Noncompliance

The owner or operator shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The owner or operator shall report to the California Office of Emergency Services (800) 852-7550 any circumstances that may endanger public health or the environment immediately upon becoming aware of the incident.

12. 24-Hour Reporting

The owner or operator shall report to the Department any noncompliance which may endanger public health or the environment. Any information shall be provided verbally within 24 hours from the time the owner or operator becomes aware of the noncompliance.

The [illegible] shall [illegible] included [illegible] information which must be [illegible] verbally [illegible] 24 hours to the Department of Health Services, Toxic Substances Control Program, Regi[illegible] at (818) 567-3000.

a. Information concerning a release of any hazardous waste which may cause an endangerment to public drinking water supplies.

b. Information concerning any release or discharge of hazardous waste, or of fire or explosion from the facility, which could threaten human health or the environment outside the facility. The description of the occurrence and its cause shall include:

(1) Name, address and telephone number of the owner or operator;

(2) Name, address and telephone number of the facility;

(3) Date, time and type of incident;

(4) Name and quantity of material(s) involved;

(5) The extent of injuries, if any;

(6) An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and

(7) Estimated quantity and disposition of recovered material that resulted from the incident.

A written submission shall also be provided within fifteen (15) calendar days of the time the owner or operator becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the periods of noncompliance (including exact dates and times), and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

13. Other Noncompliance

The owner or operator shall report all other instances of noncompliance not otherwise required to be reported at the time monitoring or other reports are submitted. The reports shall contain the information listed in II.G.12 above.

14. Other Information

The owner or operator shall promptly submit all [illegible] information which have been omitted or which correct information in the permit application or any other report submitted to the Department.

H. Signatory Requirement

All reports or other information requested by the Department shall be signed by the owner or operator. For a corporation, this would be a responsible corporate officer; for a partnership or sole proprietorship, by a general partner or the proprietor, respectively; and for a municipality or other public agency, by a principal executive officer or ranking official. The person signing the document shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

I. Certification of Construction

The owner or operator may not commence treatment, storage, or transfer of hazardous wastes at the facility or modified portion of the facility until:

1. The owner or operator has submitted to the Department by certified mail or hand delivery a letter signed by the owner or operator and an appropriate engineer registered in California stating that the facility has been constructed in compliance with the permit; and

2. The Department has inspected the constructed facility and finds it is in compliance with the conditions of the permit; or

3. The Department has either waived the inspection or has not within 15 days notified the owner or operator of its intent to inspect.

4. The proposed cyanide destruction unit shall neither be constructed nor operated until DHS and EPA approve the final corrective measure study report discussed under section V of this permit.

J. Waste Minimization Certification

1. The Permittee shall retain original signed copies, for at least three (3) years from the date of certification, of the following statement on waste minimization:

"I hereby certify under penalty of law, that personnel under my direction and supervision, at this facility are undertaking specific steps in accordance with a program in place, to minimize the amount and toxicity of hazardous wastes generated at this facility to a degree economically practicable and that the method utilized for the treatment, storage, or disposal of hazardous wastes is the practicable method currently available to this facility which minimized the present and future threat to human health and the environment. I am aware that there are significant penalties for false certification, including the possibility of fine and imprisonment for flagrant falsifications."

2. The owner or operator shall make this certification at least annually and shall retain copies as part of the facility's written operation record as required in permit condition III.R.3.

3. The Permittee shall comply with the following conditions:

   a. The Permittee shall use the EPA Waste Minimization Opportunity Assessment Manual, (EPA 625/7-88/003) until such time as EPA formulates new federal regulations and guidance.

   b. The Permittee shall use the 1987 four digit SIC code where the SIC code is requested in the statute.

   c. Professional certification of the plan and plan summary shall be by a professional engineer or environmental assessor.

   d. The certification shall be by the owner, partner, or director.

4. The Permittee shall submit to the Department within one year of permit issuance detailed descriptions of any programs the Permittee may have to assist generators of hazardous waste in reducing the volume or quantity and toxicity of wastes they produce.

5. The Permittee shall submit to the Department within one year of permit issuance the following information and also submit changes to the Department within 30 days of those changes.

   a. A list of generators who received information (see item b).

   b. A list of generators who used the Permittee's [illegible] services on a waste reduction program.

   c. A list of generators known to the Permittee who have a waste reduction program in place and any known results

(i.e., has there been a reduction in wastes submitted for treatment, recycling or disposal).

6. The Permittee shall prepare a report detailing the specific waste minimization efforts in place that support the waste minimization certification of Permit Condition II.J.1. This report shall also describe further waste minimization efforts that could be undertaken at the facility. This report shall be maintained at the facility as a part of the operating record, and shall be submitted to the Department no later than September 1, 1991. At a minimum, this report shall describe the following:

   a. Any written policy or statement that outlines goals, objectives, and/or methods for source reduction and recycling of hazardous waste at the facility.

   b. Any employee training or incentive programs designed to identify and implement source reduction and recycling opportunities.

   c. Any source reduction and/or recycling assessments or audits conducted in the last five years or planned for the near future.

   d. Any source reduction and/or recycling measures implemented in the last five years or planned for the near future.

   e. The dollar amount of capital expenditures (plant and equipment) and operating costs devoted to source reduction and recycling of hazardous waste.

   f. Factors that have prevented implementation of source reduction and/or recycling opportunities.

   g. Sources of information on source reduction and/or recycling received at the facility (e.g. local government, trade associations, suppliers, etc.)

   h. An investigation of additional waste minimization efforts which could be implemented at the facility.

      This investigation shall analyze the potential for reducing the quantity and toxicity of each waste stream through waste handling change, recycling, and all other appropriate means. The analysis shall include an assessment of the [illegible] and potential waste [illegible] for each [illegible]

K. LAND DISPOSAL RESTRICTION

1. The permittee shall comply with the California Code of Regulations (CCR), Title 22, Article 40 (Land Disposal

Restriction - RCRA and non RCRA Waste Categories), Article 41 (Treatment Schedule - RCRA and non RCRA Waste Categories), and Article 7.7 of the Health and Safety (H&S) Code.

2. The permittee shall submit to the Department within sixty days from permit issuance certification outlining procedures the facility will undertake to ensure that the following land disposal restriction [part of II.K., Land Disposal Restriction] conditions are complied with:

   a. Facility waste shall be tested in accordance with Toxicity Characteristic Leaching Procedure (TCLP) as defined in Section 66209 of the CCR, Title 22 or use knowledge of the waste to determine if the waste is restricted from land disposal.

   b. With each shipment of restricted waste, the Permittee shall submit a written notification to the treatment, storage or land disposal facility of appropriate treatment standard set forth in Article 41 of the CCR, Title 22. The notice shall include the following information:

      1. EPA Hazardous Waste Number;

      2. The corresponding treatment standard;

      3. The manifest number associated with the shipment of the waste; and

      4. Waste analysis data, where available.

   c. In addition to II.K.2.b above, for waste that the Permittee has determined can be land disposed without further treatment, a certification stating that the waste meets the applicable treatment standard set forth in Article 41 of the CCR, Title 22 shall also be issued to the treatment, storage or disposal facility. The Certification shall be signed by an authorized representative and shall state the following:

      "I certify under penalty of law that I personally examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in CCR Title 22, Division 4, Chapter 30, Article 41. I believe that the information submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

   d. The Permittee shall retain on-site a copy of all notices, certifications, demonstrations, waste analysis data and

other documentation for at least five years from the date that the waste was sent to on-site, off-site treatment, storage or disposal.

III. SPECIAL CONDITIONS

A. Prohibition of Disposal

Hazardous wastes shall not be permanently disposed of at the facility unless such disposal is properly permitted.

B. Wastes Prohibited

The facility is prohibited from storing or treating hazardous wastes that are not identified in permit condition III.B. Prohibited wastes include, but are not limited to:

1. Forbidden and Class A and Class B explosives as defined in Sections 173.51 and 173.53, Title 49, CFR; (and waste codes K044, K045, K056, K047 in Section 261, Title 40, CFR.)

2. Radioactive Materials

3. Infectious Materials

4. Compressed Gases

5. Municipal Garbage/Refuse

6. Wastes containing more than 10 ppb Dioxins and/or 10 ppb furans

7. Waste containing more than 50 ppm (parts per million by weight) Poly chlorinated biphenyls (PCB).

8. The following hazardous waste streams from nonspecific sources as defined in the code of Federal Regulations, Title 40 (40 CFR), Section 261.31: (Waste Code F020, F021, F023, F026, F027, and F028)

9. Any hazardous waste not listed in the approved Operation Plan or otherwise approved by the Department or EPA.

The treatment system shall meet the sewer discharge limitations and all other industrial waste discharge permitting requirements. The facility shall also meet all South Coast Air Quality Management District requirements.

C. Storage Conditions

1. General Conditions

   a. Hazardous wastes shall not be stored at the facility for longer than one year without written approval from the California State Department of Health Services.

b. If a hazardous waste is stored at the facility longer than one year, the owner or operator shall submit to the California State Board of Equalization fees due and payable in conformance with Chapters 1-8, Part 22, Division 2, Revenue and Taxation Code and with Article 8, Chapter 30, Division 4, Title 22, California Code of Regulations.

2. Storage in Containers

The two existing drum storage areas occupy a total of 6,727 square feet of the facility. Both of these storage areas are padded with concrete and are surrounded by a combination of a 10" curb and berms to prevent run-on to or run-off from the storage areas. Up to a total of approximately 3,146 55 gallon containers (equivalent to 174,000 gallons) can be stored in both of these areas. The base and curb of both of these container storage areas are coated with an impervious epoxy type paint. Secondary containment for these areas are designed to hold a total of 17,400 gallons which is 10% of the total storage capacity of the facility.

The construction/installation, operation and closure of these units will conform to the requirements of the Code of Federal Regulations, Subpart I, Sections 264.170 to 264.178.

Containers received are typically unlined and uncoated polyethylene drums which are compatible with and resistant to the type of waste that are accepted by the facility. These polyethylene drums conform to Department of Transportation (DOT) specification such as DOT 34, E 6637-55, E 7768-55 and E 8448.

There are also a limited number of metal drums used primarily for alkaline wastes. These drums are typically unlined, uncoated and conform to DOT 17-E and 17-H, with sizes ranging from 5 to 55 gallons.

The maximum number of drums that can be stored at the facility at any one time is 3,146 55-gallon drums or their equivalent volume which amounts to approximately 174,000 gallons.

a. Containers holding all on-site and off-site generated hazardous wastes shall be stored only in the area designated in the approved Operation Plan.

b. A container holding hazardous waste shall remain closed during storage, except when it is necessary to add or remove waste.

c. [illegible] stored in a manner which might rupture the container or cause it to leak.

d. A label shall be maintained on all containers in which hazardous wastes are stored. Labels shall include the following information:

(1) Composition and physical state of the waste;

(2) Special safety recommendations and precautions for handling the waste;

(3) Statement or statements which call attention to the particular hazardous properties of the waste;

(4) Name and address of the facility producing the waste;

(5) Date accumulation begins or date of acceptance at the storage facility;

e. Empty containers contaminated with hazardous waste and hazardous materials shall be stored, handled, and processed as hazardous waste or recycled whenever possible.

f. The total number of containers storing hazardous waste in the storage area shall not exceed the designed capacity of the storage area at any one time.

g. Containers used for storing hazardous waste shall be in a condition such that the containers can be safely transported, handled, or moved.

h. If a container holding hazardous waste is not in good condition, or if it begins to leak, the owner or operator shall transfer the hazardous waste from this container to a container that is in good condition immediately after discovery of the poor condition of the drum, or manage the waste in some other way that complies with the conditions of this permit.

i. Compatibility of Waste With Containers:

The owner or operator shall use a container made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired.

j. Containment

[illegible] owner [illegible] shall provide a spill containment system in accordance with the approved Operation Plan. Specifically, each hazardous waste storage area shall have a continuous base that is impervious to the waste stored and shall

be designed and constructed so that any spills can be contained and cleaned up.

(2) In addition to the requirements of item (1) above, the containment system shall be constructed so that surface waste runoff is contained and surface water run-on is excluded. The containment system shall have sufficient capacity to contain ten percent of the volume of containers or the volume of the largest containers, whichever is greater. Outdoor containment areas must also contain precipitation from a 24-hour, 25-year storm.

(3) Spills leaks, and precipitation shall be promptly removed from the containment area to prevent overflow.

3. Storage in Tanks

The primary functions of SCC's tanks are: 1) the treatment of wastes through chemical reaction and physical separation; 2) temporary storage of industrial wastewater and off-site bulk wastes; 3) blending, batch neutralization, and chemical reduction/oxidation to alter the valence states of chemical compounds; 4) heavy metal precipitation; 5) metal recovery; and 6) the storage of treated wastewater prior to discharge to the local sewers. All tanks are built aboveground, made of fiberglass (Reinforced Plastic) or polyethylene materials. There is also one tank that is made of titanium anchored to a carbon steel skirt. All storage tanks are equipped with level gauges and high level alarms. All tanks which require South Coast Air Quality Management District Permits are vented to the fume/vapor (emission control) collection system.

Auxiliary equipment includes pumps and piping constructed primarily of plastic materials such as PVC. Electrical groundings are also provided for all this equipment. The grading and compacting of the foundation soil and the installation of steel reinforcing bars with six inches (or as per designed thickness) of concrete provide support for these tanks. Secondary containment consists of the foundation pad and curbs to contain ten percent of the total volume plus a 24-hour, 25-year storm event.

At present, there are nine treatment tanks, four wastewater treatment tanks and nine storage tanks located in the process [illegible] wastewater [illegible] the treatment tanks for [illegible] filter [illegible] The treated wastewater is [illegible] Treatment sludges are dewatered in a sludge filter press and shipped off-site for sale to smelters.

The major modifications of the facility will be done in both storage and treatment capacities. New tanks will be added to the existing units while some tanks will be closed. SCC presently store hazardous waste in nine storage tanks with cumulative maximum storage capacity of 229,500 gallons and treats hazardous waste in nine treatment tanks with a cumulative maximum treatment capacity of 104,700 gall per day. There will be a total of twelve storage tanks and eleven treatment tanks in the final modernized facility. After these modifications, the final total storage capacity will increase from 229,500 to 256,500 gallons and the final total treatment capacity will increase from 104,700 to 137,200 gallons per day.

The permittee presently stores hazardous waste in nine storage tanks with cumulative maximum storage capacity of 229,500 gallons. The existing storage tanks are:

Tank Number	Capacity (gallons)
S-5	10,000
F-1	10,000
F-12	1,700
C-5	10,000
C-6	10,000
C-7	10,000
C-8	16,000
C-9	16,000
J-4	5,400

The wastewater treatment system consists of the following: W-1, W-2, W-3, W-4 tanks, a frame filter press and a three stage clarifier. W-3, W-4 tanks, the filter press and the three stage clarifier operate under a hazardous waste permit variance issued by the Department on February 23, 1988.

Tanks W-1 and W-2 are required to undergo closure as part of the closure of Pond 1. Tanks W-1 and W-2 shall close pursuant to the approved 2015 Pond 1 Closure Plan.

Tanks W-3 and W-4 and the filter press are adjacent to Pond 1 and will be closed pursuant to the approved 2015 Pond 1 Closure Plan.

Tank Number	Capacity (gallons)
W-1	30,000
W-2	30,000
W-3	12,500
W-4	12,500

The permittee presently treats hazardous waste in nine treatment tanks with cumulative maximu treatment capacity of 104,700 gallons per day. The existing treatment tanks area:

Tank Number	Capacity (gallons)
S-1A	7,000
S-1B	7,500
F-2A	3,500
C-1A	7,200
C-1B	7,200

C-1C	7,500
C-1D	8,800
J-3	5,900
J-2	3,000

This permit will allow the construction of 3 new tanks. These tanks are described as follow:

Tank Number	Description	Capacity (gallons)
S-6	10'x 24' Storage	15,000
J-5	10'x 11' Treatment	6,000
J-6	10'x 11' Storage	6,000

This permit requires the immediate replacement of 2 existing tanks located in the ferric chloride area. These tanks are described as follow:

Tank Number	Description	Capacity (gallons)
F-1	9'x 16' Storage	8,500
F-2	12'x 13' Treatment	3,500

a. Design of Tanks

(1) The owner or operator shall construct all tanks in accordance with the approved Operation Plan.

(2) The owner or operator shall maintain a minimum shell thickness to ensure structural soundness of each tank. Prior to use (whether new, replacement, repaired) and every three years, hazardous waste storage tanks and their appurtenances shall be certified by a civil engineer, registered in California, to be structurally sound and of adequate construction for the intended use.

(3) Each hazardous waste storage tank and storage area shall be individually marked with the internationally recognized hazard identification system placards developed by the National Fire Prevention Association.

(4) The total volume of hazardous waste stored in tanks shall not exceed the designed capacity.

b. Containment

[illegible] the owner or operator shall provide a spill containment system in accordance with the approved Operation Plan. Specifically, each hazardous waste storage area shall have a continuous base that is impervious to the waste stored, shall be

designed and constructed so that any spills can be contained, and shall have sufficient capacity to contain ten percent of the total volume of the tanks or 100% of the volume of the largest tank, whichever is greater.

(2) In addition to the requirements of item (1) above, outdoor uncovered containment areas shall contain all surface water runoff, exclude all surface water run-on, and contain precipitation from a 24-hour, 25-year storm.

(3) Spills, leaks, and precipitation shall be promptly removed from the containment area to prevent overflow.

c. Operation

(1) Hazardous wastes shall not be placed in a tank if they could cause the tanks or its liner to rupture, leak, corrode, or otherwise fail before the end of its intended life.

(2) Uncovered tanks shall be operated to ensure at least 60 centimeters (2 feet) of freeboard.

(3) Discharged valves on hazardous waste storage tanks shall be kept closed when the facility is unattended.

D. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

Tabs 12 and 13 of the Operation Plan contain the description of waste materials accepted by the permittee for treatment and recycling in accordance with Uniform Hazardous Waste Manifest (California Waste Codes). The Permittee may store the above-referenced wastes in containers at the facility, subject to the terms of this Permit. There is no maximum volume of a specific waste type, but the total volume cannot exceed the equivalent of 3,146 55-gallon drums which amounts to approximately 174,000 gallons.

E. Treatment Conditions

Operations and maintenance of the treatment system shall be conducted in accordance with Volume I and Volume II of the approved Operation Plan.

[illegible] and wastes for purposes of recovering resources, neutralizing wastes, to detoxifying wastes shall be carried out under controlled conditions to ensure that violent reactions, extreme

heat, or fire do not occur and that toxic or flammable gases and vapors are not released into the atmosphere.

2. Hazardous wastes or treatment reagents shall not be placed in the treatment process or equipment if they cause the treatment process or equipment to rupture, leak, corrode, or otherwise fail before the end of its intended life.

F. Management of Ignitable, Reactive, or Incompatible Wastes

1. The storage of ignitable, reactive, or incompatible wastes and materials shall be conducted so that it does not:

   a. Generate extreme heat or pressure, fire or explosion, or violent reaction;

   b. Produce uncontrolled toxic mists, fumes, dust, or gases in sufficient quantities to threaten human health or the environment;

   c. Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;

   d. Damage the structural integrity of the device or facility containing the waste; or

   e. Through other like means threaten human health or the environment.

2. This permit allows storage and treatment of ignitable or reactive wastes in tanks, except as described as follow:

   a. The owner or operator shall take precautions to prevent accidental ignition of ignitable wastes or reaction of reactive wastes. This waste shall be separated and protected from sources of ignition or reaction. While ignitable or reactive waste is being handled, the owner or operator shall confine smoking and open flame to specially designed locations. "No Smoking" signs shall be conspicuously placed wherever there is a hazard from ignitable or reactive waste.

   b. Each drum holding ignitable or reactive waste shall be situated at 15 meters (50 feet) from the property line [illegible]

   c. [illegible] reactive [illegible] shall [illegible] drum for storage or treatment unless:

(1) The waste is treated, rendered, or mixed before or immediately after placement in the drum so that the resulting waste, mixture, or dissolution of materials is no longer ignitable or reactive and item III.E.1 of this permit is complied with;

(2) This waste is stored in such a way that it is protected from any material or condition which may cause the waste to ignite or react.

3. Incompatible Wastes

a. Hazardous waste shall not be placed in an unwashed container or tank that previously held an incompatible waste or material.

b. Areas used for storing containers of incompatible hazardous waste shall be widely separated. Impermeable physical barriers such as berms, dikes, or walls shall be provided to ensure that commingling of incompatible hazardous wastes cannot occur.

c. The following incompatible hazardous waste groups shall be adequately separated from each other during all handling and storage operations:

Examples:

(1) Cyanides shall be separated from acids.

(2) Organic acids shall be separated from other toxic wastes.

(3) Reactive toxic metals shall be separated from water.

G. Operation at Night

When the facility is operated during hours of darkness, the owner or operator shall provide sufficient lighting to ensure safe, effective management of hazardous wastes.

H. Recycling

If requested by the Department, in accordance with Article 12, Chapter 30, Division 4, Title 22, CCR, the owner or operator shall, within 30 days, submit a written statement justifying having not recycled a waste which the Department has determined to be recyclable.

I. Manifest System

1. The owner or operator shall:

   a. Complete the appropriate section of the manifest;

   b. Sign and date each copy of the manifest to certify that the hazardous waste covered by the manifest was received.;

   c. Note any significant discrepancies in the manifest on each copy of the manifest;

   d. Immediately give the transporter at least one copy of the signed manifest;

   e. Send legible copies of all completed hazardous waste manifests to the Department on a monthly basis in conformance with Section 67168, Title 22, CCR;

   f. Within 30 days after delivery, send a copy of the manifest to the generator;

   g. Retain at the facility a copy of each manifest for at least three years from the date of delivery;

   h. Submit to the Department by the last day of each month information on the hazardous waste delivered during the previous month consisting of a legible copy of the completed manifest for each load of hazardous wastes accepted, and a report that summarizes the numbers of loads of hazardous wastes received.

2. Manifest Discrepancies

   a. Significant Discrepancies

      (1) Upon discovering a significant discrepancy between the quantity or type of hazardous waste designated on the manifest and the quantity or type of hazardous waste the facility actually receives, the owner or operator shall attempt to reconcile the discrepancy with the waste generator or transporter.

      (2) Significant discrepancies in quantity are:

         (a) For bulk waste, variations greater than ten percent in weight; and

         (b) For batch waste, any variation in piece count such as a discrepancy of one drum in a truckload.

(3) Significant discrepancies in type are obvious differences which can be discovered by inspection or waste analysis, such as waste solvent for waste acid or toxic constituents not reported on the manifest.

b. If the facility cannot legally accept the waste, the owner or operator shall notify the Department of that fact in writing within 15 days, identify the transporter and generator of the waste, and refuse to accept the waste. If the owner or operator can accept the waste, the owner or operator shall note how the discrepancy was resolved on the copy of the manifest submitted to the Department and on the copy retained at the facility. If the discrepancy is not resolved within 15 days after receiving the waste, the owner or operator shall immediately submit to the Department a letter describing the discrepancy and attempts to reconcile it and a copy of the manifest at issue.

3. Unmanifested Wastes Received or Rejected

When the facility receives or rejects an unmanifested load of hazardous waste, the owner or operator shall prepare and submit a report to the Department within 15 days. The report shall include the following information:

a. The EPA identification number, name, and address of the facility receiving or rejecting the waste;

b. The date the facility received or rejected the waste;

c. The EPA identification number, name, and address of the generator and the transporter who transported the waste;

d. The license number of the vehicles used to transport the waste. This shall include the license number of the tractor, as well as the trailers, if appropriate;

e. A description and quantity of the received or rejected load of hazardous waste;

f. For waste received, the method of treatment, storage, or disposal for each hazardous waste;

g. If rejected, a brief explanation of why the waste was rejected;

h. A brief explanation of why the waste was unmanifested, if known; and

i. A certification as required by item II.H of this permit.

4. Uncertified Hauler

The owner or operator shall notify the Department in writing within 15 days when the facility receives any hazardous waste from an uncertified hauler or if the facility receives a hazardous waste that was transported in a vehicle or container failing to display a valid certificate of compliance.

J. Required Notice

1. If the owner or operator has arranged to receive hazardous waste from a foreign source, the owner or operator shall notify the Department in writing at least four weeks in advance of the date that the waste is expected to arrive at the facility. Notice of subsequent shipments of the same waste from the same foreign source is not required.

2. When the owner or operator receives hazardous waste from an off-site source, the owner or operator must inform the generator in writing that the facility has the appropriate permit(s) for, and will accept, the waste the generator is shipping. The owner or operator shall keep a copy of this written notice as part of the operating record.

K. Analysis of Waste

1. Upon the effective date of this permit, the owner or operator shall follow the written waste analysis plan as described in the approved Operation Plan.

   a. Prior to the storage or treatment of a particular type of hazardous waste for the first time (or the use of a treatment process which differs substantially from the previously used), the owner or operator shall:

      (1) Conduct waste analyses and trial treatment tests (e.g., bench scale or pilot plant scale tests); or

      (2) Obtain documented information on similar treatment of similar waste under similar operating conditions.

   b. These tests or information shall include data pertaining to the compatibility wastes with the container or tank used for the storage or treatment of these wastes.

   c. The owner or operator shall ensure that the storage or treatment of any hazardous waste will not:

(1) General extreme heat or pressure, fire or explosion, or violent reaction;

(2) Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;

(3) Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;

(4) Damage the structural integrity of the device or facility containing the waste; or

(5) Through other like means threaten human health or the environment.

2. The analysis shall be repeated, as necessary, to ensure that it is accurate and up to date. As a minimum, the analysis must be repeated when the owner or operator is notified or has reason to believe that the process operation generating the hazardous waste has changed.

3. The owner or operator shall verify the waste analysis plan as part of the quality assurance program. This quality assurance program will be in accordance with current U. S. EPA practices Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods SW-846 or equivalent methods approved by the Department; and at a minimum ensure that the owner or operator maintain proper functional instructions, uses approved sampling, and analytical methods assures the validity of sampling and analytical procedures, and performs correct calculations.

4. Data developed for other purposes, and existing published or documented data on the hazardous waste or on waste generated from similar process may supplement the waste analysis plan.

5. Samples taken for the purpose of collecting specified categories of data such as waste compatibility shall be representative of the monitored activity.

6. The owner or operator shall retain records of all data collection as part of the operating record until closure of the facility.

7. Records of data collection shall include:

   a. The date, exact place, and time of sampling or measurement;

b. The individual(s) who performed the sampling or measurements;

c. The date(s) analyses were performed;

d. The individual(s) who performed the analyses;

e. The analytical techniques or methods used;

f. The results of such analyses.

L. Security

1. The owner or operator shall prevent the entry of unauthorized persons or livestock onto the active portion of the facility by maintaining the following:

   a. A fence in good condition or other artificial or natural barrier which completely surrounds the facility and has gates or other means to control entry; or

   b. A 24-hour surveillance system which continuously monitors and controls entry to the facility; or

   c. The security procedures as described in the approved Operation Plan.

2. Signs indicating that the facility, or the hazardous waste area of the facility, contains hazardous waste shall be placed on the perimeter fence at the entrance and at locations where it is anticipated that unauthorized persons may enter the active portion of the facility.

   Wording of the signs shall be in English, "Caution--Hazardous Waste Area--Unauthorized Persons Keep Out", and Spanish, "Cuidado! Zona de Residuous Peligrosos. Prohibida la Entrada a Personas No Autorizadas". Signs shall be legible from a distance of 25 feet.

M. Inspections

1. The owner or operator shall inspect the facility for malfunctions and deterioration, operator errors, and discharges which may cause or may lead to the release of hazardous waste constituents to the environment or a threat to human health. The owner or operator shall conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.

2. The owner or operator shall inspect all monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (such as dikes and pumps) that are

important to preventing, detecting, or responding to the environmental or human health hazards in accordance with the written inspection schedule in the approved Operation Plan.

3. The owner or operator shall test and maintain all safety and emergency equipment (alarm systems, fire protection equipment, spill control equipment, decontamination equipment) as necessary to ensure proper operation in the event of an emergency.

4. In accordance with the written inspection schedule in the approved Operation Plan, the owner or operator shall inspect:

   a. Discharge and overfilling control equipment, at least once each operating day, to ensure that it is in good working order;

   b. Data gathered from monitoring equipment, at least once each operating day, to ensure that the tank is being operated according to its design;

   c. The level of waste in the tank, at least once each operating day, to ensure compliance with item III.C.2.a (5);

   d. The construction materials of, and the area immediately surrounding the tank, at least weekly, to detect corrosion or leaking of fixtures or seams.

5. In accordance with the written inspection schedule of the approved Operation Plan, the owner or operator shall inspect:

   a. Treatment process equipment, at least once each operating day, to ensure that it is in good working order;

   b. Process and operations monitoring equipment, at least once each operating day, to ensure that the treatment process or equipment is being operated according to its design;

   c. The construction materials of the treatment process or equipment, at least weekly, to detect corrosion or leaking of fixtures or seams; and

   d. The construction materials of, and the area immediately surrounding discharge confinement structures, at least weekly, to detect obvious signs of leakage.

6. The owner or operator shall remedy any deterioration or malfunction of equipment or structures which the inspection identified as soon as possible to ensure that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action shall be taken immediately as described in the contingency plan.

7. The owner or operator shall record inspections in an inspection log or summary and shall keep these records for at least three years from the date of inspection.

The Permittee shall follow the inspection schedule below:

Storage/Treatment Tanks Inspection Schedule

Equipment/ Structure Item	Inspection Element/Type of Problem	Inspection Frequency
Truck Loading/ Unloading Areas	- Check for spills	Daily
	- Check hoses for leaks	Daily
	- Check Containment Areas for signs of deterioration	Daily
	- Check containment sump for liquids	Daily
Storage Tanks		
	- Check tank exterior for cracks, leaks corrosion and deformation	Daily
	- Record liquid level for each tank	Daily
	- Monitoring equipment	Daily
	- Temperature alarm equipment	Daily
	- Sewer discharge pH and flow recorders	Daily
	- Level of Waste in each tank	Daily
	- Overfill Controls	Daily
	- Data Gathered From Monitoring and Leak Detection Systems	Daily
Containment Areas		
	- Check for evidence of spills	Daily
	- Check for gaps or deterioration of concrete	Daily
	- Check for evidence of seepage outside of containment area	Daily
	- Check containment sump for liquids	Daily
	- Check for erosion	Daily
Piping, Valves and Pumps	- Check for spills	Daily
	- Check for corrosion and deterioration	Daily
	- Check for leaks	Daily
	- Check for proper caps on open-ended lines	Daily

Container Storage Unit Inspection Schedule

Equipment/ Inspection Structure Item	Inspection Element/Type of Problem	Inspection Frequency
Container Loading/ Unloading Area	- Check for spills	Weekly
	- Check for proper clean-up of spill materials	Weekly
Stored Containers	- Check for spills	Weekly
	- Check for adequate aisle space	Weekly
	- Check for welling or corroded drums	Weekly
	- Check for leaking drums	Weekly
	- Check to ensure that containers are kept closed	Weekly
	- Check for proper labels	Weekly
	- Check to ensure drums are properly located	Weekly
Containment Area	- Check for damage to containment walls berms and floor	Weekly

Security Devices Inspection Schedule

Equipment	Inspection Element/Type of Problem	Inspection Frequency
Facility Gates	- Check for proper signs	Weekly
	- Check for proper locks on emergency gates	Weekly
Lights	- Check for proper operation	Weekly
Facility Fence	- Inspect entire fence for breeches or damage	Weekly
	- Inspect entire fence for warning signs	Weekly

Safety and Emergency Equipment Inspection Schedule

Equipment	Inspection Element/Type of Problem	Inspection Frequency
Protective Gear	- Check for adequate supply for each area	Monthly
	- Check for deterioration and damage	Monthly

SCBA Units	- Check for accessibility	Weekly
	- Check for adequate supply of air tanks	Weekly
	- Check for full charge on air tanks	Monthly
	- Check for deterioration and damage	Monthly
First Aid Kits	- Check for accessibility	Weekly
	- Check kits for full supply	Monthly
Emergency Shower and Eye Wash Units	- Check to ensure proper operation	Weekly
	- Check for accessibility	Weekly
	- Check for adequate water pressure	Weekly
	- Check for deterioration and damage	Weekly
	- Check for proper operation	Weekly
Fire Extinguishers	- Check to ensure that access is not blocked	Weekly
	- Check inspection tag to ensure annual maintenance is current	Monthly
	- Check seal to ensure that extinguisher has not been used	Weekly

Inspections shall be conducted by qualified individuals trained in inspection and follow-up procedures, documentation and recordkeeping requirements and safety and Contingency planning procedures. The Permittee shall remedy any deterioration or malfunction discovered by an inspection, as required by 40 CFR 264 15(c). Records of inspection shall be kept, as required by 40 CFR 264.15(d). The Permittee shall document compliance with the General Inspection Requirements. [40 CFR 264.195(d)].

N. Personnel Training

1. Facility personnel shall successfully complete the program of classroom instruction or on-the-job training which teaches them to perform at a level that ensures the facility's compliance with Chapter 6.5 of Division 20, H&S Code, and with Chapter 30, Division 4, Title 22, CCR.

2. Personnel shall have successfully completed this program within six months after the date of their employment or assignment to a facility, or to a new position at the facility, whichever is later. Employees hired after the effective date of this permit shall not work in unsupervised positions until they have completed these training requirements.

3. Facility personnel shall take part in an annual review of the required training.

4. The owner or operator shall maintain the training records as identified in the approved Operation Plan.

5. Training records on current personnel shall be kept until closure of the facility. Training records on former employees shall be kept for at least three years from the date the employee last worked at the facility. Personnel training records may accompany personnel transferred within the same company.

O. Contingency Plan

1. Implementation

a. The owner or operator shall follow the contingency plan described in the approved Operation Plan.

b. The provisions of the contingency plan shall be carried out immediately wherever there is a fire, explosion, release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

2. Distribution

A copy of the contingency plan and all revisions to the plan shall be:

a. Maintained at the facility; and

b. Submitted to all local police departments, fire departments, hospitals, contractors, and state and local emergency response teams that may be called up to provide emergency services.

3. Amendment of Contingency Plan

The contingency plan shall be reviewed and immediately amended, if necessary, whenever:

a. Applicable regulations are revised;

b. The plan fails in an emergency;

c. The permit is revised;

d. The list of emergency coordinators changes;

e. The list of emergency equipment changes; and

f. The facility changes in its design, construction, operation, or maintenance in a way that materially increases the potential for fire, explosions, or releases of hazardous waste.

The owner or operator shall notify the Department of all amendments to the contingency plan.

4. Emergency Coordinator

At all times there shall be at least one employee either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator shall be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, this person shall have the authority to commit the resources needed to carry out the contingency plan.

5. Emergency Procedures

a. Whenever there is an imminent or actual emergency situation, the emergency coordinator (or his designee when the emergency coordinator is on call) shall follow the procedures of the contingency plan as described in the approved Operation Plan.

b. The owner or operator shall notify the Department and appropriate state and local authorities that the cleanup procedures are complete and all emergency equipment listed in the contingency plan is clean and fit for its intended use before the operations are resumed.

c. The owner or operator shall note in the operating record the time, date, and details of any incident that requires implementing the contingency plan.

d. The owner or operator shall submit within 24 hours an oral report and within 5 days a written report of each incident to the Department in accordance with item II.G.12. The Office of Emergency Services shall also be notified.

6. Arrangements With Local Authorities

a. The owner or operator shall ensure that emergency response arrangements with local authorities are in effect upon the effective date of this permit.

b. If local authorities refuse to enter into preparedness and prevention arrangement with the owner or operator, the owner or operator shall document this refusal in the operating record.

P. Required Equipment

1. The owner or operator shall have available at the facility all required safety and emergency equipment as described in the approved Operation Plan.

2. The facility water supply system shall be capable of providing water in adequate volume and pressure to maintain water hose streams.

3. Owner or operator shall maintain access to communications or alarm systems specified in the approved Operation Plan.

   All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment shall be tested and maintained as necessary to ensure its proper operation in the time of emergency.

Q. Required Aisle Space

The owner or operator shall maintain aisle space as needed to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment.

R. Record Keeping and Reporting

1. Availability, Retention, and Disposition of Records

   a. All records, including plans required in this permit, shall be furnished upon request and made available at all reasonable times for inspection by any officer, employee, or representative of the Department, State Water Resources Control Board, or Regional Water Quality Control Board.

   b. The owner or operator shall maintain until closure is completed and certified by an independent engineer registered in California the following records, reports, documents, and all amendments, revisions, and modifications thereof at the owner or operator's place of business and at the facility, so as to be available at all times to operating personnel:

      (1) Operating record.

      (2) Training records for current employees.

      (3) Hazardous Waste Facility Permit.

      (4) Waste analysis plan.

      (5) Contingency plan.

(6) Closure plan.

(7) Closure cost estimate.

(8) Inspection schedules.

c. The owner or operator shall retain the following records at the facility for at least three years:

(1) Inspection record.

(2) Training records for former employees.

(3) Copies of each manifest received (off-site facility).

d. The retention period for all records required in this permit is extended automatically during the course of any unresolved enforcement action regarding the facility to which the records may be pertinent or as requested by the Department.

2. Operating Records

a. The owner or operator shall keep a written operating record at the facility.

The following information shall be recorded, as it becomes available, and maintained in the operating record until the closure of the facility:

(1) The description and the quantity of each hazardous waste received, and the method(s) and date(s) of its storage and treatment the facility;

(2) Records and results of waste analyses and trial tests performed;

(3) Summary reports and details of all incidents that required implementing the contingency plan;

(4) Records and results of inspections (except these data need be kept only three years);

(5) Monitoring, testing, or analytical data;

(6) All closure cost estimates; and

(7) All waste minimization certifications.

b. When the owner or operator receives hazardous waste from an off-site source, he must inform the generator in writing that he has the appropriate permit(s) for, and will accept,

the waste the generator is shipping. The owner or operator shall keep a copy of this written notice as part of the operating record.

3. Reporting and notification Requirements

   a. All reports and information requested by the Department shall satisfy the signatory requirements in item II.H. The waste minimization certifications as required in item II.J shall be signed in accordance with II.H.

   b. Annual Report

      The owner or operator shall prepare and submit one copy of an annual report to the Department and one copy to the appropriate Regional Water Quality Control Board by March 1 of each year. The annual report shall cover facility activities during the previous calendar year and shall include the following information:

      (1) The EPA identification number, name, and address of the facility;

      (2) The calendar year covered by the report;

      (3) Updated closure cost estimate for the facility;

      (4) The EPA identification number of each hazardous waste generator from which the facility received a hazardous waste during the year; for imported shipment, the report shall give the name and address of the foreign generator;

      (5) The description, quantity, and method of treatment, storage, and/or disposal of each hazardous waste the facility received during the year, listed by the EPA identification number of each generator; and

S <u>Closure</u>

1. Closure Plan and Amendment of Plan

   a. The owner or operator shall comply with the closure plan as described in the Volume 1A of the Operation Plan, except as provided below.

      i. For the closure of Pond 1, the owner or operator shall comply with the approved 2015 Pond 1 Closure Plan.

      ii. For the closure of wastewater treatment tanks W-1 and W-2, the owner or operator shall comply with the approved 2015 Pond 1 Closure Plan.

      iii. For the closure of wastewater treatment tanks W-3 and W-4 and the filter press, the owner or operator shall comply with the approved 2015 Pond 1 Closure Plan.

   b. The owner or operator may amend his closure plan at any time during the active life of the facility. (The active life of the facility is that period during which wastes are periodically received.) The owner or operator shall propose to amend his plan any time changes in operating plans or facility design affect the closure plan or whenever there is a change in expected year closure.

c. The owner or operator shall submit to the Department for approval, at least 60 days prior to the proposed change in facility design or operation, any proposed amendment made to the closure plan.

d. The owner or operator shall notify the Department at least 180 days before the date he expects to begin closure.

2. Time Allowed for Closure

a. Within 90 days after receiving the final volume of hazardous wastes or 90 days after approval of the closure plan, if that is later, the owner or operator shall treat all hazardous waste in storage or in treatment or remove them from the site in accordance with the approved closure plan.

b. The owner or operator shall complete closure activities in accordance with the approved closure plan within 180 days after receiving the final volume of waste or 180 days after approval of the closure plan, if that is later.

3. Disposal or Decontamination of Equipment

a. When closure is completed, all facility equipment and structures shall have been properly disposed of or decontaminated by removing all hazardous waste and residues.

b. At closures, all hazardous waste and hazardous waste residues shall be removed from treatment processes and equipment, discharge control equipment, and discharge confinement structures in accordance with the approved closure plan.

4. Certification of Closure

When closure is completed, the owner or operator shall submit to the Department certification both by the owner or operator and by an independent qualified engineer registered in California that the facility has been closed in accordance with the specifications in the approved closure plan.

T. Financial Responsibility

1. Cost Estimate for the Facility Closure

a. The owner or operator shall have a written estimate of the cost of closing the facility in accordance with the applicable closure requirements of this permit. The owner or operator shall keep this estimate and all subsequent estimates at the facility. The estimate shall equal the cost of closure at the point in the facility's operating life when the extent and manner of its operation would make closure the most expensive as indicated by its closure plan.

b. The owner or operator shall prepare a new closure cost estimate whenever a change in the closure plan affects the cost of closure.

c. By March 1 of each year, the owner or operator shall adjust the latest closure cost estimate using an inflation factor derived from the annual Implicit Price Deflator for Gross National Product as published by the U. S. Department of Commerce in its SURVEY OF CURRENT BUSINESS. The inflation factor shall be calculated by dividing the latest published annual deflator by the deflator for the previous year. The result is the inflation factor.

The adjusted closure cost estimate shall equal the latest closure cost estimate times the inflation factor.

d. The adjusted closure cost estimate shall be submitted to the Department as part of the annual report required in item III.R.3.b.

2. Financial Assurance and Liability

a. Financial Assurance

The owner or operator shall demonstrate to the Department continuous compliance with applicable section of Article 17, Title 22, CCR, by providing documentation of financial assurance in at least the amount of the cost estimates required by item III.T.1.a.

b. Liability

The owner or operator shall demonstrate to the Department continuous compliance with H&S Code, Section 25245, and applicable sections of Article 17,

Title 22, CCR, by providing documentation of liability coverage in the required amounts.

The owner or operator who fulfills the requirements above will be deemed to be without the required financial assurance and liability coverage in the event of a bankruptcy, insolvency, or a suspension or revocation of the license or charter of the issuing institution. The owner or operator must obtain other financial assurance/liability coverage within 60 calendar days of such events.

The owner or operator shall comply with all other financial responsibility and facility closure requirements of the Department when enacted.

IV. COMPLIANCE SCHEDULE

A. Reports of compliance or noncompliance with interim or final requirements contained in any compliance schedule established or approved by the Department shall be submitted to the Department no later than 14 days following each scheduled date.

B. The following compliance time schedule items must be met:

Item	Date Due to DHS
1. Submittal of the closure plan and amendment of plan	120 days prior to closure
2. Documentation of financial assurance for closure	Within 45 days of approval of the final closure plan
3. Foundation, Sub-surface Preparation, secondary containment and replacement of tanks F-1 and F-2 located in the ferric chloride area	Within 60 days of the effective date of the permit
4. Submittal of the certification of the replaced tanks for seismic and hydrostatic load test; chemical compatibility; integrity of the containment by a registered civil engineer in the state of California	Within 90 days of the effective date of the permit
5. Sampling and analysis plan for closure	120 days prior to closure
6. Construction and operation of cyanide destruction unit	Within 30 days after EPA and DHS approval of final corrective measure study report and receipt of written notification from both agencies to begin construction

MODIFIED PART V - CORRECTIVE ACTION
STATE HAZARDOUS WASTE MANAGEMENT FACILITY
PERMIT NO. 91-3-TS-002

A. AUTHORITY

Section 25200.10 of the California Health and Safety Code (H&SC) requires that any permits issued by the Department of Toxic Substances Control ("Department") include corrective action for all releases of hazardous waste or constituents from a solid waste management unit ("SWMU") or a hazardous waste management unit ("HWMU") at a facility, regardless of the time at which the waste was released at the facility. This Section also requires that corrective action be taken beyond the facility boundary where necessary to protect human health and/or the environment.

Failure to comply with any term or condition set forth in this Part of the Permit in the time or manner specified herein will subject the owner or operator to possible enforcement action and penalties pursuant to Section 66270.30(a) of Title 22 of the California Code of Regulations (22 CCR 66270.30(a)) and Section 25187 of the H&SC.

In addition, failure to submit the information required in the Permit, or falsification and/or misrepresentation of any submitted information, is grounds for termination of this Permit pursuant to 22 CCR 66270.43.

Compliance by the owner or operator with the terms of this Part of the Permit shall not relieve the owner or operator of its obligation to comply with any other applicable local, state or federal laws and regulations including, but not limited to, waste discharge requirements, cleanup and abatement orders or any other enforcement orders issued by the Los Angeles Regional Water Quality Control Board.

This Permit supersedes the Federal Permit for a Hazardous Waste Management Facility issued by the U.S. Environmental Protection Agency ("U.S. EPA") to the facility effective July 29, 1991.

B. STATEMENT OF PURPOSE

The purpose of this Part of the Permit is to require that the facility owner or operator implement the corrective measures selected by the Department to remediate, monitor and/or contain soil and groundwater contamination at the Phibro-Tech, Inc. (a.k.a. Southern California Chemical, a.k.a. Entech Recovery, Inc.) facility ("Facility") in Santa Fe Springs, California. This Part of the Permit also

includes a schedule of compliance and financial responsibility requirements for corrective measure implementation.

C. BACKGROUND

In 1987, contractors for the U.S. EPA conducted a RCRA Facility Assessment ("RFA") at the Facility. The RFA was conducted to identify areas where the potential for chemical releases was significant (e.g., sumps, ponds, etc). Sixty SWMU's and one area of concern were identified in the RFA Report.

In December of 1988, U.S. EPA and the Facility signed a consent agreement (Administrative Order on Consent, Docket No. RCRA-09-89-0001). The consent agreement required the owner or operator to conduct a RCRA Facility Investigation ("RFI"), Corrective Measures Study ("CMS") and human health risk assessment at the Facility. The purpose of the RFI was to characterize the nature and extent of soil and groundwater contamination at the Facility. The purpose of the CMS was to identify and evaluate remedial alternatives to address the contamination. The purpose of the human health risk assessment was to evaluate potential impacts to human health from the soil and groundwater contamination identified at the Facility.

The RFI showed that there is soil and groundwater contamination at the Facility. Ground water in the present uppermost saturated zone beneath the Facility, identified by the owner or operator as the Hollydale Aquifer, contains elevated levels of: (1) heavy metals, including chromium and cadmium, (2) halogenated volatile organic compounds ("VOCs"), including trichloroethene ("TCE") and 1,2,-dichloroethane ("1,2-DCA"), (3) aromatic VOCs, including benzene, toluene, ethylbenzene and xylenes and (4) chlorides. Soils at the Facility contain elevated levels of (1) heavy metals, including lead, cadmium, chromium, copper, and zinc, (2) halogenated VOC's, including TCE, 1,2-DCA and tetrachloroethene ("PCE"), (3) aromatic VOC's, including benzene, toluene, ethylbenzene and xylenes, (4) polychlorinated biphenyls ("PCB's"), (5) petroleum hydrocarbons, including diesel fuel, gasoline and an unidentified heavy hydrocarbon believed to be crude oil, and (6) chlorides.

Based upon the findings of the RFI, CMS, risk assessment and other information, the Department is requiring that the owner or operator implement corrective measures to address the releases from the Facility. Corrective measures included in this Permit are summarized as follows: pumping and treating contaminated ground water, quarterly monitoring to track groundwater quality and identify any new releases should they occur, a soil vapor survey to determine the

nature and extent of halogenated VOC contamination, in-situ soil vapor extraction if needed to cleanup soils contaminated with halogenated VOC's, in situ bioventing to cleanup hydrocarbon contaminated soils in the former underground fuel storage tank area, containment measures to prevent human contact with contaminated soils, berming to contain surfacewater runoff, vadose zone monitoring to identify contaminant migration in subsurface soils, surfacewater sampling to measure contaminants in surface water discharged from the Facility and deed restrictions to prevent future residential and other sensitive uses of the property.

These corrective measures are protective of human health and the environment even though they do not completely eliminate all contamination from soils at the Facility. The soil contaminants remaining in place after treatment will be paved, monitored and deed restricted to ensure that they do not come into contact with people. The Department has authority to require additional remedial action if these remaining contaminants are shown to be a potential threat to human health and/or the environment.

D. **PROJECT COORDINATOR**

1. The owner or operator shall designate a Project Coordinator within 14 days of the effective date of this Permit Modification and shall notify the Department in writing of the Project Coordinator it has selected. The Project Coordinator shall be responsible for overseeing the implementation of corrective action at the Facility in accordance with this Part of the Permit and for designating a person to act in his/her absence. The Department will also designate a Project Coordinator. All communications between the owner or operator and the Department, and all documents, reports, approvals, and other correspondence concerning the activities performed pursuant to this Part of the Permit shall be directed through the Project Coordinators.

2. The owner or operator must provide at least 7 days written notice to the Department prior to changing Project Coordinator.

E. **WORK TO BE PERFORMED**

The owner or operator is required to perform the following work in the time and manner specified in this Part of the Permit. All work undertaken shall be performed, at a minimum, in a manner consistent with: the attached Scopes of Work; any Department approved plans, workplans,

specifications or schedules of compliance; and applicable State and local laws and implementing regulations. All attachments to this Permit are incorporated by reference as if fully set forth herein.

The Department may also require the owner or operator to investigate, mitigate and/or take other applicable action to address any actual or potential threats to human health and/or the environment, newly identified releases of hazardous waste and/or hazardous constituents, or newly identified SWMUs.

The owner or operator shall complete the work specified in this Part of the Permit in accordance with the approved schedules of compliance. Schedules of compliance may provide for implementation of tasks beyond the termination date of this Permit. All corrective measures shall continue until the cleanup standards are achieved.

This Permit does not limit the Department's authority to implement the selected corrective measure(s) or to take any other appropriate action from the laws and regulations of the State of California, or any other legal authority, including the filing of a civil action seeking a judicial order directing the owner or operator to implement the selected corrective measure(s).

Nothing in this Permit shall be constructed to excuse the owner or operator from participating or other-wise cooperating with any area-wide effort to investigate and/or remediate groundwater contamination.

1. Deed Restrictions

   a. The Department has prepared a deed restriction notice for the Facility which is provided in Attachment 6 to this Part of the Permit. Within 14 days of the effective date of this Permit Modification, the owner or operator shall sign and record the deed restriction notice with the County of Los Angeles. The limits included in the deed restriction notice are summarized below. Unless the property owner can adequately demonstrate otherwise to the Department, the following requirements would apply:

      - Prohibits the facility or property from being used for residential or for other sensitive purposes.

      - Prohibits use of the underlying shallow groundwater for domestic use.

- Requires full paving of property for any commercial or industrial uses.
- Requires minimization of any below grade earth moving activities.
- Requires prior Department notification before excavated soils may be removed from the property.
- Requires that the site cover be adequately inspected and maintained to prevent infiltration into the subsurface.

b. Within 10 days after recording the deed restriction notice with the County of Los Angeles, the owner or operator shall provide a copy of the signed deed notice and written confirmation to the Department that the deed restriction notice has been recorded.

2. Groundwater Remediation

a. Establishment of wells MW-4 and MW-9 as compliance points, well MW-1S as an upgradient background monitoring point, and the cleanup standards as discussed below is based on existing information. The Department may establish additional points of compliance, cleanup standards and/or upgradient monitoring points for any Facility derived contaminants if future data indicates that the Maximum Contaminant Levels ("MCL's") for drinking water have been exceeded.

b. The cleanup standards for ground water in monitoring well MW-4 are listed below. To demonstrate that the standards have been achieved, PTI must provide the Department with a minimum of four consecutive quarters of data below the standards. The Department may revise these cleanup standards based on the promulgation of new MCL's, recommended public health levels and/or other applicable standards for ground water.

Cadmium:	Less than 5 micrograms per liter (µg/l)
Total Chromium:	Less than 50 µg/l
Hexavalent Chromium:	Less than 50 µg/l

Halogenated Volatile Organic Compounds (VOCs):

Tetrachloroethene (PCE)	:	Less than	5	µg/l
Trichloroethene (TCE)	:	Less than	5	µg/l
1,1-Dichloroethene (1,1-DCE)	:	Less than	6	µg/l
1,1-Dichloroethane (1,1-DCA)	:	Less than	5	µg/l
1,2-Dichloroethane (1,2-DCA)	:	Less than	0.5	µg/l
trans-1,2-Dichloroethene (1,2-DCE)	:	Less than	10	µg/l
1,1,1-Trichloroethane (1,1,1-TCA)	:	Less than	200	µg/l
Methylene Chloride	:	Less than	5	µg/l

or

Four consecutive quarters of data from monitoring well MW-4 that are statistically at or below the corresponding halogenated VOC compound concentration observed in monitoring well MW-1S or a suitable replacement well as specified in the Department approved corrective action groundwater monitoring plan.

The Department must review and approve in writing any statistical method or approach before it can be used to demonstrate that the halogenated VOC cleanup standard has been achieved.

c. The cleanup standards for ground water in monitoring well MW-9 are listed below. To demonstrate that the standards have been achieved, PTI must provide the Department with a minimum of four consecutive quarters of data below the standards. The Department may revise these cleanup standards based on the promulgation of new MCL's, recommended public health levels and/or other applicable standards for ground water.

Halogenated Volatile Organic Compounds (VOCs):

Tetrachloroethene (PCE):	Less than	5	µg/l
Trichloroethene (TCE):	Less than	5	µg/l
1,1-Dichloroethene (1,1-DCE):	Less than	6	µg/l
1,1-Dichloroethane (1,1-DCA):	Less than	5	µg/l
1,2-Dichloroethane (1,2-DCA):	Less than	0.5	µg/l
trans-1,2-Dichloroethene (1,2-DCE):	Less than	10	µg/l
1,1,1-Trichloroethane (1,1,1-TCA):	Less than	200	µg/l
Methylene Chloride:	Less than	5	µg/l

or

Four consecutive quarters of data from monitoring well MW-9 that are statistically at or below the corresponding halogenated VOC compound concentration observed in monitoring well MW-1S or a suitable replacement well as specified in the Department approved corrective action groundwater monitoring plan.

The Department must review and approve in writing any statistical method or approach before it can be used to demonstrate that the halogenated VOC cleanup standard has been achieved.

d. In order to maximize the cleanup of the affected Hollydale Aquifer, thereby protecting it and other aquifers having beneficial use, the owner or operator shall design, construct, operate and maintain a groundwater remediation system to meet all groundwater cleanup standards required by this Part of the Permit. This includes the cleanup standards specified in paragraphs V.E.2.b. and V.E.2.c. of this Part of the Permit as well as any additional cleanup standards that may be imposed in the future.

e. Within 60 days of the effective date of this Permit Modification, the owner or operator shall submit to the Department a Corrective Action Groundwater Remediation ("CAGWR") Workplan. The purpose of the CAGWR Workplan is to describe the groundwater remediation system and how it will be constructed. The CAGWR Workplan shall be developed in a manner consistent with the Scope of Work contained in Attachment 2 to this Part of the Permit.

f. The groundwater remediation system shall, unless the Department specifies otherwise, include the following elements:

   i. Pumping of contaminated ground water from the Hollydale and any other affected aquifers. The owner or operator shall propose pumping rates and location(s) to maximize groundwater extraction and contaminant removal given site-specific conditions.

   ii. Treatment of extracted ground water to remove contaminants such that it meets requirements of any selected disposal option or combination of options. Halogenated and aromatic VOCs shall be treated at the wellhead to meet disposal limitations, e.g. effluent discharge limits for discharge into the sewer system. Metals may be removed at

the wellhead for direct disposal of treated ground water by various options or the extracted ground water may be used on-site and disposed through the sewer system per industrial wastewater discharge permit.

Extracted ground water to be disposed through the sewer system must be treated such that concentrations of TCE, benzene, toluene, ethylbenzene, xylene and other VOCs, cadmium and chromium all meet the applicable effluent discharge limits specified in the industrial waste discharge permit for the facility. The method or combination of methods chosen to dispose of contaminated ground water shall be such as to allow removal of contaminants from the aquifer or aquifers to be maximized.

iii. On-site storage of extracted ground water in tanks. The owner or operator shall propose the number, size and location of the storage tanks. The owner or operator shall design, construct, operate and maintain the ground water storage tanks in accordance with the requirements contained in 22 CCR 66262.34.

iv. Maximization of groundwater extraction rates and contaminant removal by appropriate disposal of treated groundwater including but not limited to on-site industrial use of all extracted ground water prior to discharge into the sewer system. On-site reuse and discharge into the sewer system is a limiting factor to complete cleanup of site-derived contaminants in the Hollydale and other affected aquifers and that additional disposal options should be proposed in the CAGWR by the owner or operator as supplemental means in order to maximize extraction and contaminant removal.

For that portion of the extracted ground water that may be disposed by supplemental means such as re-injection, the owner or operator shall obtain all necessary authorizations and permits. The Los Angeles County Sanitation Districts has indicated that on-site industrial use must be made of any extracted ground water to be discharged through the industrial wastewater system. If the Los Angeles County Sanitation Districts requirements change or if the Department determines that use of the sewer is impractical or not sufficiently effective, the owner or operator will be required to

shift any ground water disposal deficits to other disposal means(s) which will be described in the CAGWR.

v. On-site use of extracted ground water for any purpose that does not create an unacceptable risk to human health or the environment, provided applicable permits are obtained. On-site use of extracted ground water shall be limited to industrial processes that minimize exposure of the extracted ground water to the atmosphere (e.g., in tanks) unless the extracted ground water is treated at the wellhead to remove halogenated and aromatic VOC's. Using extracted ground water for drum washing is prohibited unless the owner or operator receives written authorization from the Department for such use. To obtain such authorization, the owner or operator must adequately demonstrate to the Department that using the extracted ground water for drum washing will not result in the creation of an unacceptable risk to human health or the environment.

g. The owner or operator must meet all applicable regulatory requirements for disposal of extracted ground water from the Facility. The extracted ground water that is to be disposed as wastewater through discharge into the sewer system must, at a minimum, meet the requirements of the Los Angeles County Sanitation Districts. These requirements include, but are not limited to, effluent discharge limits specified in the industrial wastewater discharge permit for the Facility. The owner or operator shall contact the Los Angeles County Sanitation District in writing during preparation of the CAGWR Workplan to determine if a modification to the existing industrial wastewater discharge permit will be needed for the groundwater remediation system. The owner or operator shall send a copy of this written correspondence to the Department Project Coordinator.

h. Upon receiving written approval of the CAGWR Workplan from the Department, the owner or operator shall proceed with the full design and construction of the groundwater remediation system.

i. The owner or operator shall submit a Corrective Action Groundwater Remediation Construction Completion Report ("CAGWRCCR") to the Department in accordance with a schedule contained in the

Department approved CAGWR Workplan. The purpose of the CAGWRCCR is to document how the groundwater remediation system was constructed and to provide notification that construction work has been completed. The CAGWRCCR shall be developed in a manner consistent with the Scope of Work contained in Attachment 3 to this Part of the Permit.

j. The owner or operator shall submit a Corrective Action Groundwater Remediation Operation and Maintenance ("CAGWRO&M") Plan to the Department in accordance with a schedule contained in the Department approved CAGWR Workplan. The CAGWRO&M Plan shall be developed in a manner consistent with the Scope of Work contained in Attachment 4 to this Part of the Permit.

k. The CAGWRO&M Plan shall specify how the ground water remediation system will be operated and maintained and include, unless the Department specifies otherwise, the following provisions:

   i. Specification of approximate pumping rates.

   ii. A contingency for cycling pumps on and off if necessary to increase removal efficiency.

   iii. Periodic monitoring of extracted ground water at the well head to determine contaminant concentrations.

   iv. Where extracted ground water is to be used on-site a description of how it will be used on-site and what will be done to protect the health and safety of facility workers during operation of the groundwater remediation system.

l. Upon receiving written approval of the CAGWRO&M Plan from the Department, the owner or operator shall begin full scale operation of the groundwater remediation system.

m. The owner or operator may petition the Department to stop extracting ground water when there are at least four consecutive quarters of groundwater data showing that contaminant concentrations meet all groundwater cleanup standards required by this Part of the Permit or when the owner or operator can provide an alternative demonstration showing why the groundwater extraction should cease which uses at least twelve consecutive quarters of groundwater data from wells MW-4, MW-9 and any other compliance point wells. This includes the cleanup standards specified in paragraphs V.E.2.b.

and V.E.2.c. of this Part of the Permit as well as any additional cleanup standards that may be imposed in the future. Groundwater extraction shall continue until the Department provides the owner or operator with written notice to cease pumping operations. The owner or operator shall start extracting ground water again, as directed by the Department, if future data shows that the cleanup standards required by this Part of the Permit are exceeded.

3. Groundwater Monitoring

a. The owner or operator shall design, construct, operate and maintain a groundwater monitoring system to meet the requirements specified in this Part of the Permit.

b. Within 60 days of the effective date of this Permit Modification, the owner or operator shall submit to the Department a Corrective Action Groundwater Monitoring Plan ("CAGWMP") for the Facility. The purpose of the CAGWMP is to fully describe the corrective action groundwater monitoring program, which includes, but is not limited to, procedures for groundwater sampling, quality assurance and data assessment.

c. The CAGWMP shall, at a minimum, include the following information:

i. Description and purpose of monitoring tasks;

ii. Data quality objectives;

iii. List of monitoring parameters;

iv. Rationale for selection of monitoring parameters;

v. Description and listing of wells to be sampled;

vi. Rationale for selection of monitoring wells;

vii. Appropriately scaled map showing monitoring well network;

viii. Listing of Gage Aquifer wells to be inspected and gauged for the presence of ground water;

ix. Monitoring and reporting schedule;

x. Analytical test methods and detection limits;

xi. Name of analytical laboratory;

xii. Laboratory quality control (include laboratory QA/QC procedures in appendices)

xiii. Sample collection procedures and equipment;

xiv. Field quality control procedures:

- duplicates (10% of all field samples)
- blanks (field, equipment, etc.)
- equipment calibration and maintenance
- equipment decontamination
- sample containers
- sample preservation
- sample holding times (must be specified)
- sample packaging and shipment
- sample documentation (field notebooks, sample labeling, etc);

xv. Criteria for data acceptance and rejection;

xvi. Description of data evaluation procedures including any proposed statistical methods;

xvii. General contingencies for further action if site conditions change. The CAGWMP shall, at a minimum, include contingency procedures that specify what will happen if facility-derived contaminants are detected above MCL's in any monitoring wells. The contingency procedures shall include, but are not limited to: written notification of the Department within 7 days of discovery, resampling of the well(s) to confirm the "hit" and, if required by the Department, development of additional corrective measures to address the contamination. The corrective measure proposal must be submitted to the Department for review and approval prior to implementation; and

xviii. Contingencies for further action if the Gage Aquifer resaturates. The CAGWMP shall, at a minimum, specify that if the owner or operator detects water in monitoring well 6A or other wells in the Gage Aquifer, the owner or operator shall:

(1) Immediately take samples of the Gage Aquifer ground water and analyze the samples for, at a minimum, metals including hexavalent chromium, volatile

organic compounds (SW846 Method 8240), semi-volatile compounds (SW846 Method 8270), total petroleum hydrocarbons (diesel and gasoline), pH and other general water quality parameters (e.g., chlorides, sulfates).

(2) Notify the Department of the situation orally within 72 hours of discovery and in writing within 7 days of discovery.

(3) Submit a report to the Department within 30 days of discovery summarizing any findings, actual or potential threats to human health and/or the environment and any proposed response action.

d. The CAGWMP shall be consistent with all Department and U.S. EPA guidance for groundwater sampling and analysis.

e. The ground water monitoring system shall, unless the Department specifies otherwise, meet the following performance standards:

i. Include a sufficient number of monitoring points installed at appropriate locations and depths in the uppermost unsaturated aquifer, herein identified as the Gage Aquifer, as necessary to assure the earliest possible indication of ground water resaturation.

ii. Include a sufficient number of monitoring points installed at appropriate locations and depths to yield ground water samples from the current uppermost saturated aquifer, herein identified as the Hollydale Aquifer, as necessary to represent the quality of water passing Facility boundaries, points of compliance and background locations, and to assure the earliest possible indication of any additional releases from the Facility into the uppermost saturated aquifer.

iii. Include a sufficient number of monitoring points installed at locations and depths appropriate to yield groundwater samples from the current uppermost saturated aquifer as necessary to provide the data needed to adequately evaluate changes in water quality at the Facility which result from groundwater extractions.

iv. Include a minimum of at least one monitoring point installed at a location and depth appropriate to assure that the Jefferson Aquifer is not being impacted by elevated concentrations of site-derived cadmium, chromium and halogenated VOC's from the Hollydale Aquifer. Special precautions, including specialized construction methods, must be taken to ensure that cross-contamination does not occur between the Hollydale Aquifer and the Jefferson Aquifer during well construction.

v. New groundwater monitoring wells shall utilize short-screened, depth-staggered wells placed in clusters to assess hydrogeochemistry and groundwater pressure gradients while minimizing dilution and cross-contamination.

vi. All monitoring wells shall be cased and constructed in a manner that maintains the integrity of the monitoring well borehole and prevents the bore hole from acting as a conduit for contaminant transport.

vii. The sampling interval of each monitoring well shall be appropriately screened and fitted with a filter pack to enable collection of representative groundwater samples.

viii. The annular space of each monitoring well above and below the sampling interval shall be appropriately sealed to prevent entry of contaminants from the surface, entry of contaminants from the unsaturated zone, cross-contamination of saturated zones and contamination of samples.

ix. All monitoring wells shall be adequately developed to assure that representative groundwater samples may be collected.

f. The CAGWMP shall include a proposal for the installation of additional monitoring wells needed to meet the performance standards specified in Paragraph V.E.3.e. of this Part of the Permit. The proposal shall be included as an addendum to the CAGWMP. The proposal shall, at a minimum, discuss the number, location (map), depth, rationale for location selection, drilling methods, screened interval, well materials, development methods, construction schedule and other pertinent design details for the proposed wells.

The proposal shall also include an evaluation of the slope of the clay layer separating the Gage Aquifer from the Hollydale Aquifer. The evaluation shall use existing data and include a map showing the clay layer surface elevations and slope directions. The purpose of this evaluation is to support the siting of new wells in the Gage Aquifer and to identify potential flow directions for any contaminants released into the subsurface soils.

g. The owner or operator shall, unless the Department specifies otherwise, sample each groundwater monitoring well used or installed as required in this Part of the Permit on a quarterly basis.

h. The owner or operator shall, unless the Department specifies otherwise, gauge each monitoring well in the Gage Aquifer for the presence of ground water on a monthly basis during the rainy season (December to April) and quarterly for the remainder of the year (July and October).

i. Parameters for corrective action ground water monitoring shall, unless the Department specifies otherwise, include those that are representative of known or potential Facility derived contaminants, representative of potential regional contaminants and those that are necessary to measure changes in water quality (e.g., pH, chlorides, sulfates, etc).

j. The groundwater monitoring system for Pond 1 shall, unless the Department specifies otherwise, meet the requirements of 22 CCR Sections 66264.90 through 66264.100. In accordance with the requirements specified in 22 CCR 66264.99 (e)(6), the owner or operator shall sample the Pond 1 monitoring wells (upgradient and downgradient) for the constituents listed in Appendix IX (Ground Water Monitoring List) of 22 CCR 66264 at least annually. The Department may adjust the Pond 1 groundwater monitoring schedule and/or list of monitoring parameters if the Department determines that such changes are justified.

k. The owner or operator shall implement the CAGWMP, including the CAGWMP addendum, upon receiving written approval from the Department. Corrective action groundwater monitoring shall continue for a minimum of at least 30 years from the effective date of this Permit Modification or until the owner or operator receives written notice from the Department to cease groundwater monitoring activities.

4. Soil Vapor Survey/Extraction to Address Halogenated Volatile Organic Compounds in Soils

a. Within 120 days of the effective date of this Permit Modification, the owner or operator shall submit to the Department a Corrective Action Soil Vapor Survey ("CASVS") Workplan. The purpose of the CASVS is to fully define the nature and extent of halogenated VOC contamination. The CASVS Workplan shall, at a minimum, describe the soil vapor monitoring system, how the system will be constructed and how the vapor sampling will be done.

b. The soil vapor survey shall be initially focused in the halogenated VOC remediation area shown on Figure 2 to this Part of the Permit. The establishment of the halogenated VOC remediation area is tentative since it is based on existing soil matrix data. Although the soil matrix data is a good indicator of a halogenated VOC problem, it is not generally representative of the full extent of contamination. The Department may reduce or expand the halogenated VOC remediation area depending on the findings from the soil vapor survey.

c. The CASVS Workplan shall, at a minimum, include the following information:

i. Purpose of the workplan;

ii. Conceptual design of proposed soil vapor monitoring system including rationale for selection of monitoring points.

iii. Schematic diagrams for key components;

iv. An appropriately scaled facility map showing monitoring system;

v. Tables listing number and type of major components with approximate dimensions.

vi. A description of the wastes generated by the soil vapor survey and how they will be managed.

vii. Project management (e.g., management approach levels of authority and responsibility, lines of communication and the qualifications of key personnel who will direct the soil vapor survey (including contractor personnel).

viii. Project schedule;

ix. List and description of the permits needed to construct and operate the soil vapor monitoring system. Indicate on the project schedule when the permit applications will be submitted to the applicable agencies and an estimate of the permit issuance date.

x. Data quality objectives;

xi. List of monitoring parameters;

xii. Rationale for selection of monitoring parameters;

xiii. Analytical test methods and detection limits;

xiv. Laboratory quality control (include laboratory QA/QC procedures in appendices)

xv. Sample collection procedures and equipment;

xvi. Field quality control procedures:

- duplicates (10% of all field samples)
- blanks (field, equipment, etc.)
- equipment calibration and maintenance
- equipment decontamination
- sample containers
- sample preservation
- sample holding times (must be specified)
- sample packaging and shipment
- sample documentation (field notebooks, sample labeling, etc);

xvii. Criteria for data acceptance and rejection; and

xviii. Description of data evaluation procedures including any proposed statistical methods, models, etc.

d. The CASVS Workplan shall be consistent with all Department and U.S. EPA guidance for soil vapor sampling and analysis.

e. The owner or operator shall submit a Corrective Action Soil Vapor Survey (CASVS) Report to the Department in accordance with a schedule contained in the Department approved CASVS Workplan. The CASVS Report shall be prepared in a manner that describes the entire soil vapor survey and clearly presents the basic results. Contour maps, tables, charts and other graphical methods shall be used

whenever possible to describe the survey findings. The CASVS Report shall clearly present an evaluation of the soil vapor survey results including a modeled estimate of potential impacts to ground water.

f. After Department evaluation of the Soil Vapor Survey Report and within 60 days of a written request from the Department, the owner or operator shall submit to the Department a conceptual design plan for a soil vapor extraction ("SVE") system. The Corrective Action Soil Vapor Extraction Conceptual Design Plan ("CASVECDP") shall describe the SVE system and how it will be constructed at the Facility. The CASVECDP shall be developed in a manner consistent with the Scope of Work contained in Attachment 2 to this Part of the Permit.

g. If required by the Department, the owner or operator shall design, construct, operate and maintain a SVE system to meet the cleanup standards specified in Paragraph V.E.4.h. of this Part of the Permit.

h. The cleanup standard is to reduce halogenated VOC, especially TCE, vapor levels in soils to concentrations that are protective of ground water. The cleanup standard shall be met in the halogenated VOC remediation area shown in Figure 2 to this Part of the Permit or an alternative area specified by the Department.

   The Department may require additional investigation and/or remediation if new information indicates that other areas of volatile contaminants pose a potential threat to human health and/or the environment.

i. Upon receiving written approval of the CASVECDP from the Department, the owner or operator shall proceed with the full design and construction of the SVE system.

j. The owner or operator shall submit a Corrective Action Soil Vapor Extraction Construction Completion Report ("CASVECCR") to the Department in accordance with a schedule contained in the Department approved CASVECDP. The purpose of the CASVECCR is to document how the SVE system was constructed and to provide notification that construction work has been completed. A separate CASVECCR may be needed for each phase of SVE system construction if there are multiple elements. The CASVECCR shall be developed in a

manner consistent with the Scope of Work contained in Attachment 3 to this Part of the Permit.

k. The owner or operator shall submit a Corrective Action Soil Vapor Extraction Operations and Maintenance Plan ("CASVEO&MP") to the Department in accordance with a schedule contained in the Department approved CASVECDP. The CASVEO&MP shall specify how the SVE system will be operated, maintained and monitored. The CASVEO&MP shall be developed in a manner consistent with the Scope of Work contained in Attachment 4 to this Part of the Permit. At a minimum, the CASVEO&MP shall require the owner or operator to determine system effectiveness and any "rebound" effects by periodically shutting down the SVE system for successive variable time periods, beginning with a minimum of 5 consecutive days, and then collecting soil gas data from all monitoring probes or wells. Soil gas monitoring data shall be collected when the SVE system is not operating.

Evaluation of portable photo-ionization detector data obtained from the monitoring network may be used as a screening tool to track system effectiveness

l. Upon receiving written approval of the CASVEO&MP from the Department, the owner or operator shall begin full scale operation of the SVE system.

m. The owner or operator may petition the Department to shut down the SVE system when the owner or operator can demonstrate that the cleanup standard specified in paragraph V.E.4.h. of this Part of the Permit has been achieved. The demonstration shall include, at a minimum, the following performance based information:

i. A quantitative analysis of halogenated VOC soil vapor data showing that VOC's, especially TCE, concentrations have been reduced to levels that are protective of ground water.

The analysis shall include the development and analysis of halogenated VOC soil vapor isoconcentration plots for equilibrium conditions. The isoconcentration plots must show a definitive reduction in area over time.

The analysis shall include time verses concentration graphs showing variations in outlet concentrations from each soil gas

monitoring probe or well. The graphs must show any rebound effects and clearly indicate that asymptotic concentrations have been reached.

Soil gas data used to demonstrate that the cleanup standard has been obtained must be analyzed in a mobile laboratory at the Facility.

ii. Fate and transport modeling to demonstrate that any measured residual soil vapor concentrations will not impact ground water. The Department must provide the owner or operator with written approval of any fate and transport model before the model can be used to demonstrate that the cleanup standard has been achieved.

iii. If required by the Department, results of confirmation soil matrix sampling from fine-grained zones where long-term or differential halogenated VOC effects might be expected (e.g., clay/silt or organic-rich soils).

n. If required by the Department, soil vapor extraction shall continue until the Department provides the owner or operator with written notice to cease operations.

5. Soil Remediation in Former Underground Storage Tank Area

a. Soils which have been contaminated by releases from the former underground storage tank ("UST") system, which was comprised of a 10,000 gallon gasoline tank, a 10,000 gallon diesel tank and associated piping and dispensers, must be remediated as required in H&SC Sections 25280 to 25299.6 and applicable provisions of California Title 23, Chapter 16 regulations.

b. The owner or operator shall design, construct, operate and maintain an in-situ bioventing system in the UST remediation area to meet the soil cleanup standards specified below:

<u>Aromatic Hydrocarbons</u>:

Benzene:	0.001	mg/kg
Toluene:	1	mg/kg

Ethylbenzene:	0.68	mg/kg
Total Xylenes:	1.75	mg/kg

Hydrocarbon Mixtures:

Total Petroleum Hydrocarbon (TPH):	100	mg/kg

TPH is a generic indicator of hydrocarbons that in this case is primarily related to diesel fuel.

UST area soils are contaminated from near surface to at least 37 feet below ground surface. This includes a portion of the currently unsaturated Gage Aquifer. The soil clean-up standards for the UST area soils are based on protecting re-saturating ground water in the Gage Aquifer from petroleum based fuels, including aromatic hydrocarbon and hydrocarbon mixtures, contained in the soil. The Department may revise these clean-up standards based on new information.

c. The UST remediation area is located in the center of the facility and is roughly a square bounded by soil borings UST-SB3, UST-SB4, UST-SB5, UST-SB1, UST-SB2, and UST-SB-7. The UST remediation area is shown in Figure 1 to this Part of the Permit.

d. Within 120 days of the effective date of this Permit Modification, the owner or operator shall submit to the Department a Corrective Action Bioventing Conceptual Design Plan ("CABCDP"). The CABCDP shall describe the bioventing system and how it will be constructed at the Facility. The CABCDP shall be developed in a manner consistent with the Scope of Work contained in Attachment 2 to this Part of the Permit.

e. Upon receiving written approval of the CABCDP from the Department, the owner or operator shall proceed with the full design and construction of the bioventing system.

f. The owner or operator shall submit a Corrective Action Bioventing Construction Completion Report ("CABCCR") to the Department in accordance with a schedule contained in the Department approved CABCDP. The purpose of the CABCCR is to document how the bioventing system was constructed and to provide notification that construction work has been completed. The CABCCR shall be developed in

a manner consistent with the Scope of Work contained in Attachment 3 to this Part of the Permit.

g. The owner or operator shall submit a Corrective Action Bioventing Operations and Maintenance Plan ("CABO&MP") to the Department in accordance with a schedule contained in the Department approved CABCDP. The CABO&MP shall, at a minimum, specify how the bioventing system will be operated and maintained, and how the vadose zone will be monitored during bioventing system operations. The CABO&MP shall be developed in a manner consistent with the Scope of Work contained in Attachment 4 to this Part of the Permit.

h. Upon receiving written approval of the CABO&MP from the Department, the owner or operator shall begin full scale operation of the bioventing system.

i. The owner or operator may submit a Corrective Action Bioventing Completion ("CABC") Report to the Department when the owner or operator believes that the UST area soil cleanup standards have been attained or when, after a minimum of three years of bioventing, the owner or operator can provide an alternative demonstration showing why the bioventing should cease. The CABC Report shall, at a minimum, include an UST closure certification as well as data and other information showing that the cleanup standards have been attained or include an alter- native demonstration of why bioventing should cease. The UST closure certification shall be signed by the owner or operator and by an independent California registered civil engineer or geologist or engineering geologist. The CABC Report shall be developed in a manner consistent with the Scope of Work contained in Attachment 5 to this Part of the Permit. The bioventing system shall continue to operate until the Department provides the owner or operator with written notice to cease operations.

j. Within 60 days after cessation of bioventing operations at the former UST area, the owner or operator shall submit to the Department written certification from the Los Angeles County Department of Public works and/or the Los Angeles Regional Water Quality Control Board stating that the soil cleanup meets the applicable requirements of Title 23, Chapter 16 regulations. The Department may require that the owner or operator reactivate the bioventing system and/or take other action if the former UST area cleanup does not

meet the applicable requirements of California Title 23, Chapter 16 regulations.

6. **Containment Measures**

a. The owner or operator shall design, install, operate and maintain a containment system (e.g., sumps, berms, etc) capable of containing contaminated runoff, accidental spills or tank overfillings and able to prevent infiltration (for all practical purposes) of liquids into subsurface soils at any time during the operating life of the Facility. Containment measures shall be constructed in a manner that meets the requirements of 22 CCR 66264.25.

b. Within 180 days of the effective date of this Permit Modification, the owner or operator shall submit to the Department a Corrective Action Containment System ("CACS") Report. The purpose of the CACS Report is to: (1) evaluate the ability of the current system of sumps to contain contaminated runoff and chemical spills from the Facility, (2) evaluate the ability of the existing site cover (paving) to prevent (for all practical purposes) infiltration of water into subsurface soils, and (3) describe proposed improvements to the Facility that would prevent infiltration (for all practical purposes) into subsurface soils and contain contaminated runoff and chemical spills.

c. The CACS Report shall, at a minimum, include:

i. A description of the site cover including type, thickness and age of paving material;

ii. A description of the current site drainage collection system;

iii. An evaluation of all active sumps and associated piping to assess overall condition and integrity;

iv. A description of areas, including secondary containment areas and sumps, that are damaged and in need of repair;

v. Appropriately scaled maps showing drainage flow patterns, site drainage collection system including active sumps and existing berms, areas of surface ponding, damaged paved areas including secondary containment areas, sumps and berms that are in need of repair and paving material descriptions (e.g., type, thickness, age);

vi. An estimate of facility area that currently drains into sumps;

vii. An estimate of facility area that currently drains off-site;

viii. An estimate of current run-off storage capacity;

ix. Identification of activities and locations which involve transit of waste and non-waste water through or into below-grade conduits, collection or storage devices;

x. An evaluation of the spatial relationship between waste and non-waste water crossing through or into below-grade conduits, collection or storage devices and areas of residual soil contamination;

xi. A description of current contingency procedures to address heavy run-off periods;

xii. An evaluation of the current drainage collection systems ability to contain off-site run-off;

xiii. An evaluation of the ability of the current site cover to prevent infiltration into the subsurface; and

xiv. A description of proposed improvements to the Facility that would prevent infiltration into subsurface soils and contain off-site runoff.

d. The Department will evaluate the CACS Report and may require the owner or operator to make improvements to the drainage collection system and/or site cover.

e. After Department evaluation of the CACS Report and within 45 days of a written request from the Department, the owner or operator shall submit to the Department a conceptual design plan for constructing improvements to the containment system. The Corrective Action Containment System Conceptual Design ("CACSCD") Plan shall describe the improvements and how they will be constructed at the Facility. The Department will specify what improvements shall be included in the CACSCD Plan. At a minimum, the Department will require that the owner or operator pave all unpaved areas of the Facility, berm the facility perimeter (except for employee parking lot located adjacent to Dice Road) and reconstruct or repair any leaking sumps,

damaged secondary containment areas and/or damaged paved areas.

f. The CACSCD Plan shall, unless otherwise specified by the Department, include the following information:

i. Purpose of the plan;

ii. Conceptual design and summary description of proposed project;

iii. An appropriately scaled facility map showing construction areas;

iv. Tables listing number and type of major components with approximate dimensions;

v. A description of the wastes generated by the construction and how they will be managed;

vi. Project management (e. g., management approach, levels of authority and responsibility, lines of communication and the qualifications of key personnel who will direct the project (including contractor personnel);

vii. Project schedule; and

viii. List and description of the permits needed to construct and operate the containment system. Indicate on the project schedule when the permit applications will be submitted to the applicable agencies and an estimate of the permit issuance date.

g. Upon receiving written approval of the CACSCD Plan from the Department, the owner or operator shall construct the improvements to the containment system and begin full scale operations as soon as construction work has been completed.

h. The containment system shall be operated and maintained until the Department provides the owner or operator with written notice to cease operations.

7. Pond 1 Closure Status Report

a. The existing Modified Closure/Post Closure Plan for Pond 1, which was approved by the Department in September 1988, located in Attachment 7 is superseded by the 2015 Pond 1 Closure Plan The 2015 Pond 1 Closure Plan must be implemented upon written notification from the Department. The 2015 Pond 1 Closure Plan contains the schedule for implementation of Pond 1 closure and the other activities described in the 2015 Pond 1 Closure Plan

b. Within 180 days of the date that the owner or operator begins, or is directed by the Department to begin implementation of the 2015 Pond 1 Closure Plan, the owner or operator shall submit to the Department a Pond 1 Closure Status Report. The Pond 1 Status Report shall include, unless the Department specifies otherwise, a description of significant Pond 1 closure activities and work completed to date, and a description how this work has been coordinated with the corrective action requirements of this Part of the Permit.

8. Operation, Maintenance and Inspection of: Site Cover

a. The owner or operator shall at all times properly operate and maintain all facilities: and systems of treatment and control in accordance! with 22 CCR 66270.30(e). All equipment, pipes, and lines used at the Facility to handle, transfer, pump, or store hazardous wastes and any other liquids shall be maintained in a manner that prevents the leaking and spilling of such hazardous wastes and/or liquids. This is particularly important since soils contaminated with metals are being left in place under the facility pavement.

b. Within 240 days of the effective date of this Permit Modification, the owner or operator' shall submit to the Department a Corrective Action site Cover Operation, Maintenance and Inspection ("CASCOMI") Plan that describes how' the owner or operator will inspect, operate and maintain the site cover. The owner or operator shall operate and maintain the site cover in a manner that prevents (for all practical purposes) infiltration of liquids into the subsurface and contains contaminated runoff and chemical spills.

c. The CASCOMI Plan shall, at a minimum, include:

i. A description of the purpose;

ii. A description of how the inspection program will be organized and managed;

iii. A description of the sump system and how it will be operated, maintained and inspected;

iv. Annual integrity testing of all active sumps;

v. Inspection frequency;

vi. Step-by-step instructions for the inspector that identify what to look for during an inspection;

vii. A map that specifies the exact route of the inspector;

viii. A description of how problems identified during an inspection will be addressed;

ix. An example inspection checklist; and

x. Documentation requirements (e.g., inspection checklists shall be compiled and stored at the facility).

d. The owner or operator shall implement the CASCOMI Plan upon receiving written approval from the Department. Operation, maintenance and inspection of the site cover shall continue until the owner or operator receives written notification from the Department to stop.

9. Vadose Zone Monitoring

a. The owner or operator shall design, construct, operate and maintain a vadose zone monitoring system to meet the requirements specified in this Part of the Permit. The vadose zone is the unsaturated region between the land surface and the water table. The purpose of vadose zone monitoring is to provide early detection of contaminant migration from units that manage or transport process or waste water at the Facility. These units all actively manage process or waste water and thus pose a higher threat to leak and cause migration of existing contaminants through the subsurface soil. Vadose monitoring is also needed to assess the ability of the facility cover element of the corrective action to prevent infiltration into the subsurface.

b. Within 240 days of the effective date of this Permit Modification, the owner or operator shall submit to the Department a Corrective Action Vadose Zone Monitoring ("CAVZM") Plan for the Facility. The purpose of the CAVZM Plan is to fully describe the corrective action vadose monitoring program. Vadose zone monitoring is required for, at a minimum, all active sumps, all active clarifiers, Pond 1, Pond 2, filter press, the sewer outlet connection area, and any other subsurface units that are designed to accumulate rainfall.

c. The CAVZM Plan shall, at a minimum, include the following information:

i. Purpose of plan;

ii. Conceptual design of proposed vadose zone monitoring system including rationale for selection of monitoring points;

iii. Schematic diagrams for key components;

iv. An appropriately scaled facility map showing monitoring locations;

v. A description of the wastes generated by the installation and operation of the vadose zone monitoring system and how they will be managed;

vi. Project management (e.g., management approach levels of authority and responsibility, lines of communication and the qualifications of key personnel who will direct vadose zone monitoring program (including contractor personnel);

vii. Construction schedule;

viii. A listing and description of the permits needed to construct and operate the vadose zone monitoring system. Indicate on the project schedule when the permit applications will be submitted to the applicable agencies and an estimate of the permit issuance date;

ix. Data quality objectives for sampling;

x. Description of monitoring tasks;

xi. List of monitoring parameters;

xii. Rationale for selection of monitoring parameters;

xiii. Description and listing of monitoring points to be sampled;

xiv. Appropriately scaled map showing monitoring locations:

xv. Monitoring and reporting schedule;

xvi. Analytical test methods and detection limits;

xvii. Name of analytical laboratory;

xviii. Laboratory quality control (include laboratory QA/QC procedures in appendices);

xix. Sample collection procedures and equipment;

xx. Field quality control procedures:

- duplicates (10% of all field samples)
- blanks (field, equipment, etc.)
- equipment calibration and maintenance
- equipment decontamination
- sample containers
- sample preservation
- sample holding times (must be specified)
- sample packaging and shipment
- sample documentation (field notebooks, sample labeling, etc);

xxi. Criteria for data acceptance and rejection; and

xxii. Description of data evaluation procedures including any proposed statistical methods;

xxiii. Contingencies for further action if leakage is detected. The CAVZM Plan shall, at a minimum, specify that if the owner or operator detects contaminant migration from any vadose monitoring point, the owner or operator shall:

(1) Confirm the release and comply with Section V.L.1. of this Part of the Permit (response to leaks or spills).

(2) Take samples of released liquid and/or soils for laboratory analysis as needed to determine the nature and extent of the release. Samples shall be analyzed

for constituents that would likely be found in the waste management units near the point of release. These constituents could include metals such as hexavalent chromium, volatile organic compounds (SW846 Method 8240), semi-volatile compounds (SW846 Method 8270), total petroleum hydrocarbons (diesel and gasoline), pH, chlorides, and sulfates;

(3) Notify the Department of the situation orally within 72 hours of discovery and in writing within 7 days of discovery; and

(4) Submit a report to the Department within 30 days of discovery summarizing any findings including the nature and extent of the release, actual or potential threats to human health and/or the environment, and any actions that have been taken or are planned to address the release.

d. The CAVZM Plan shall be consistent with all Department and U.S. EPA guidance for vadose zone monitoring.

e. The owner or operator shall implement the CAVZM Plan upon receiving written approval from the Department. Vadose zone monitoring shall continue until the owner or operator receives written notification from the Department to stop.

10. Surface Water Monitoring

The October 15, 1992 Amended General Industrial Activities Storm Water ("AGIASW") Permit is incorporated as a condition of this Permit in accordance with the requirements of Section 25204.5 of the California Health and Safety Code. The AGIASW Permit is provided in Attachment 8 to this Part of the Permit. The Department will first look to the Los Angeles Regional Water Quality Control Board to enforce and implement the AGIASW Permit.

11. Modification of Facility Closure Plan

a. The April 1990 Closure Plan, which is referenced in this Permit, describes the process for closing the facility after industrial operations have stopped. Within 360 days of the effective date of this Permit Modification, the owner or operator shall submit a revised facility closure plan to

the Department for review and comment. The owner or operator must revise the April 1990 Closure Plan to be consistent with the corrective action requirements contained in this Part of the Permit. At a minimum, the revised plan must provide for the closure of all permitted hazardous waste management units at the facility as required in applicable California regulations and specify that (1) the facility will be fully paved after final closure and (2) the final site cover shall be constructed to prevent accumulation of water on-site and infiltration into subsurface soils.

b. The owner or operator shall initiate a permit modification to incorporate the revised facility closure plan into this Permit. To make such a modification, the owner or operator must use the procedures for a Class 1 permit modification with prior agency approval in accordance with 22 CCR §66270.42.

12. Financial Assurance for Corrective Action

a. Section 25200.10 of the H&SC requires that permits include financial assurance for Corrective Action. Within 360 days of the effective date of this Permit Modification, the owner or operator shall submit a Corrective Action Financial Assurance ("CAFA") Plan to the Department. The CAFA Plan shall, at a minimum, specify how the owner or operator will provide financial assurance for the operation and maintenance of the ground water remediation system, soil bioventing system, soil vapor extraction system (if required), containment system (site cover and sumps) and for all monitoring activities required by this Part of the Permit.

b. The FA plan shall, at a minimum, contain a cost estimate for operation and maintenance of each system discussed above including the assumptions used to make the cost estimate, specify which financial mechanism will be used and when the mechanism will be established. The financial assurance mechanism may include a performance or surety bond, a trust fund, a letter of credit, financial test and corporate guarantee equivalent to that in 22 CCR §66265.143 or any other mechanism acceptable to the Department.

c. The owner or operator shall implement the FA plan upon receiving written approval from the Department.

13. Potential or Immediate Threats/Newly Identified Releases/Newly Identified SWMU'S

a. In the event the owner or operator identifies an immediate or potential threat to human health and/or the environment, discovers new releases of hazardous waste and/or hazardous constituents, or discovers new SWMU's not previously identified, the owner or operator shall notify the Department orally within 72 hours of discovery and notify in writing within 7 days of such discovery summarizing the findings including the immediacy and magnitude of any potential threat(s) to human health and/or the environment. Remobilization of existing soil contamination shall be considered a new release.

b. The Department may require the owner or operator to investigate, mitigate and/or take other appropriate action to address any immediate or potential threats to human health and/or the environment, newly identified releases of hazardous waste and/or hazardous constituents, or newly identified SWMU's. Upon written request by the Department, the owner or operator shall submit to the Department any required documents which may include, but are not limited to, Interim Measure and/or RCRA Facility Investigation Workplans. The required documents shall be developed in a manner consistent with the applicable Scope of Work appended to this Permit Modification or with other guidance to be provided by the Department. The Department will review the required documents and notify the owner or operator in writing of the Department's approval or disapproval, including any comments and/or modifications, in accordance with the Agency Approval/Reporting/ Proposed Contractor/Additional Work section of this Part of the Permit. Upon approval of a workplan, the owner or operator shall implement it in accordance with the provisions and schedule contained therein. If the Department determines that immediate action is required, the Department's Project Coordinator may orally authorize the owner or operator to act prior to the Department's receipt or approval of any required workplans.

F. AGENCY APPROVAL/REPORTING/PROPOSED CONTRACTOR/ADDITIONAL WORK

1. Agency Approvals

a. The Department will provide the owner or operator with its written approval, approval with

conditions or modifications, disapproval, or disapproval with comments for any plan, workplan, report (except progress reports), specification or schedule submitted pursuant to or required by this Part of the Permit. The Department will provide the owner or operator with reasons which detail why the Department has approved, with conditions or modifications, any document required under this Part of the Permit.

b. The owner or operator shall revise any plan, workplan, report, specification or schedule in accordance with the Department's written comments. The owner or operator shall submit to the Department any revised submittals in accordance with a due date specified by the Department. Revised submittals are subject to the Department approval or disapproval, with comments or modification.

c. Upon receipt of the Department's written approval, the owner or operator shall commence work and implement any approved plan or workplan in accordance with the schedule and provisions contained therein.

d. Any Department approved plan, workplan, report, specification, or schedule, shall be deemed incorporated into this Permit. Any non-compliance with such approved workplans, reports, specifications or schedules shall be considered non-compliance with this Permit. Prior to this written approval, no plan, workplan, report, specification or schedule shall be construed as approved and final. Verbal advice, suggestions, or comments given by the Department representatives will not constitute an official approval, nor shall any verbal approval or verbal assurance be considered binding.

2. Reporting

a. Beginning with the first full month following the effective date of this Permit Modification, until suspended by the Department in writing, the owner or operator shall provide the Department with signed bi-monthly progress reports of all corrective action activities conducted and to be conducted pursuant to this Part of the Permit. The owner or operator shall submit progress reports to the Department by the tenth day of the month following each bi-monthly period. The progress reports shall conform to the requirements contained in Attachment 1 to this Part of the Permit. At the discretion of the Department, the

frequency of progress reporting may be adjusted to be consistent with site-specific activities.

b. Any reports, documents or other information submitted to the Department by the owner or operator pursuant to this Part of the Permit shall be signed and certified by a responsible corporate officer of the owner or operator or a duly authorized representative in accordance with 22 CCR §66270.11. In addition, any technical reports shall be certified by an independent California registered civil engineer, geologist or engineering geologist.

c. Three copies of all documents, including but not limited to, workplan(s), reports, and other correspondence to be submitted pursuant to this Part of the Permit shall be hand delivered, sent by certified mail, return receipt requested, or by overnight express mail to the Department Project Coordinator or to other addressees she/he designates. Submittals specifically exempted from the copy requirement outlined above are all progress reports, and any other correspondence of less than 15 pages, of which one copy is required. All submittals required by this Permit shall be printed on recycled paper and shall be copied double-sided whenever practicable.

d. Unless otherwise specified, all reports, correspondence, approvals, disapprovals, notices or other submissions relating to or required under this Part of the Permit shall be in writing and shall be sent to the respective Project Coordinators.

e. The owner or operator shall, unless otherwise specified by the Department, send one copy of all correspondence, findings, notifications, proposals, reports, or plans required by this Part of the Permit to each of the following persons at the same time as it is submitted to the Department:

Executive Officer
Los Angeles Regional Water Quality Control Board
101 Centre Plaza Drive
Monterey Park, California 91754

3. **Proposed Contractor/Consultant**

a. All work performed pursuant to this Part of the Permit shall be under the direction and supervision of a California registered professional civil engineer, hydrologist, or

geologist with expertise in hazardous waste site cleanup. The owner or operator's contractor or consultant shall have the technical expertise sufficient to adequately perform all aspects of the work for which they are responsible.

b. Within 14 days of the effective date of this Permit Modification, the owner or operator shall notify the Department Project Coordinator in writing of the name, title, and qualifications of the engineer, hydrologist, or geologist, and of any contractors or consultants and their personnel to be used in carrying out this Part of the Permit.

4. Additional Work

a. The Department may determine or the owner or operator may propose that certain tasks, including investigatory work, remedial action, engineering evaluation, or procedure/methodology modifications are necessary in addition to, or in lieu of, the tasks and deliverables included in any workplan or plan approved by the Department.

b. The Department shall request in writing that the owner or operator perform the additional work and will specify the basis and reasons for the Department's determination that the additional work is necessary.

c. Within 14 days after the receipt of such determination, the owner or operator shall have the opportunity to meet or confer with the Department to discuss the additional work which the Department has requested.

d. If required by the Department, the owner or operator shall submit a workplan to the Department for the additional work. Such workplan shall be submitted to the Department according to a schedule established by the Department. Upon approval of a workplan, the owner or operator shall implement it in accordance with the provisions and schedule contained therein.

G. QUALITY ASSURANCE

1. Workplans shall contain quality assurance/quality control and chain of custody procedures for all sampling, monitoring and analytical activities.

2. The name(s), addresses and telephone numbers of the analytical laboratories the owner or operator proposes to use must be specified in the applicable workplan(s).

3. All workplans required under this Part of the Permit shall include data quality objectives for each data collection activity to ensure that data of known and appropriate quality are obtained and that data are sufficient to support their intended use(s).

4. The owner or operator shall ensure that data of appropriate quality are obtained by its consultant or contract laboratories. The owner or operator shall ensure that laboratories used by the owner or operator have in place a quality assurance program plan and perform analyses according to the latest approved edition of "Test Methods for Evaluating Solid Waste, (SW-846)", or other methods deemed satisfactory by the Department. If methods other than standard methods are to be used, the owner or operator shall specify all such methods in the applicable workplan. The Department may reject any data that does not meet the requirements of the approved workplan or the analytical methods, and may require resampling and analysis.

5. The Department may conduct a performance and quality assurance/quality control audit of the laboratories chosen by the owner or operator before, during or after sample analyses. Upon request by the Department, the owner or operator shall have its selected laboratory perform analyses of samples provided by the Department to demonstrate laboratory performance. If the audit reveals deficiencies in a laboratory's performance or quality assurance/quality control, resampling and analysis may be required.

H. SAMPLING/ACCESS

1. Sampling

The owner or operator shall notify the Department in writing at least 14 days prior to beginning each separate phase of field work approved under any workplan required by this Part of the Permit. If the owner or operator believes it must commence emergency field activities without delay, the owner or operator may seek emergency telephone authorization from the Department Project Coordinator or if the Project Coordinator is unavailable, his/her immediate supervisor, to commence such activities immediately. At the request of the Department, the owner or operator shall provide or allow the Department or its authorized representative to take split or duplicate samples of all samples collected by the owner or operator pursuant to this Part of the Permit.

2. Access

a. The Department, its contractors, employees, and/or any U.S. EPA representatives are authorized to enter and freely move about the Facility pursuant to this Part of the Permit for the purposes of: interviewing Facility personnel and contractors; inspecting records, operating logs, and contracts required under this Part of the Permit; reviewing the progress of the owner or operator in carrying out the terms of this Part of the Permit; conducting such tests, sampling or monitoring as the Department or its Project Coordinator deem necessary; using a camera, sound recording, or other documentary type equipment; and verifying the reports and data submitted to the Department by the owner or operator. The owner or operator shall provide the Department and its representatives access at all reasonable times to the Facility and any other property to which access is required for implementation of this Part of the Permit and shall permit such persons to inspect and copy all records, files, photographs, documents, including all sampling and monitoring data, that pertain to work undertaken pursuant to this Part of the Permit.

b. To the extent that work being performed pursuant to this Part of the Permit must be done on property not owned or controlled by the owner or operator, the owner or operator shall use its best efforts to obtain access agreements necessary to complete work required by this Part of the Permit from the present owner(s) of such property within 30 days of approval of any workplan for which access is required. Best efforts as used in this paragraph shall include, at a minimum, a certified letter from the owner or operator to the present owner(s) of such property requesting access agreement(s) to allow the owner or operator and the Department and its authorized representatives access to such property and the payment of reasonable sums of money in consideration of granting access. The owner or operator shall provide the Department Project Coordinator with a copy of any access agreement(s). In the event that agreements for access are not obtained within 30 days of approval of any workplan for which access is required, or of the date that the need for access became known to the owner or operator, the owner or operator shall notify the Department in writing within 14 days thereafter regarding both the efforts undertaken to obtain access and its failure to obtain such agreements. In the event the Department obtains access, the owner or operator shall undertake approved work on such property.

c. Nothing in this Part of the Permit shall be construed to limit or otherwise affect the owner or operator's liability and obligation to perform corrective action including corrective action beyond the facility boundary, notwithstanding the lack of access. The Department may determine that additional on-site measures must be taken to address releases beyond the Facility boundary if access to off-site areas cannot be obtained.

I. RECORD PRESERVATION

1. The owner or operator shall retain, during the term of this Permit and any reissued permits, all data, records and documents gathered or generated during any corrective action activities including those required under the December 1988 Administrative Order on Consent (Docket No. RCRA-09-89-0001) and those undertaken pursuant to this Part of the Permit. All such documents shall be stored in a centralized location at the Facility (or other location approved by the Department) and be made available to the Department, U.S. EPA or their representatives upon request. The owner or operator shall notify the Department in writing at least 90 days prior to final expiration of this Permit, and shall provide the Department with the opportunity to take possession of any such records. Such written notification shall reference this Permit (including expiration date) and shall be addressed to the Department Project Coordinator.

2. The owner or operator shall obtain copies of all data, records and documents gathered or generated by any agent, consultant, or contractor employed by the owner or operator to carry out the terms of this Part of the Permit.

J. DISPUTE RESOLUTION

1. The Department and the owner or operator shall use their best efforts to informally and in good faith resolve all disputes or differences of opinion.

2. If the owner or operator disagrees, in whole or in part, with any written decision by the Department relating to the Department modification of interim deliverables submitted by the owner or operator or to additional work required by the Department pursuant to this Part of the Permit, the owner or operator's Project Coordinator shall orally notify the Department Project Coordinator of the dispute. The Project Coordinators shall attempt to resolve the dispute informally.

3. If the Project Coordinators cannot resolve the dispute informally, the owner or operator may pursue the matter formally by placing its objections in writing. The owner or operator's written objections must be directed to Chief, Facility Management Branch, California EPA, Department of Toxic Substances Control, Region 3, with a copy to the Department Project Coordinator, within 14 days of the owner or operator's receipt of the Department decision. The owner or operator's written objection must set forth the specific points of the dispute and the basis for the owner or operator's position.

4. The Department and the owner or operator shall have 14 days from the Department's receipt of the owner or operator's written objections to attempt to resolve the dispute through formal discussions. This time period may be extended by the Department for good cause. During such time period, the owner or operator will have an opportunity to meet or confer with the Department to discuss the dispute and the owner or operator's objections.

5. After the formal discussion period, the Chief, Facility Management Branch, California EPA, Department of Toxic Substances Control, Region 3., will provide the owner or operator with his/her written decision on the dispute. The written decision will reflect any agreements reached during the formal discussion period, state the reasons for the Chief's decision, and respond to the arguments presented by the owner or operator in objecting to the Department action. The decision shall be incorporated into and become an enforceable part of this Permit. The decision is not subject to further dispute resolution under Section V.J. of this Part of the Permit.

6. If the owner or operator fails to follow any of the requirements contained in this Part of the Permit then it shall have waived its right to further consideration of the disputed issue.

7. Notwithstanding the invocation of this dispute resolution procedure, the owner or operator shall proceed, at the direction of the Department, to take any action required by those portions of an approved workplan and of this Part of the Permit that the Department determines are not substantially affected by the dispute.

K. MODIFICATION

Any requests for a compliance date modification or revision of an approved workplan (or plan) requirement must be in writing. Such requests must be timely and provide

justification for any proposed compliance date modification or workplan revision. The Department has no obligation to approve such requests, but if it does so, such approval will be in writing and signed by the Chief, Facility Management Branch, California EPA, Department of Toxic Substances Control, Region 3. Any approved compliance date or workplan modification shall be incorporated by reference into this Permit and become an enforceable part of this Permit.

L. SPECIAL CONDITIONS

1. Response to Leaks or Spills

a. In the event of leaks or spills from any of the waste management units such as a tank system, secondary containment system, sump system, subsurface piping, or if any system becomes unfit for continued use, the owner or operator shall remove that system from service immediately and comply with the applicable requirements of 22 CCR 66264.196(b)(1) through (7).

b. If a waste management unit has been extensively repaired, the owner or operator shall submit to the Department certification of major repairs as specified in 22 CCR 66264.196(b)(7) within seven (7) days after returning the system to use.

c. Spilled or leaked waste and accumulated precipitation must be removed from any and all trench, sump or collection area within twenty-four (24) hours after its discovery.

d. The collected material from a leak, a spill or accumulated precipitation at any solid waste management unit or its containment system shall be managed as hazardous waste unless the owner or operator has established in accordance with the requirements of 22 CCR 66261.3(d) that the collected material is not a hazardous waste. The owner or operator shall comply with the applicable requirements of 22 CCR 66261.4(c), 66264.175(b)(5), 66264.178 and 66264.193(c)(4) concerning the collected material.

2. New Waste System Requirements

a. If the owner or operator wishes to construct any new waste management units which require pavement removal, soil excavation or that manage liquids, other than those required by this Part of the Permit, the owner or operator shall notify the Department in writing at least 30 days prior to the planned start of construction. Waste management

units include, but are not limited to, tanks, sumps, drum storage areas, etc. The notification shall, at a minimum, include the following information:

i. Purpose of proposal;

ii. Description of proposed project;

iii. Appropriately scaled facility map showing location of the proposed new construction;

iv. Summary of existing soil contamination in construction area;

v. Condition of paving in proposed construction area;

vi. Approximate volume of soil to be excavated;

vii. Measures that will be taken to prevent infiltration into subsurface soils and to meet applicable requirements for containing releases from new hazardous waste management units;

viii. Project schedule;

ix. A description of the wastes generated by the construction and how they will be managed; and

x. Project management (e.g., management approach, levels of authority and responsibility, lines of communication and the qualifications of key personnel who will direct the project (including contractor personnel).

b. The owner or operator shall obtain and keep on file at the Facility a written certification of construction by those persons required to certify the design of any new waste management systems. The certification shall include all as-built design drawings and installation activity reports on the preparation of the foundations, installations, pipe fitting, backfill and compaction of earth, grading, off-site disposal and operation testing.

M. FACILITY SUBMITTAL SUMMARY

Below is a summary of the major reporting requirements contained in this Part of the Permit. The summary is provided as a general guide and thus does not contain all requirements. Please refer to the specific language of this Part of the Permit to fully determine all requirements.

Facility Submission Requirements	Due Date
Designate Project Coordinator and Notify Department in Writing	14 days from effective date of Permit Modification
Notify Department in Writing of Contractors to Carry Out Terms of Corrective Action.	14 days from effective date of Permit Modification
Submit first Progress Report	10th day of month following the effective date of the Permit Modification
Submit Progress Reports	Bimonthly
Record Deed Restriction Notice	14 days from effective date of Permit Modification
Submit Corrective Action Ground Water Remediation Workplan	60 days from effective date of Permit Modification
Submit Corrective Action Ground Water Monitoring Plan	60 days from effective date of Permit Modification
Submit Corrective Action Soil Vapor Survey Workplan	120 days from effective date of Permit Modification
Submit Corrective Action Bioventing Conceptual Design Plan	120 days from effective date of Permit Modification
Submit Corrective Action Containment System Report	180 days from effective date of Permit Modification
Submit Pond 1 Closure Status Report	180 days from effective date of Permit Modification

Submit Corrective Action Vadose Zone Monitoring Plan	240	days from effective date of Permit Modification
Submit Corrective Action Site Cover Operation, Maintenance and Inspection Plan	240	days from effective date of Permit Modification
Submit Corrective Action Surface Water Sampling Plan	300	days from effective date of Permit Modification
Submit revised Facility Closure Plan	360	days from effective date of Permit Modification
Submit Corrective Action Financial Assurance Plan	360	days from effective date of Permit Modification
Verbal Notification of immediate or potential threats to human health or environment, newly identified releases or newly-discovered SWMU's	72	hours after discovery
Written Notification of immediate or potential threats to human health or environment, newly identified releases or newly-discovered SWMU's	10	days after discovery

N. DEFINITIONS

The following definitions shall apply to this Part of the Permit:

"Aromatic VOC's or Aromatic Volatile Organic Compounds" include, but are not limited to, benzene, toluene, ethylbenzene and xylenes.

"Bioventing" means the introduction of air and nutrients into subsurface soils to promote biological growth and hydrocarbon degradation. This is usually accomplished by installing wells into the vadose zone and pumping air into the subsurface.

"BTEX" is an abbreviation for the compounds benzene, toluene, ethylbenzene and xylene.

"Corrective Action" means those actions taken to investigate and clean-up contaminant releases from hazardous waste treatment, storage, and disposal facilities.

"Corrective Measures Study" or "CMS" means a study conducted by the facility owner or operator to identify and evaluate alternative remedies to address contaminant releases at a site.

"Days" means calendar days unless otherwise specified.

"Department" or "the Department" means the California Environmental Protection Agency, Department of Toxic Substances Control, Region 3.

"U.S. EPA" means the U.S. Environmental Protection Agency, Region 9.

"Facility" means all contiguous property under the control of the owner or operator seeking a permit under Section 25200.10 of the Health and Safety Code.

"Halogenated VOC's or Halogenated Volatile Organic Compounds" include, but are not limited to, the following compounds: Tetrachloroethene (PCE), Trichloroethene (TCE), 1,1-Dichloroethene (1,1-DCE), 1,1-Dichloroethane (1,1-DCA), 1,2- Dichloroethane (1,2-DCA), trans-1,2-Dichloroethene (1,2-DCE), Carbon Tetra Chloride, 1,1,1-Trichloroethane

(1,1,1- TCA), Chloroform and Methylene Chloride.

"Hazardous constituent" means any constituent identified in Appendix VIII of 22 CCR 66261, or any constituent identified in Appendix IX of 22 CCR 66264.

"Hazardous waste" means a hazardous waste as defined in 22 CCR §66261.3. Hazardous waste includes extremely hazardous waste, acutely hazardous waste, RCRA hazardous waste, non-RCRA hazardous waste, and special waste.

"In-situ treatment" means treatment of contamination in - place.

"Maximum Contaminant Level" or "MCL" means the maximum permissible level of a contaminant in water delivered to any user of a public water system. MCL's are enforceable standards.

"RCRA Facility Assessment" or "RFA" means a detailed regulatory agency review of records and information on the facility to identify and characterize all solid waste management units at the site; this includes a site inspection to examine all parts of the facility and identify areas of potential contamination.

"RCRA Facility Investigation" or "RFI" means an in-depth study conducted by the facility owner or operator to: determine the nature and extent of contamination at a RCRA treatment, storage, or disposal facility; identify preliminary alternatives for cleaning up the site; and support the technical and cost evaluation of cleanup alternatives.

"Release" means any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous wastes (including hazardous constituents) into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing hazardous wastes or hazardous constituents).

"Resource Conservation and Recovery Act" or "RCRA" means a federal law that established a regulatory system to track hazardous waste from the time of generation to disposal. The law requires facilities to obtain a permit if they treat, store or dispose of hazardous waste. RCRA is designed to prevent new, uncontrolled hazardous waste sites.

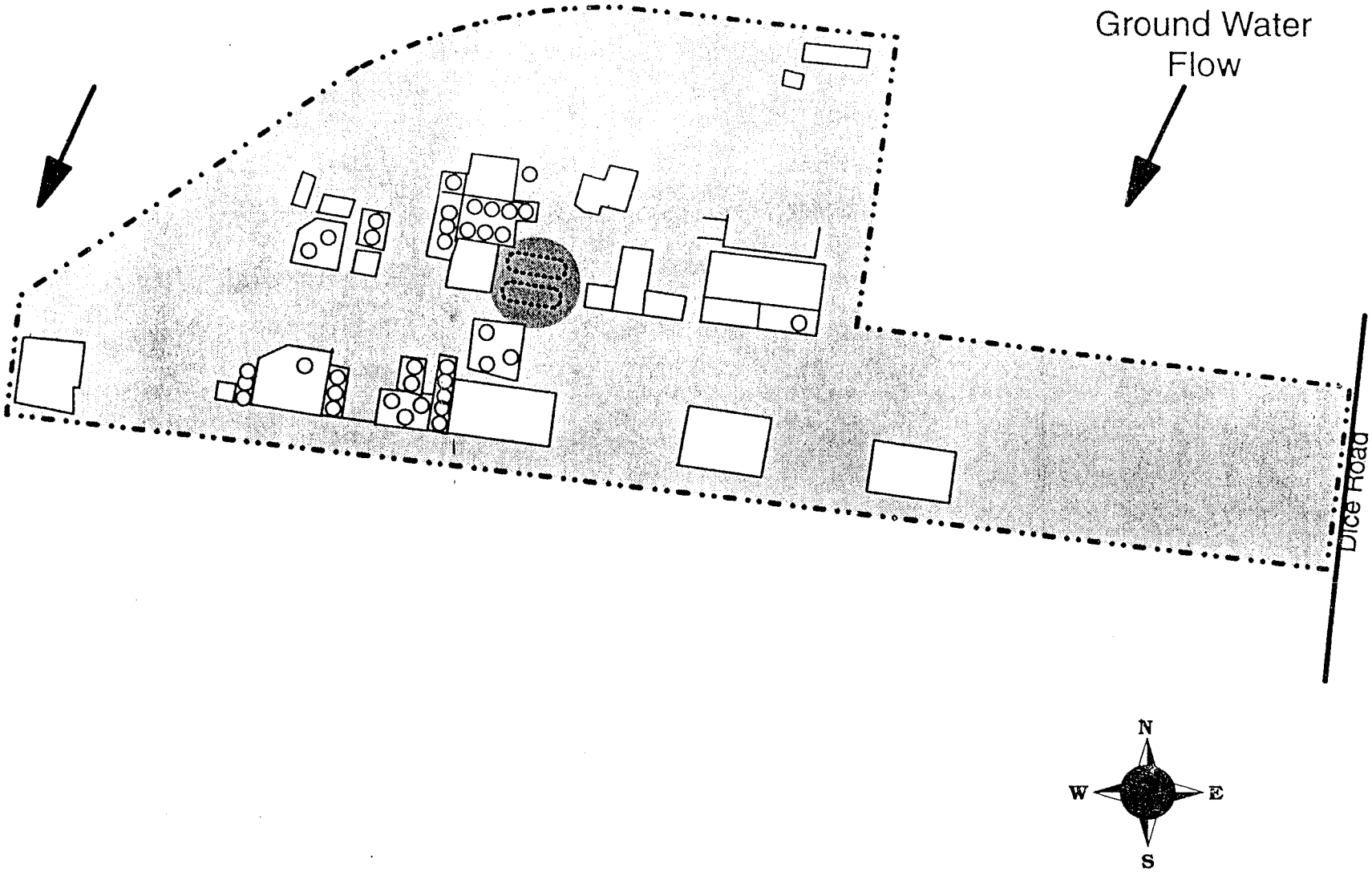
"Solid Waste Management Unit" or "SWMU" means any discernible unit at a facility in which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released.

"Vadose Zone" means the unsaturated region between the land surface and the ground water table.

Figure 1

Underground Storage Tank Remediation Area

Phibro-Tech, Inc., Santa Fe Springs, California

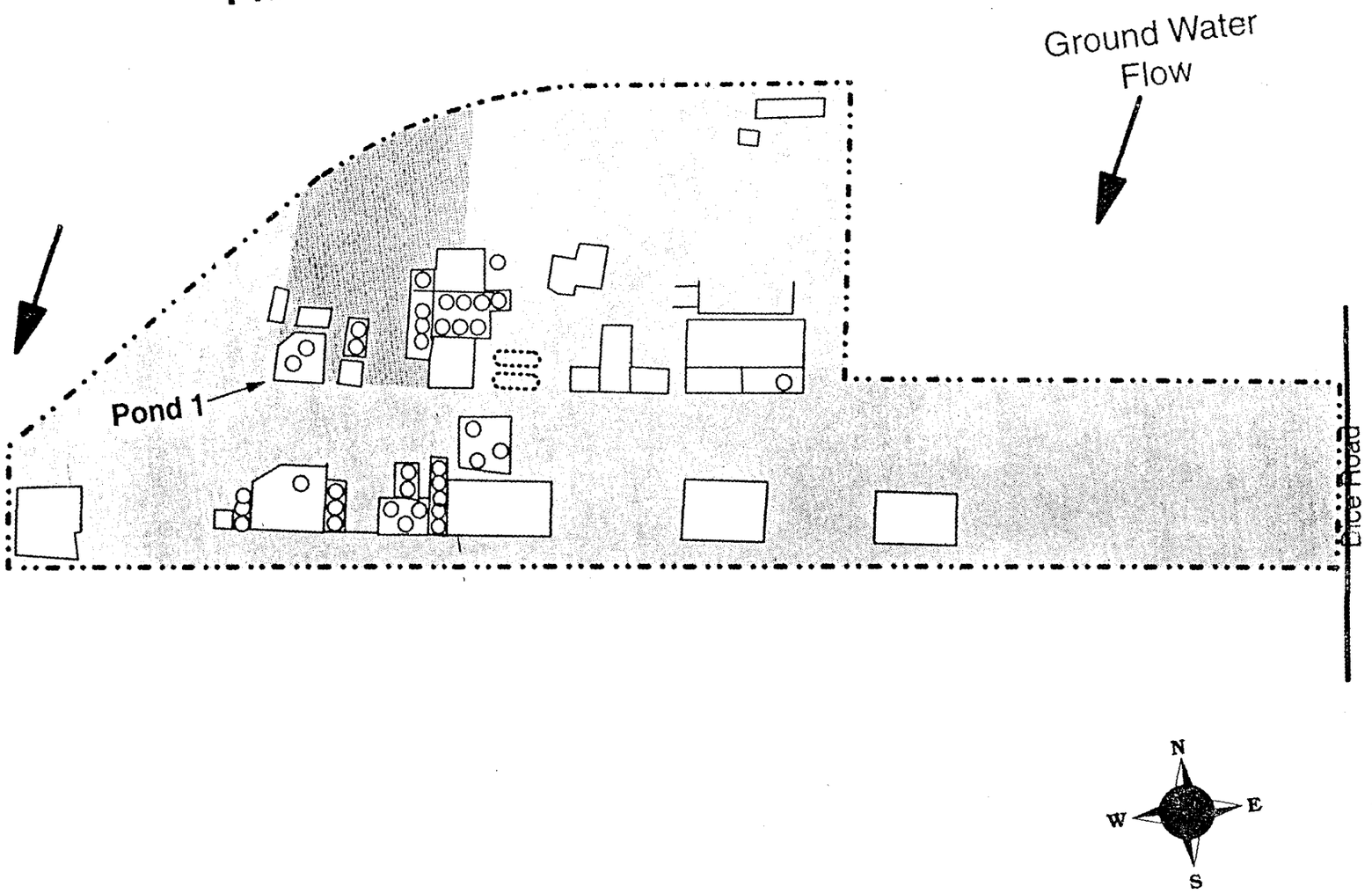


Not to scale.

Figure 2

Halogenated VOC Remediation Area

Phibro-Tech, Inc., Santa Fe Springs, California



Not to scale.

Figure 1

SITE LOCATION OF SOUTHERN CALIFORNIA CHEMICAL CO.
SANTA FE SPRINGS FACILITY

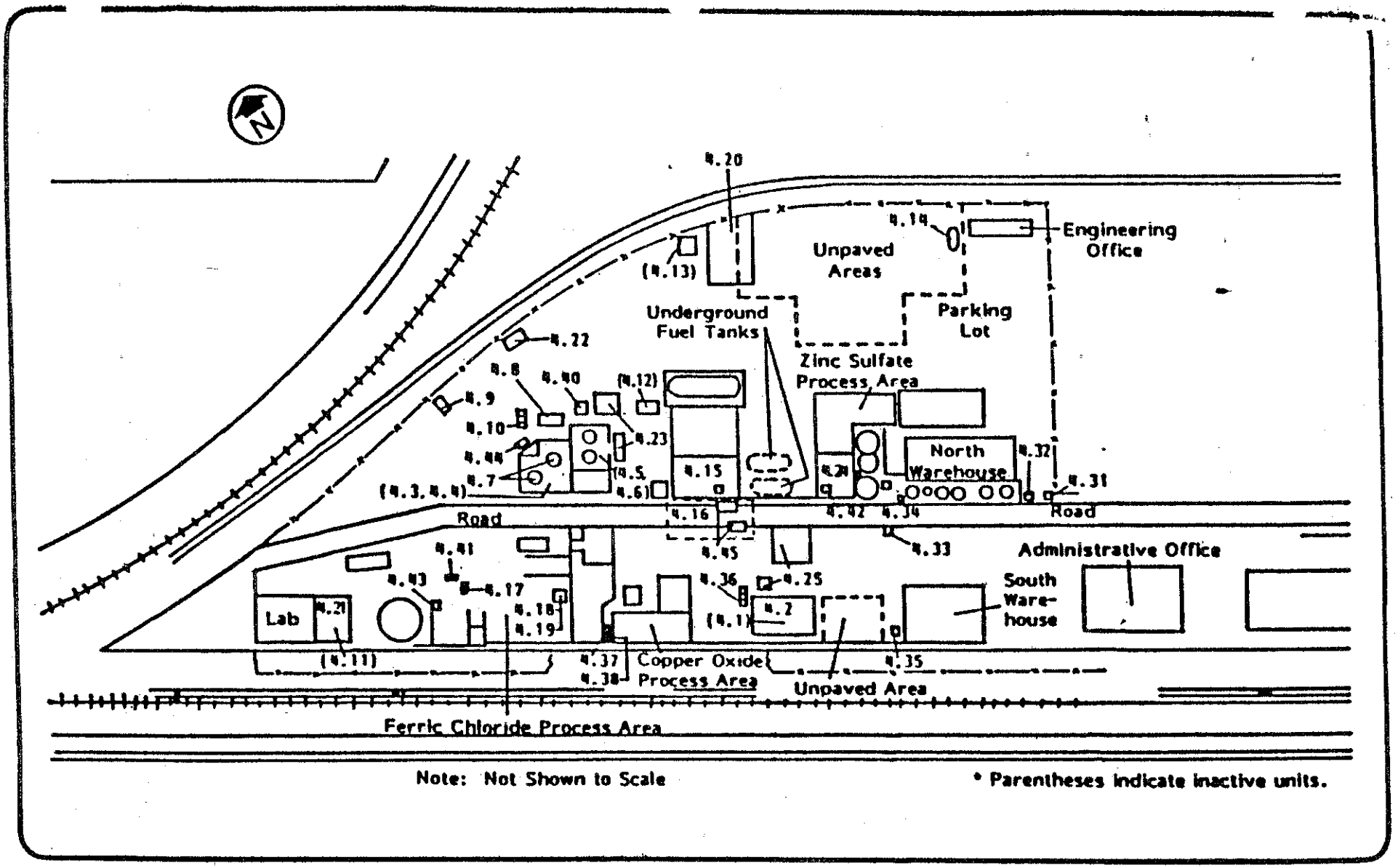


Figure 2

LOCATION OF SOLID WASTE MANAGEMENT UNITS AT SOUTHERN CALIFORNIA CHEMICAL

ATTACHMENTS

ATTACHMENT 1

SCOPE OF WORK FOR PROGRESS REPORTS

The owner or operator shall provide the Department with signed bimonthly progress reports during corrective measure design, construction, operation and maintenance. The Department may adjust the frequency of progress reporting to address site specific needs. For example, more frequent progress reports may be needed to track critical activities such as corrective measure construction and start-up. Progress reports must, at a minimum, include the following elements:

1. A description of significant activities and work completed during the reporting period;

2. Summary of system effectiveness. Provide a comparison of system operation to predicted performance levels (applicable only during operation of the corrective measure);

3. Summaries of all findings (including any inspection results);

4. Summaries of all contacts with representatives of the local community, public interest groups or State government during the reporting period;

5. Summaries of all problems or potential problems encountered during the reporting period;

6. Actions being taken and/or planned to rectify problems;

7. Changes in personnel during the reporting period;

8. Projected work for the next reporting period; and

9. If requested by the Department, the results of any sampling tests and/or other data generated during the reporting period.

ATTACHMENT 2

SCOPE OF WORK FOR GROUND WATER REMEDIATION WORKPLAN AND CONCEPTUAL DESIGN PLANS FOR BIOVENTING AND SOIL VAPOR EXTRACTION SYSTEMS

This Scope of Work (SOW) is intended to be a flexible document capable of addressing both simple and complex site situations. If the owner or operator can justify, to the satisfaction of the Department, that specific requirements are not needed given the site specific situation, then the Department may waive that requirement.

The Department may require the owner or operator to conduct additional studies beyond what is discussed in this SOW in order to further the corrective action process. The owner or operator will furnish all personnel, materials and services necessary to conduct the additional tasks.

SCOPE

The Ground Water Remediation Workplan, Soil Vapor Extraction Conceptual Design Plan and Bioventing Conceptual Design Plan shall clearly describe the size, shape, form, and content of the proposed corrective measure, the key components or elements that are needed, describe the designers vision of the corrective measure in the form of conceptual drawings and schematics, and include procedures and schedules for implementing the corrective measure(s).

The required documents shall, at a minimum, include the following elements:

1. Introduction/Purpose

   Describe the purpose of the document and provide a summary description of the project.

2 Cleanup Standards

   Discuss applicable media cleanup standards.

3. Conceptual Model of Contaminant Migration

   It is important to know where the contaminants are and to understand how they are moving before an adequate corrective measure can be developed. To address this critical question, the owner or operator must present a

conceptual model of the site and contaminant migration. The conceptual model consists of a working hypothesis of how the contaminants may move from the release source to the receptor population. The conceptual model is developed by looking at the applicable physical parameters (e.g., water solubility, density, Henry's Law Constant, etc.) for each contaminant and assessing how the contaminant may migrate given the existing site conditions (geologic features, depth to groundwater, etc.). Describe the phase (water, soil, gas, non-aqueous) and location where contaminants are likely to be found. This analysis may have already been done as part of earlier work (e.g., Current Conditions Report). If this is the case, then provide a summary of the conceptual model with a reference to the earlier document;

4. Description of Corrective Measures

Considering the conceptual model of contaminant migration, qualitatively describe what the corrective measure is supposed to do and how it will function at the Facility. Discuss the constructability of the corrective measure and its ability to meet the cleanup standards.

5. Data Sufficiency

Review existing data needed to support the design effort and establish whether or not there is sufficient accurate data available for this purpose. The owner or operator must summarize the assessment findings and specify any additional data needed to complete the corrective measure design. The Department may require or the owner or operator may propose that sampling and analysis plans and/or treatability study workplans be developed to obtain the additional data. Submittal times for any new sampling and analysis plans and/or treatability study workplans must be included in the project schedule.

6. Project Management

Describe the management approach including levels of authority and responsibility (include organization chart), lines of communication and the qualifications of key personnel who will direct the corrective measure design and implementation effort (including contractor personnel).

7. Project Schedule

The project schedule must specify the timing for all significant steps in the process including an estimate of when construction will start and stop.

8. Design Criteria

Specify performance requirements for the overall corrective measure and for each major component. The owner or operator must select equipment that meets the performance requirements

9. Design Basis

Discuss the process and methods for designing all major components of the corrective measure. Discuss the significant assumptions made and possible sources of error. Provide justification for the assumptions;

10. Conceptual Process/Schematic Diagrams.

11. Site plan showing preliminary plant layout and/or treatment area.

12. Tables listing number and type of major components with approximate dimensions.

13. Tables giving preliminary mass balances.

14. Site safety and security provisions (e.g., fences, fire control, etc.).

15. Waste Management Practices

Describe the wastes generated by the construction of the corrective measure and how they will be managed. Also discuss drainage and indicate how rainwater runoff will be managed;

16. Required Permits

List and describe the permits needed to construct and operate the corrective measure. Indicate on the project schedule when the permit applications will be submitted to the applicable agencies and an estimate of the permit issuance date.

17. Long-Lead Procurement Considerations

The owner or operator shall prepare a list of any elements or components of the corrective measure that will require custom fabrication or for some other reason must be considered as long-lead procurement items. The list must include the reason why the items are con- sidered long-lead items, the length of time necessary for procurement, and recognized sources of such procurement;

18. Appendices including:

Design Data - Tabulations of significant data used in the design effort;

Equations - List and describe the source of major equations used in the design process;

Sample Calculations - Present and explain one example calculation for significant or unique design calculations; and

Laboratory or Field Test Results.

ATTACHMENT 3

SCOPE OF WORK FOR CONSTRUCTION COMPLETION REPORTS

This Scope of Work (SOW) is intended to be a flexible document capable of addressing both simple and complex site situations. If the owner or operator can justify, to the satisfaction of the Department, that specific requirements are not needed given the site specific situation, then the Department may waive that requirement.

The Department may require the owner or operator to conduct additional studies beyond what is discussed in this SOW in order to further the corrective action process. The owner or operator will furnish all personnel, materials and services necessary to conduct the additional tasks.

SCOPE

The owner or operator shall prepare a Construction Completion (CC) Report which documents how the completed project is consistent with the conceptual design. A CC Report shall be submitted to the Department when the construction and any operational tests have been completed. The CC Report shall, at a minimum, include the following elements:

1. Purpose;

2. Synopsis of the corrective measure, design criteria, and certification that the corrective measure was constructed in accordance with the conceptual design;

3. Explanation and description of any significant deviations from the conceptual design and why these were necessary for the project;

4. Results of any operational testing and/or monitoring, indicating how initial operation of the corrective measure compares to the design criteria;

5. Summary of significant activities that occurred during construction. Include a discussion of problems encountered and how they were addressed;

6. Summary of any inspection findings (include copies of key inspection documents in appendices);

7. As built drawings; and

8. A schedule indicating when any treatment systems will begin full scale operations.

ATTACHMENT 4

SCOPE OF WORK FOR OPERATION AND MAINTENANCE PLANS

This Scope of Work (SOW) is intended to be a flexible document capable of addressing both simple and complex site situations. If the owner or operator can justify, to the satisfaction of the Department, that specific requirements are not needed given the site specific situation, then the Department may waive that requirement.

The Department may require the owner or operator to conduct additional studies beyond what is discussed in this SOW in order to further the corrective action process. The owner or operator will furnish all personnel, materials and services necessary to conduct the additional tasks.

SCOPE

Operation and Maintenance (O&M) Plans shall include a strategy and procedure for performing operations, long term maintenance, and monitoring of the corrective measure. The O&M plans shall, at a minimum, include the following elements:

1. Introduction/Purpose

   Describe the purpose of the document and provide a summary description of the project.

2. Project Management

   Describe the management approach including levels of authority and responsibility (include organization chart), lines of communication and the qualifications of key personnel who will operate and maintain the corrective measures (including contractor personnel);

3. System Description

   Describe the corrective measure and identify significant equipment.

4. Personnel Training

   Describe the training process for O&M personnel. The owner or operator shall prepare, and include in the technical specifications governing treatment systems, contractor requirements for providing: appropriate service visits by experienced personnel to supervise

the installation, adjustment, start up and operation of the treatment systems, and training covering appropriate operational procedures once the start-up has been successfully accomplished.

5. Start-Up Procedures

   Describe system start-up procedures including any operational testing.

6. Operation and Maintenance Procedures

   Describe normal operation and maintenance procedures including:

   a. Description of tasks for operation;
   b. Description of tasks for maintenance;
   c. Description of prescribed treatment or operation conditions; and
   d. Schedule showing frequency of each O&M task.

7. Replacement schedule for equipment and installed components.

8. Waste Management Practices

   Describe the wastes generated by operation of the corrective measure and how they will be managed. Also discuss drainage and indicate how rainwater runoff will be managed.

9. Sampling and monitoring activities may be needed for effective operation and maintenance of the corrective measure. If sampling activities are necessary, the O&M plan must include a complete sampling and analysis section which specifies the following information:

   a. Description and purpose of monitoring tasks;
   b. Data quality objectives;
   c. Analytical test methods and detection limits;
   d. Name of analytical laboratory;
   e. Laboratory quality control (include laboratory QA/QC procedures in appendices)
   f. Sample collection procedures and equipment;
   g. Field quality control procedures:
      * duplicates (10% of all field samples)
      * blanks (field, equipment, etc.)
      * equipment calibration and maintenance
      * equipment decontamination
      * sample containers
      * sample preservation

* sample holding times (must be specified)
* sample packaging and shipment
* sample documentation (field notebooks, sample labeling, etc);

h. Criteria for data acceptance and rejection; and
i. Schedule of monitoring frequency.

The owner or operator shall follow all Department guidance for sampling and analysis. The owner or operator may request that the sampling and analysis section be a separate document.

10. Corrective Measure Completion Criteria

Describe the process and criteria (e.g., cleanup standards met at all compliance points for 1 year) for determining when corrective measures may cease.

11. O&M Contingency Procedures:

a. Procedures to address system breakdowns and operational problems including a list of redundant and emergency back-up equipment and procedures;

b. Should the corrective measure suffer complete failure, specify alternate procedures to prevent release or threatened releases of hazardous substances, pollutants or contaminants which may endanger public health and/or the environment or exceed cleanup standards;

c. The O&M Plan must specify that, in the event of a major breakdown and/or complete failure of the corrective measure (includes emergency situations), the owner or operator will orally notify the Department within 24 hours of the event and will notify the Department in writing within 72 hours of the event. The written notification must, at a minimum, specify what happened, what response action is being taken and/or is planned, and any potential impacts on human health and/or the environment; and

d. Procedures to be implemented in the event that the corrective measure is experiencing major operational problems, is not performing to design specifications and/or will not achieve the cleanup goals in the expected timeframe. For example, in certain circumstances both a primary and secondary

corrective measure may be selected for the Facility. If the primary corrective measure were to fail, then the secondary would be implemented. This section would thus specify that if the primary corrective measure failed, then design plans would be developed for the secondary measure.

12. Data Management and Documentation Requirements

Describe how analytical data and results will be evaluated, documented and managed, including development of an analytical database. State the criteria that will be used by the project team to review and determine the quality of data.

The O&M Plan shall specify that the owner or operator will collect and maintain the following information:

a. Progress Report Information

* Work Accomplishments (e.g., performance levels achieved, hours of treatment operation, treated and/or excavated volumes, concentration of contaminants in treated and/or excavated volumes, nature and volume of wastes generated, etc.).

* Record of significant activities (e.g., sampling events, inspections, problems encountered, action taken to rectify problems, etc.).

b. Monitoring and laboratory data;
c. Records of operating costs; and
d. Personnel, maintenance and inspection records.

This data and information should be used to prepare Progress Reports and the Corrective Measure Completion Report.

ATTACHMENT 5

SCOPE OF WORK FOR CORRECTIVE MEASURE COMPLETION REPORTS

This Scope of Work (SOW) is intended to be a flexible document capable of addressing both simple and complex site situations. If the owner or operator can justify, to the satisfaction of the Department, that specific requirements are not needed given the site specific situation, then the Department may waive that requirement.

The Department may require the owner or operator to conduct additional studies beyond what is discussed in this SOW in order to further the corrective action process. The owner or operator will furnish all personnel, materials and services necessary to conduct the additional tasks.

SCOPE

The purpose of the CMC Report is to fully document how the corrective action objectives have been satisfied and to justify why the corrective measure and/or monitoring may cease. The CMC Report shall, at a minimum, include the following elements:

1. Purpose;

2. Synopsis of the corrective measure;

3. Corrective Measure Completion Criteria

   Describe the process and criteria for determining when corrective measures, maintenance and monitoring may cease. Corrective measure completion criteria were given in the Operation and Maintenance Plan;

4. Demonstration that the completion criteria have been met. Include results of testing and/or monitoring, indicating how operation of the corrective measure compares to the completion criteria;

5. Summary of work accomplishments (e.g., performance levels achieved, total hours of treatment operation, total treated and/or excavated volumes, nature and volume of wastes generated, etc.);

6. Summary of significant activities that occurred during operations. Include a discussion of problems encountered and how they were addressed;

7. Summary of inspection findings (include copies of key inspection documents in appendices); and

8. Summary of total operation and maintenance costs.

ATTACHMENT 5

Recording Requested By:

When Recorded, Mall Certified Copy To:

Jose Kou
California EPA
Department of Toxic Substances Control, Region 3
1011 N. Grandview Avenue
Glendale, California 91201

NOTICE
TO RESTRICT USE OF PROPERTY

This Notice is made on the _____ day of _____, 1994, by _____, who is the owner of record ("Owner") of certain property situated in the City of Santa Fe Springs, County of Los Angeles, State of California, described ln Exhibit "A" attached hereto and incorporated herein by this reference ("the Property"), with reference to the following facts:

A. This Property, as described in Exhibit "A", is the real property known as Phibro-Tech, Inc. (a.k.a. Southern California Chemical, a.k.a. Entech Recovery, Inc.) located at 8851 Dice Road, Santa Fe Springs, County of Los Angeles, California, contains hazardous substances.

B. The Property is located in an industrial area of the City of Santa Fe Springs and has been used for a railroad switching station, foundry casting facility and chemical manufacturing. Ground water in the present uppermost saturated zone beneath the Property, identified as the Hollydale Aquifer, contains elevated levels of: (1) heavy metals, including chromium and cadmium, (2) halogenated volatile organic compounds (VOCs), including trichloroethylene (TCE) and 1,2,-dichloroethane (1,2-DCA), (3) aromatic VOCs, including toluene, ethylbenzene and xylenes and (4) chlorides. The soils at the Property contain elevated levels of (1) heavy metals, including lead, cadmium, chromium, copper, and zinc, (2) halogenated VOC's, including TCE, 1,2-DCA and tetrachloroethene (PCE), (3) aromatic VOC's, including benzene, toluene, ethylbenzene and xylenes, (4) polychlorinated biphenyls (PCB's), (5) petroleum hydrocarbons, including diesel fuel, gasoline and an unidentified heavy hydrocarbon believed to be crude oil, and (6) chlorides. The contaminated soils extend throughout the Property and have been covered with paving.

C. The Owner desires and intends that in order to protect the present and future human health and environment, the Property shall be used in such a manner as to avoid potential harm to persons or property which may result from hazardous substances in the soil and ground water at the Property.

ARTICLE I

GENERAL PROVISIONS

1.01. Provisions to Run With the Land. This Notice sets forth protective provisions, restrictions, and conditions, (collectively referred to as "Restrictions"), upon and subject to which the Property and every portion thereof shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, or conveyed. Each and all of the Restrictions shall run with the land, and pass with each and every portion of the Property, and shall apply to and bind the respective successors in interest thereof. Each and all of the Restrictions are imposed upon the entire Property unless expressly stated as applicable to a specific portion of the Property. Each and all of the Restrictions are imposed pursuant to Section 25202.5(a)(2) of the Health and Safety Code. Each and all of the Restrictions are enforceable by the California EPA, Department of Toxic Substances Control and any and all successor agencies, if any, to the Department of Toxic Substances Control.

1.02 Concurrence of Owners Presumed. All purchasers, lessees, or possessors of any portion of the Property shall be deemed by their purchase, leasing, or possession of such Property, to be in accord with the foregoing and to agree for and among themselves, their heirs, successors, and assignees, and the agents, employees, and lessees of such owners, heirs, successors, and assignees, that the Restrictions as herein established must be adhered to for the benefit of future Owners and Occupants and that their interest in the Property shall be subject to the Restrictions contained herein.

1.03 Incorporation Into Deeds and Leases. Owner desires and covenants that the Restrictions set out herein shall be incorporated by reference in each and all deeds and leases of any portion of the Property.

ARTICLE II

DEFINITIONS

2.01 Department. "Department" shall mean the California Environmental Protection Agency, Department of Toxic Substances Control and shall include its successor agencies, if any.

2.02 Improvements. "Improvements" shall mean construction of any buildings, foundations, roads, driveways, tanks, or paved parking areas upon any portion of the Property.

2.03 Occupants. "Occupants" shall mean those persons entitled by ownership, leasehold, or other legal relationship to the exclusive right to occupy any portion of the Property.

2.04 Owner. "Owner" shall mean the owner or its successors in interest, including heirs, and assigns, who hold title to all or any portion of the Property.

ARTICLE III

DEVELOPMENT, USE, AND CONVEYANCE OF THE PROPERTY

3.01 Restrictions on Use. The Owner will restrict the use of the Property as follows:

A. The Property at 8851 Dice Road shall not be used for residences, hospitals, schools, day-care centers, parks, playgrounds and any permanently occupied human habitation, including but not limited to, hotels or motels which could be used as a residence for employees, unless the Owner can adequately demonstrate that such use will not endanger human health or the environment. The Owner must receive written permission from the Department, City of Santa Fe Springs Planning Department and the Los Angeles County Health Department prior to using any portion of the Property for any of the uses described in this paragraph.

B. No domestic use of the shallow ground water (Hollydale Aquifer) beneath the Property shall be allowed, unless the Owner can adequately demonstrate that the ground water meets applicable drinking water standards. The Owner must receive written permission from the Department, City of Santa Fe Springs Planning Department and Los Angeles County Health Department prior to using water from the Hollydale Aquifer (50 to 120 feet deep) for domestic purposes.

C. The Property shall remain fully paved for any commercial or industrial use, unless the Owner can adequately demonstrate to the Department that disturbance of the paving will not result in the creation of an unacceptable risk to human health or the environment, or is necessary to reduce an imminent threat to human health or the environment. The Owner shall notify the Department in writing at least 21 calendar-days prior to removing any part of the site cover pavement. The Owner must receive written permission from the Department prior to removing any pavement in

an area to be left unpaved for more than a three month period. The Owner shall provide a temporary cover for any area where the pavement has been removed and that will remain uncovered for greater than 14 calendar days or if a rainstorm threatens to cause infiltration into or run-off from the unpaved area(s).

D. The Owner shall ensure that any construction work on the Property reduce excavation and earth moving activities such that disturbance of contaminated soils are minimized. The Owner shall ensure that adequate health and safety plans are developed and followed during any construction activities involving excavation or earth moving such that workers are adequately protected from exposure to contaminated soils.

E. The Owner shall notify the Department in writing at least 21 calendar-days prior to excavating or removing any soils from the Property. The notice shall indicate the purpose of the excavation, state the approximate volume of soil to be excavated, describe how the excavated soil will be managed, indicate how long excavated soils will be piled on the Property, indicate what analytical testing will be performed on the excavated soil and include an appropriately scaled map showing the location of the proposed excavation and where excavated soils will be piled. At a minimum, the Owner shall perform analytical tests on any excavated soil that will be removed from the Property and determine if the soil is a hazardous waste. Any material that is a hazardous waste shall be managed as such by following the applicable Department regulations. Excavated soils shall be managed in a manner that is protective of human health or the environment. If the Department determines that immediate action is required, the Department may orally authorize the Owner to act prior to receiving the Owner's written notification.

F. The Owner shall inspect and maintain the site cover (paving) in a manner that prevents infiltration of liquids into subsurface soils.

3.02 Conveyance of Property. The Owner shall provide a thirty (30) day advance notice to the Department of any sale, lease, or other conveyance of the Property or an interest in the Property to a third person. The Department shall not, by reason of this Notice, have authority to approve, disapprove, or otherwise affect any sale, lease, or other conveyance of the Property except as otherwise provided by law or by an administrative order.

3.03 Enforcement. Failure of the Owner to comply with any of the requirements, as set forth in paragraph 3.01, shall be grounds for the Department to require that the Owner modify or remove any Improvements constructed in violation of this Notice. Violation of this Notice shall be grounds for the Department to file civil and criminal actions against the Owner as provided by law.

3.04 Notice in Agreements. All Owners and Occupants shall execute a written instrument which shall accompany all purchase, lease, sublease, or rental agreements relating to the Property. The instrument shall contain the following statement:

> "The land described herein contains hazardous substances. Such condition renders the land and the owner, lessee, or other possessor of the land subject to the requirements, restrictions, provisions, and liabilities contained in Chapters 6.5 and Chapter 6.8 of Division 20 of the Health and Safety Code. This statement is not a declaration that a hazard exists".

ARTICLE IV

VARIANCE AND TERMINATION

4.01 Variance. Any Owner or, with the Owner's consent, any occupant of the Property or any portion thereof may apply to the Department for a written variance from the provisions of this Notice. Such application shall be made in accordance with Section 25233, Health and Safety Code.

4.02 Termination. Any owner of the Property may apply to the Department to modify or remove the restrictions contained in this Notice as they apply to all or any portion of the Property. Such application shall be made in accordance with Section 25202.6, Health and Safety Code.

4.03 Term. Unless terminated in accordance with paragraph 4.02 above, by law or otherwise, this Notice shall continue in effect in perpetuity.

ARTICLE V

MISCELLANEOUS

5.01 No Dedication Intended. Nothing set forth herein shall be construed to be a gift or dedication, or offer of a gift or dedication, of the Property or any portion thereof to the general public or for any purposes whatsoever.

5.02 Notices. Whenever any person shall desire to give or serve any notice, demand, or other communication with respect to this Notice, each such notice, demand, or other communication shall be in writing and shall be deemed effective [1] when delivered, if personally delivered to the person being served or to an officer of a corporate party being served or official of a government agency being served, or [2] three (3) business days after deposit in the mail if mailed by United States mail, postage paid certified, return receipt requested:

To: Owner [cite name and address below]

Copy to:

Chief, Facility Management Branch
California EPA
Department of Toxic Substances Control, Region 3
1011 N. Grandview Avenue
Glendale, California 91201

5.03 Partial Invalidity. If any portion of this Notice is determined to be invalid for any reason, the remaining portion shall remain in full force and effect as if such invalid portion had not been included herein.

5.04 Article Headings. Headings at the beginning of each numbered article of this Notice are solely for the convenience of the reader and are not a part of the Notice.

5.05 Recordation. This instrument shall be executed by the Owner. This instrument shall be recorded by the Owner in the County of Los Angeles within fourteen (14) days from the effective date of the permit modification for the state hazardous waste management permit (State Hazardous Waste Permit No. 91-3-TS-002).

5.06 References. All references to Code sections include successor provisions.

IN WITNESS WHEREOF, the Owner executes this Notice as of the date set forth below.

OWNER

Company Name: _____

_____

By: _____

Title: _____

Date: _____

EXHIBIT "A"

PROPERTY DESCRIPTION AND FACILITY LOCATION MAP

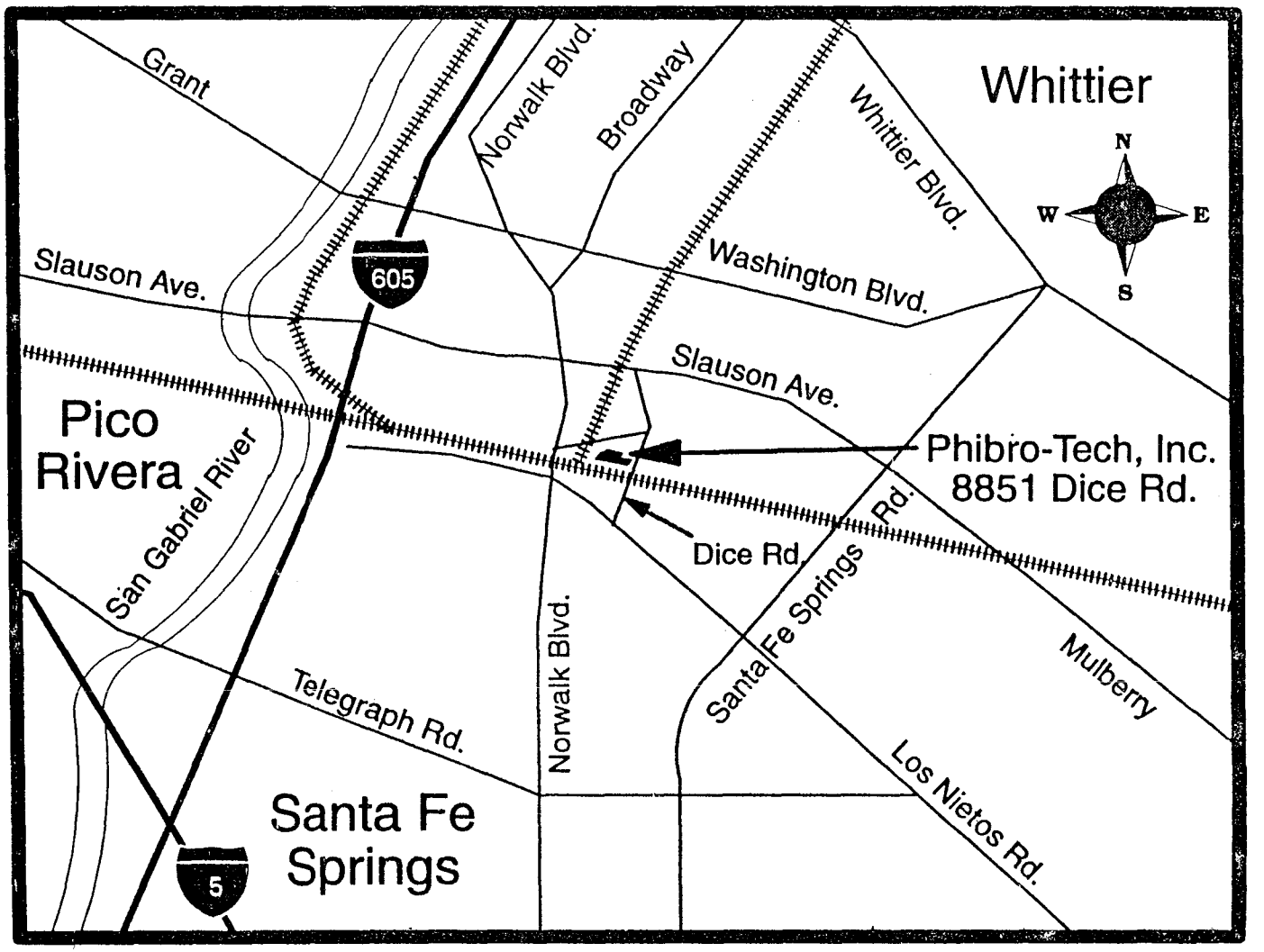
The property referred to in this Notice is situated in the County of Los Angeles, State of California, and is described as follows:

Parcel 1 of Parcel Map 16589, as per map thereof, recorded in Book 181 of Maps, Page 76, in the Office of the County Recorder of Los Angeles County.

Also, that portion of Dice Road as shown on Parcel Map No. 16589, in the City of Santa Fe Springs, County of Los Angeles, State of California, filed in Book 181, Page 76 of Parcel Maps, in the Office of the County Recorder of said county as described in the deed to the City of Santa Fe Springs, recorded July 26, 1968, as instrument No. 2723 of official records of said county bounded in the north by the easterly prolongation of that certain course in the northerly boundary of said Parcel Map No. 16589 as having a bearing and length of "north 78 degrees 35 minutes 00 seconds west 349.97 and bounded on the south by the easterly prolongation of the southerly line of said Parcel Map No. 16589."

Site Location Map

Phibro-Tech, Inc., Santa Fe Springs, California



Final
Signed 9/30/88
effective date

ATTACHMENT 7

MODIFIED CLOSURE/POST-CLOSURE PLAN

FOR

SOUTHERN CALIFORNIA CHEMICAL

8851 Dice Road
Santa Fe Springs, CA 90670

INTRODUCTION

A revised Hazardous Waste Facility Closure Plan for Southern California Chemical (SCC), submitted on June 29, 1988, has been modified by the United States Environmental Protection Agency (EPA), Region IX and by the California Department of Health Services (DHS), in accordance with section 265.112(d)(4), Title 40, Code of Federal Regulations (40 CFR) and section 67212 (f) of the California Code of Regulations, Title 22, Division 4, Chapter 30, (Title 22). This modified Closure Plan shall be the approved plan which SCC must implement to properly close their hazardous waste management facility, listed as Pond #1. A brief explanation of why each section of the revised plan was modified is found at the beginning of each modified section. Missing components of a RCRA Closure Plan are identified and underlined in each modified section.

The activities in this modified Closure Plan are to be conducted in concert with the overall facility investigation at SCC specified by the final "Administrative Order on Consent" (3008(h) ORDER) issued by EPA pursuant to section 3008(h) of the Resource Conservation and Recovery Act (RCRA). In any event where there is conflict between activities of the modified Closure Plan and the Order, the Order shall take precedence unless EPA and DHS determine otherwise.

Listed below are documents which shall be considered part of the modified Closure Plan by reference. These documents provide necessary background and supporting information for implementation of the plan. The complete title and name of the author of the document is listed with the common name or acronym by which each document shall be referred to throughout the modified Closure Plan.

Reference 1: RFA REPORT

RCRA Facility Assessment Report, Southern California Chemical; A.T. Kearney & Science Applications International Corporation, September 1987.

Reference 2: CME REPORT

Comprehensive Groundwater Monitoring Evaluation of Southern California Chemical Company; Regional Water Quality Control Board (Region 4, Los Angeles), June 3, 1988.

Reference 3: SCC PLAN

Closure/Post-Closure Plan, Pond Number One; Southern California Chemical Company, June 29, 1988.

Reference 4: 3008(h) ORDER

Final Administrative Order on Consent [pursuant to section 3008(h) of the Resource Conservation and Recovery Act]; United States Environmental Protection Agency, Region IX.

Reference 5: HAR

Hydrogeologic Assessment [Report] of Pond Number 1, Southern California Chemical; J.H. Kleinfelder & Associates, October 1985.

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I. FACILITY DESCRIPTION

Owner/Operator Name:	Southern California Chemical, A Division of CP Chemicals, Inc.
EPA Facility ID #:	CAD 008 488 025
Facility Address:	8851 Dice Road Santa Fe Springs, CA 90670-0118
Mailing Address:	Same
Facility Contact:	Milt Giorgetta, Plant Manager
Phone Number:	(213) 638-8036

Southern California Chemical (SCC) is an inorganic chemical manufacturer and spent material recycler (SIC Code 2819) located in an industrialized area of Santa Fe Springs, California. The facility has been in operation on the 3.4 acre site since 1959. Since 1984, the facility has been owned and operated by CP Chemicals, Incorporated of Fort Lee, New Jersey. SCC's current business entails the manufacture of inorganic solutions such as ferric chloride, copper sulfate, copper oxide, and ammonia-based metal etchants. These materials are returned to SCC in spent condition for recycling from the original customers. Other compatible waste streams such as acids, alkaline solutions, and metal-bearing solutions are also accepted for treatment or recycling. SCC is currently operating under interim status, which was granted to the facility on December 16, 1981. SCC intends to submit a RCRA Part B application prior to November 8, 1988.

No topographic map was included with the SCC Closure Plan, and no other reference document includes one. This information shall be provided by SCC in the revised Facility Description to be submitted to DHS and EPA.

No listing of all other Hazardous Waste Management Units and their wastestreams was provided with the SCC Closure Plan. This information shall be provided by SCC in detail in the revised Facility Description to be submitted to DHS and EPA.

No Hydrogeologic background information was provided with the SCC Closure Plan. This information shall be provided by SCC in detail in the revised Facility Description to be submitted to DHS and EPA.

No corrective action for groundwater or the groundwater monitoring system was provided with the SCC Closure Plan. This information shall be provided by SCC in detail in the revised Facility Description to be submitted to DHS and EPA.

SURFACE IMPOUNDMENT DESCRIPTION

The hazardous waste management unit to be closed is a concrete lined surface impoundment commonly known as Pond #1. Pond #1 was constructed in 1975 by modifying the former zinc pond (Pond #8). The Pond #1 construction consisted of relining Pond #8 with a 6" thick layer of reinforced concrete and extending the height of it's walls. The structure is 37' x 37' x 3' deep with 1' of its depth below grade and 2' above grade. Pond #1 is located toward the northwest portion of the SCC facility and has a capacity of 36,000 gallons.

The pond was taken out of service in July 1985, in accordance with SCC's July 30, 1985 Closure Plan submittal. All liquids and sludges were removed and the unit was cleaned of any residual wastes. The inactive unit has since been used as a secondary containment structure for two 30,000 gallon wastewater treatment tanks. However, the 1985 closure plan had not been approved for by DHS or EPA before closure activities had been carried out by SCC, and a Closure Plan was again required by the DHS "Complaint For Administrative Penalties" and subsequent "Consent Order" effective on August 28, 1987.

No engineering drawings or schematics showing piping, discharge points, or line connections for Pond #1 were provided with the SCC Closure Plan. Any lines or equipment attached to Pond #1 which are still in use must be indicated. This information shall be provided by SCC in detail in the revised Facility Description to be submitted to DHS and EPA.

No information on maximum quantities of liquid wastes or sludges which were disposed of from Pond #1 was provided with the SCC Closure Plan. This information shall be provided by SCC in detail in the revised Facility Description to be submitted to DHS and EPA.

Pond #1 treated aqueous effluent resulting from on-site treatment processes, contaminated rainwater, drum rinsewater, and general facility wash water. However, records of all wastes which were specifically treated in this unit are unavailable. Typically, the treated effluent stream was of a high pH (10-14), and is believed to have contained varying concentrations of the following constituents (not all of which are hazardous):

CONSTITUENT	EPA WASTE CODE / CHARACTERISTIC
ammonium chloride	----
ammonium sulfate	----
copper	----
copper ammonium chloride	---- / toxic
arsenic	D004 / toxic
free ammonia	----
ammonium biflouride	---- / toxic, corrosive
cadmium	D006 / toxic
chromium (+3, +6)	D007 / toxic
ferrous hydroxide	----
iron	----
lead	D008 / toxic
nickel	----
nickel sulfate	---- / toxic
sodium chloride	----
sodium hydroxide	---- / toxic, corrosive
sodium sulfide	D003 / toxic, flammable

Acidic solutions, some containing varying concentrations of heavy metals, were also added to the effluent stream for neutralization.

Metals were removed by the addition of a reducing agent such as sodium sulfide. This material would form an insoluble metal sulfide compound and then precipitate from the solution. The resulting supernatant liquid at the surface of Pond #1 would then be filter pressed for removal of any suspended solids, polish filtered, and then discharged to the sanitary sewer via a three-stage clarifier. Precipitated sludges were periodically removed and transported to a Class I disposal site. Effluent discharge from Pond #1 was made under authorization of the Los Angeles County Sanitation District's Industrial Waste Discharge Permit No. 10342 and Addendum.

No information on general site security or closure-specific site security was provided with the SCC Closure Plan. This information shall be provided by SCC in detail in the revised Facility Description to be submitted to DHS and EPA.

No liner or leachate collection systems design information for Pond #1 was provided with the SCC Closure Plan. This information shall be provided by SCC in detail in the revised Facility Description to be submitted to DHS and EPA.

No run-on or run-off control information for pond #1 was provided with the SCC Closure Plan. This information shall be provided by SCC in detail in the revised Facility Description to be submitted to DHS and EPA.

All items which were not provided with the SCC Closure Plan must be provided in a detailed revised Facility Description which is to be submitted to DHS and EPA within 30 days of the modified Closure Plan approval.

II. CLOSURE PROCEDURES

The procedures in this section shall describe the steps SCC will take to properly close Pond #1 in a way that is consistent with the forthcoming overall facility investigation required by the 3008(h) order. This section was modified due to the issuance of the 3008(h) ORDER and comments by SCC requesting that closure activities be integrated with the 3008(h) ORDER.

GENERAL PROCEDURES

Since SCC depends heavily on the continued use of its wastewater treatment system to conduct normal operations, it has been determined that the two wastewater treatment tanks located in the unit must be relocated as part of closure. For this reason, the time necessary to complete closure activities will need to be extended in accordance with 40 CFR 265.113(b)(1)(ii)(C). The general closure procedures for Pond #1 shall be as follows:

- Site Characterization/Tank Relocation Plan
- Impoundment Characterization
- Concrete and Soil Removal, Soil Stabilization
- Interim Cover/Final Cover
- Closure Certification
- Post-Closure Care & Maintenance

SITE CHARACTERIZATION/TANK RELOCATION PLAN

The two (2) 30,000 gallon wastewater treatment tanks currently located in Pond #1 must be removed from the unit in order to proceed with soil sampling activities. However, due to the critical role they play in normal facility activities, they must remain in continuous service throughout closure of Pond #1. Therefore the tanks shall be relocated to accommodate this need prior to commencing sampling activities for Pond #1.

Information gathered from the HAR, the RFA REPORT, and the recent 3008(h) ORDER has indicated that soil contamination exists or is likely to exist in various areas throughout the SCC facility. To place the tanks over an already contaminated area would be counterproductive for SCC in light of forthcoming facility-wide corrective actions. For this reason, SCC shall develop a

proposal for the tank relocation phase of the closure. The Tank Relocation Plan must be submitted to DHS and EPA within 60 days after the modified Closure Plan approval. The Tank Relocation plan shall include the following:

1. Diagrams of at least three (3) proposed relocation areas.

   The diagrams (drawings, sketches, or photographs) shall show the dimensions of the proposed area, and its proximity to existing units, buildings, property lines, facility traffic routes, etc. Diagrams shall be drawn to scale with the scale and a north arrow indicated on them.

2. Summary of area history.

   Background information on each proposed area shall indicate known or suspected past as well as present activities. SCC will propose tank relocation areas which are known or expected to be free of contamination or can be easily decontaminated.

3. Sampling, Analysis, and Characterization Plan

   Each location must be characterized to determine the lateral and vertical extent of contamination, and types of contaminants present. A sampling and analysis protocol must be developed that is consistent with the requirements for Pond #1 (see "sampling and analysis plan" in section III). SCC must submit within 60 days after the modified Closure Plan approval the Sampling and Analysis Plans for tank relocation and Pond #1 closure as one plan to ensure consistency. This Sampling and Analysis Plan will be a subset of the plans required under the 3008(h) Order.

4. Secondary containment design

   Since the secondary containment design for the relocated tanks could vary based on location, the proposal shall outline the sizes, capacities, dimensions, construction methods and materials proposed for each proposed tank relocation area.

Once the proposal has been approved by the agencies, SCC shall begin sampling activities (see "Closure Schedule", section IV). When sampling and analysis activities have been completed, SCC shall prepare a report which indicates which area is best suited for the tank relocation based on analysis results. This report shall include laboratory data, diagrams of contaminated zones (lateral and vertical extent), and discuss remediation alternatives if necessary and their feasibility for each area.

Soil in the proposed tank areas, if contaminated, shall be cleaned up to meet EPA-established preliminary cleanup performance standards.

The preliminary cleanup performance standards for soil shall be based on EPA-established exposure limit criteria as follows:

Trivalent Chromium (Cr +3)	1000 mg/kg
Hexavalent Chromium (Cr +6)	6 mg/kg
Cadmium	9 mg/kg
All other contaminants from Priority Pollutants List in 40 CFR Part 423 and Xylene	Non-detectable

In anticipation of a relocation area approval, SCC shall secure necessary permits and authorizations from local agencies which are also involved in environmental compliance. SCC shall also submit a revised Part A Application to DHS and EPA as part of the approval request for tank relocation (see "Closure Schedule"). The tanks shall be relocated and operational within 365 days from the modified Closure Plan approval (see schedule).

IMPOUNDMENT CHARACTERIZATION

The site characterization portion of this modification is focused at Pond #1, and the soil immediately around and beneath it. This is required in accordance with 40 CFR 265.112(b)(4). This section has been modified due to a lack of detail and ambiguous wording in some portions of the SCC plan.

The primary intent of the characterization for the unit is to determine:

1) the horizontal and vertical extent of soil contamination existing as a result of past operation of the unit;

2) the types and levels of contamination found so as to provide reference information for Post-Closure groundwater monitoring activities.

A characterization report shall be developed to include: sampling and analysis QA/QC documentation, soil boring logs, analysis results, discussion of results, diagrams showing zones of contamination (lateral and vertical extent) in the sampling locations, documentation of any unusual conditions or events which impact sampling activities, and amount of soil to be removed. Also, a discussion on proposed corrective action for the area shall be included with the report. This discussion shall provide detail on procedures for concrete and soil removal (see next section).

The constituents to be analyzed for are listed in the section entitled "Sampling and Analysis Plan" of section III. The characterization report is to be submitted to DHS and EPA within 425 days of the modified Closure Plan approval.

CONCRETE & SOIL REMOVAL, SOIL STABILIZATION

The concrete structure shall be broken up, removed, and disposed of as hazardous waste.

The actual amount of soil to be removed shall depend upon the extent of soil contamination observed, and the feasibility of the removal activities. SCC shall include this information in the characterization report. The soil removal activities must be approved by DHS and EPA prior to constructing the interim cover. The soil removed shall also be disposed of as hazardous waste, unless analysis shows otherwise. Proposed disposal locations shall be indicated in the report.

The remaining contaminated soil shall be stabilized to a bearing capacity sufficient to support the interim cover in accordance with 40 CFR 265.228(a)(2)(ii).

INTERIM COVER/FINAL COVER

Within 470 days of the modified Closure Plan approval for Pond #1, construction of the interim cover shall commence over the contaminated soil which was left in place. This cover shall be constructed of an impermeable material which will prevent the infiltration of liquids into the contaminated area. It shall be graded or paved to prevent the accumulation of standing liquids. Interim cover design and construction plans shall be submitted to DHS and EPA within 425 days after approval of the modified Closure Plan as part of the site characterization report. DHS and EPA will review and modify or approve this plan prior to implementation.

Guidance for developing the interim cover may be obtained from the handbook entitled "Remedial Action at Waste Disposal Sites", EPA/625/6-85/006, October 1985.

SCC shall also provide design and construction plans for a final cover in accordance with 40 CFR 265.228(a)(2)(iii). Guidance for cover design can be found in EPA/600/2-87/039, "Design, Construction, and Maintenance of Cover Systems for Hazardous Waste", U.S. Army Engineer Waterways Experiment Station, May, 1987. Any requirements for a final cover will be made a part of the overall SCC facility corrective action activities. Final cover design and construction plans will be submitted in accordance with the schedule set forth in the 3008(h) Order.

The design and construction of the final cover must comply with the requirements of the following:

- 40 CFR 265.228(a)(2)(iii);
- Title 22, California Code of Regulations, Section 67316(b)(3);
- Title 23, California Code of Regulations, Section 2581(a).

Within 60 days after completion of the interim cover construction, the owner/operator and an independent registered professional engineer in California shall certify the completion of interim closure activities.

CLOSURE CERTIFICATION

All closure activities shall be certified by the owner/operator (SCC) and an independent registered professional engineer in California within 60 days of closure completion as specified by the 3008(h) Order. This is in conformance with the requirements of 40 CFR Part 265.115.

POST-CLOSURE CARE & MAINTENANCE

Because of the known soil and groundwater contamination in the vicinity of the unit, closure with waste in place must follow the requirements for a hazardous waste landfill. It was necessary to modify this section because the SCC submittal lacked detail regarding major facets of Post-Closure including:

- Survey Plat (40 CFR 265.116)
- Post-Closure care (40 CFR 265.228, 265.310)
- Post-Closure use of property (40 CFR 265.117)
- Maintenance activities (40 CFR 265.228)
- Groundwater Monitoring (40 CFR 265 Subpart F)
- Post-Closure Plan (40 CFR 265.118)
- Post-Closure care period contact person/office (40 CFR 265.118)
- Post-Closure notices (40 CFR 265.119)
- Certification of Post-Closure completion (40 CFR 265.120)

The proposals in the SCC Plan to construct a combination secondary containment structure and cover system over the closed unit do not conform with design concepts currently accepted by EPA and DHS for covers. In addition to this, no supporting documentation has been provided to demonstrate the merit of this concept.

After the Closure activities are complete, the Post-Closure period will begin. During this period, inspection and maintenance of the cover and continuing groundwater monitoring will be required under Interim Status standards, 40 CFR 265.228(b), and 265.117-265.120. Similar California regulations are found in 22 CCR 67316(c) and 67288(m)-(s). In addition, the Post-Closure activities must comply with the State Water Resources Control Board regulations in Title 23, CCR, Article 5 (Water Quality Monitoring for Classified Waste Management Units). The owner and operator will be required to submit an application for a Post-Closure permit which will formalize the interim status standards into a site-specific permit.

In general, post-closure uses of the property on which hazardous wastes remain after closure are restricted to those which will not disturb the integrity of the final cover or the facility's monitoring systems. However, certain activities may be approved if they will not increase the hazard, or the potential hazard to human health or the environment, or it is necessary to reduce a threat to human health or the environment. Such a modification would be considered a major modification to the post-closure permit and would be subject to public review.

A complete, detailed Post-Closure Plan must be submitted to DHS and EPA by SCC in conjunction with requirements of the 3008(h) Order.

III. CLOSURE ACTIVITY PROTOCOL

PERSONNEL HEALTH & SAFETY PLAN

The contents of the facility Health and Safety Plan shall apply to all aspects of the closure from tank relocation to the interim cover construction. It shall focus on any areas, routes or locations on the facility where hazardous wastes generated from closure activities would be encountered. These will include, but not be limited to Pond #1, background sampling locations, equipment and personnel decontamination areas, and waste collection areas for onsite/offsite treatment and offsite disposal.

The Health & Safety Plan shall be submitted to DHS and EPA within 30 days of the modified Closure Plan Approval. Attached to this Closure Plan is a copy of "Appendix B. Generic Site Safety Plan" which delineates the requirements to be addressed in the Health & Safety Plan for the SCC facility closure.

SAMPLING & ANALYSIS PLAN FOR POND #1

Within 60 days of the Modified Closure Plan approval, SCC shall submit to DHS and EPA a detailed sampling location diagram with a complete Sampling and Analysis Plan for Pond #1. The diagram (drawn to scale) shall include the following:

o At least four (4) proposed sampling locations on the unit floor for taking vertical soil borings. These shall be located where cracks or other observable surface anomalies exist. The SCC Plan specified six because two of the concrete cores were to be used as concrete structural test samples. Since all the concrete shall be disposed of, the additional two are not required.

o Color photographs of the sampling locations shall be submitted with the diagram. They are to show the sampling locations clearly marked, and their locations in reference to each other and the tanks. Samples from each of the four soil borings shall be analyzed at depths of 1', 1.5', 2', 3', 5', and every 5' interval thereafter to a maximum depth of 40' or until groundwater is encountered, whichever happens first.

Vertical soil borings shall also be taken around the three accessible sides of the unit's perimeter to observe any potential lateral soil contamination from the unit. Nine (9) borings (3 on each side) as identified in the SCC Plan, figure 1 shall be made to obtain samples for analysis purposes. [note that the SCC Plan dated June 29 specified nine (9) sampling locations, while the intent of the May 30, DHS letter to SCC was three (3) sampling locations at a minimum. Upon obtaining clarification of this misunderstanding, SCC proposed three (3) sampling locations in the July 1, 1988 submittal. DHS and EPA have since determined that nine (9) perimeter sampling locations would be more appropriate for characterization purposes.]

The sampling depths for analysis around the unit shall be the same as those within the unit (1', 1.5', 2', 3', 5', etc.) Any concrete cores removed from the unit or perimeter to provide access to the soil shall be disposed of as a hazardous waste.

Due to the nature and variety of past waste management activities on the SCC site, there is reason to believe that it may be difficult to obtain representative background soil samples. In addition to the four (4) background sample locations proposed in the SCC Plan, fig. 2, two (2) offsite background sampling locations shall be proposed by SCC for a total of six (6) proposed background sampling locations. These proposed locations shall be submitted along with the sampling location diagram for the unit.

Background soil samples shall be analyzed at the following depths: 5', 15', 25' and 40'. Additional samples may be taken and preserved in the event that additional data is needed to adequately characterize the background. No soil samples for the background, perimeter, or unit shall be composited.

All samples taken shall be handled, preserved and analyzed according to all applicable protocols detailed in EPA document SW-846, Test Methods for Evaluating Solid Waste. The test methods shall be identified in the Sampling and Analysis Plan to be submitted within 60 days of approval of the modified Closure Plan. The sampling and analysis plan shall be approved or modified, if necessary, by both DHS and EPA prior to any soil boring activities taking place.

Drilling and Sampling Procedure

The 8" Diameter Hollow Stem Auger (HSA) equipment with the California Split-spoon sampler shall be used as specified in the SCC Plan sections on "Subsurface Investigation" and "Drilling... Procedure". This information shall be resubmitted to DHS and EPA as part of the Sampling and Analysis Plan which is due within 60 days of the modified Closure Plan approval.
Rinsewaters from decontamination of sampling equipment shall be managed as a hazardous waste and temporarily stored in drums or tanks until properly disposed of. These containers or tanks shall be clearly marked as hazardous waste. This information shall be submitted to DHS and EPA in the Facility Decontamination Plan which is due within 30 days of the modified Closure Plan approval.

Because of the unavailability of accurate wastestreams records for Pond #1, it will be necessary to analyze soil samples for the following constituents (Xylene and other organics from the priority pollutants listing were found in groundwater samples):

- 40 CFR Part 423, Appendix A-
  Priority Pollutants

- Constituents allegedly placed in Pond #1
  (numbers refer to Priority Pollutants).

ammonium chloride
ammonium sulfate
copper (#120)
copper ammonium chloride
arsenic (#115)
free ammonia
ammonium biflouride
cadmium (#118)
chromium (#119) [Cr +3 and Cr +6]
ferrous hydroxide
iron
lead (#122)
nickel (#124)
nickel sulfate
sodium chloride
sodium hydroxide
sodium sulfide

- Xylene
- soil pH

SCC shall analyze all samples (background, pond and pond perimeter) for the above listed constituents. However, SCC may propose a method in the Sampling and Analysis Plan which will reduce the above list of constituents into a more relevant list. A reduction of the constituents to be analyzed for must receive approval from DHS and EPA. EP Toxicity testing criteria shall be used for the heavy metals listed. SCC shall analyze the above listed compounds for their cation and anion species using methods outlined in SW-846, Test Methods for Evaluating Solid Waste as proposed in the comments submitted to DHS on August 28, 1988.

Should soil contamination of a non-uniform distribution be identified after these samples have been analyzed, SCC shall propose methods to better identify the "hot spots" (areas where levels of localized contamination are decidedly higher than in surrounding areas) and define the extent of contamination. These methods are subject to DHS and EPA review and modification or approval.

Immediately after the drilling and sampling activities are completed, the open boreholes (unit floor, perimeter, and background) shall be filled with a concrete grout or similar material. This material shall be capable of preventing any liquids entrance into the subsurface via the drilling/sampling locations.

Analysis Report

The analysis report shall be submitted to both DHS and EPA as soon as possible once analytical data has been generated from the lab, but not more than 425 days after the modified Closure Plan approval. The following items shall be included in the report:

- Soil boring logs (unit, perimeter, background)
- Soil analysis (unit, perimeter, background)
- Soil analysis summary
- Diagrams showing all sampling locations
- Details of sample identification/preservation
- Chain of custody records
- Extent of contamination
- Proposed amount of soil to be removed

FACILITY DECONTAMINATION PLAN

A decontamination area shall be identified and used for all aspects of the site characterization to prevent the inadvertent spreading of hazardous constituents and cross-contamination of drilling and sampling equipment. All rinsewaters from cleaning equipment shall be collected in a suitable container(s) and managed as hazardous waste. All contaminated clothing, rags, or other solid materials shall be placed in drums or a hazardous waste dumpster and managed in accordance with 40 CFR 265.170-177. The designated decontamination area shall be clearly marked.

A complete facility and equipment decontamination plan shall be submitted to DHS and EPA within 30 days of the approval of the modified Closure Plan. Guidance in developing the plan may be found in EPA/600/2-85/028, Guide for Decontaminating Buildings, Structures, and Equipment at Superfund Sites, March 1985. DHS and EPA must review and modify or approve this plan prior to implementation.

GROUNDWATER MONITORING PLAN

The SCC plan does not make reference to any ongoing groundwater monitoring activities. The recent Comprehensive Groundwater Monitoring Evaluation (CME) report by the California Regional Water Quality Control Board (CRWQCB) lists a number of potential deficiencies in the existing system which must be corrected by SCC.

The revised Groundwater Monitoring Plan shall be resubmitted to DHS, EPA, and the RWQCB as stipulated in the 3008(h) Order.

IV. CLOSURE SCHEDULE

SCC failed to submit a detailed schedule of activities for the closure of the unit. The schedule listed below is provided to show relevant milestones for major closure activities and a compliance schedule for the submittal of documents to DHS and EPA. SCC must submit within 30 days of after modified Closure Plan approval a detailed schedule for dates or time periods of specific closure activities, which includes but is not limited to background sampling, submittal of samples to lab, moving tanks, disposing of hazardous wastes, pouring concrete, etc.

ACTIVITY/ITEM	DAYS AFTER CP APPROVAL
SCC to submit the following: Detailed facility description, Facility Decontamination Plan, Health & Safety Plan, Closure Schedule.	within 30 days
SCC to submit the following: Tank Relocation Proposal, Sampling & Analysis Plan, Revised Cost Estimate for Closure.	within 60 days
SCC to submit evidence of Financial Responsibility compliance	within 90 days
SCC receives approval for and begins sampling activities for tank relocation.	within 105 days
SCC to submit the following: Report on tank relocation proposal activity, Revised Part A Application, Permit applications & other information to local agencies.	within 165 days
SCC receives approval of final tank relocation area.	within 210 days
SCC submits interim cap design for approval.	within 240 days
SCC receives approval of interim cap design.	within 300 days

SCC to complete construction of new tank area and begin operations; Begin characterization for Pond #1.	within 365 days
SCC submits characterization report for Pond #1, and corrective action proposal for approval.	within 425 days
SCC receives approval for proposed corrective action, and begins implementation.	within 470 days
Complete interim cover construction.	within 560 days
Certification of interim closure.	within 620 days

V. CLOSURE AND POST-CLOSURE COST ESTIMATES

The proposed closure and post-closure cost estimates submitted by the facility in the SCC Plan were not detailed and it is not known if these figures reflect the "worst-case" closure scenario. SCC shall submit revised detailed cost estimates to reflect the activities specified in this modification to the agencies within 60 days of the modified Closure Plan approval. Closure cost estimates shall include activities from tank relocation to certification as shown in the above schedule. Cost estimates shall be based on all closure work being done by a third party.

VI. FINANCIAL RESPONSIBILITY

SCC shall demonstrate compliance with 40 CFR sections 265.143, 265.147, 265.148, and 264.151 as well as Title 22, Article 17, CCR, financial responsibility, within 30 days of the revised closure cost estimate submittal and within 30 days of any further revision to the estimates.

If SCC can not provide proof of liability coverage, a written report will be submitted to the DHS Financial Responsibility Unit on a quarterly basis. This report is due on the 10th day of every third month following the date of the modified Closure Plan approval. This report shall include, but need not be limited to:

1. The current financial statement(s) of any company and/or parent corporations which demonstrates to the Department's satisfaction that they cannot meet the requirements.

2. A report on attempts to secure financial assurance and responses from financial institutions contacted.

3. Documentation of SCC's attempts, during the reporting quarter, to obtain liability insurance from at a minimum, those insurance carriers identified in writing to the facility by DHS during the quarter. This documentation must include, but need not be limited to:

   a. The names and contact persons of all insurance carriers to which written applications for liability coverage has been made, and copies of all such applications;

   b. The written responses of each insurance carrier regarding whether or not coverage is available, in what types and amount, and at what premiums; and,

   c. Copies of all documents submitted to and received from all insurance carriers contacted.

If at any time DHS determines that SCC is able to comply with the financial liability requirements of Article 17, Title 22, CCR, DHS will notify SCC in writing. Within 30 days of the issuance of such notice SCC must submit to DHS evidence of financial assurance and/or liability coverage pursuant to Article 17, Title 22, CCR.

APPENDICES

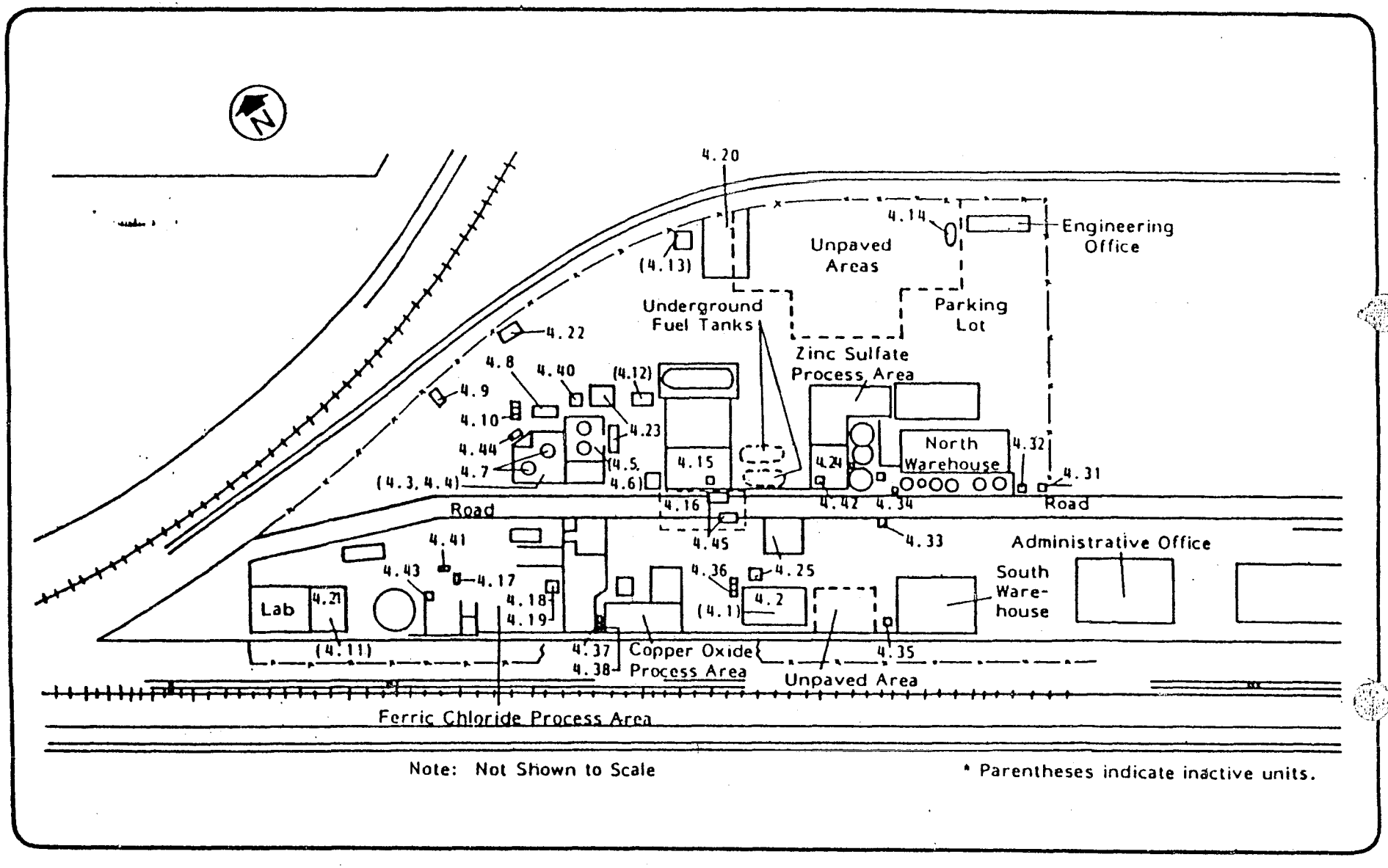
APPENDIX A: FACILITY DIAGRAM

APPENDIX B: GENERIC SITE SAFETY PLAN

APPENDICES

APPENDIX A: FACILITY DIAGRAM

APPENDIX B: GENERIC SITE SAFETY PLAN



APPENDIX A

LOCATION OF SOLID WASTE MANAGEMENT UNITS AT SOUTHERN CALIFORNIA CHEMICAL

Unit 4.1 - Copper Cement Drying Pond No. 7

Unit 4.2 - Rainwater Holding Pond No. 3 (a.k.a. Tank No. 3)

Unit 4.3 - Pond No. 8 (a.k.a. Zinc Pond)

Unit 4.4 - Pond No. 1 (a.k.a. Settling Pond, Tank No. 1) RCRA-regulated

Unit 4.5 - Two 12,000 Gallon Holding Tanks (2 Units)

Unit 4.6 - Pond No. 2 (a.k.a. Tank No. 2)

Unit 4.7 - Wastewater Treatment Tanks W-1 and W-2 (2 Units)

Unit 4.8 - Wastewater Treatment System Filter Press

Unit 4.9 - Former Three Stage Clarifier

Unit 4.10 - New Three Stage Clarifier

Unit 4.11 - Old Wastewater Treatment System (3 Units)

Unit 4.12 - Old Chromic-Sulfuric Underground Storage Tank

Unit 4.13 - 10,000 Gallon Spent Chrome-Sulfuric Acid Tank (a.k.a. SC-1) RCRA-Regulated

Unit 4.14 - Disposal Pit

Unit 4.15 - Drum Wash Area and Sump (2 Units)

Unit 4.16 - Truck Wash Area

Unit 4.17 - Ferric Chloride Area Drum Washing Unit

Unit 4.18 - Ferric Chloride Area Filter Press

Unit 4.19 - Ferric Chloride Area Filter Press Sump (a.k.a. Sump 10)

Unit 4.20 - RCRA-Regulated Drum Storage Area

Unit 4.22 - Drum Storage Area #2

Unit 4.23 - Drum Storage Area #3

Unit 4.24 - Drum Storage Area #4

Unit 4.25 - Drum Storage Area #5

Unit 4.26 - Pre-1975 Sump 2 (Not shown)

Unit 4.27 - Pre-1975 Sump 3 (Not shown)

Unit 4.28 - Pre-1975 Sump 4 (Not shown)

Unit 4.29 - Pre-1975 Sump 6 (Not shown)

Unit 4.30 - Pre-1975 Sump 7 (Not shown)

Unit 4.31 - Sump 1

Unit 4.32 - Sump 2

Unit 4.33 - Sump 3-C

Unit 4.34 - Sumps 3-A and 3-B (2 Units)

Unit 4.35 - Sump 4

Unit 4.36 - Sumps 5-A, 5-B, 5-C (3 Units)

Unit 4.37 - Sump 6-A

Unit 4.38 - Sump 6-B

- Unit 4.39 - Sump 7
- Unit 4.40 - Sump 8
- Unit 4.41 - Sump 9
- Unit 4.42 - Sumps 13 and 14 (2 Units)
- Unit 4.43 - Sump 16
- Unit 4.44 - Wastewater Treatment System Sump
- Unit 4.45 - In-Road Sump
- Unit 4.46 - Six Vacuum Trucks (6 Units) (Not shown)
- Unit 4.47 - Area of Concern: Copper Cement Drying Ponds

Appendix B. Generic Site Safety Plan

This appendix provides a generic plan based on a plan developed by the U.S. Coast Guard for responding to hazardous chemical releases.[1] This generic plan can be adapted for designing a Site Safety Plan for hazardous waste site cleanup operations. It is not all inclusive and should only be used as a guide, not a standard.

A. SITE DESCRIPTION

Date_____ Location_____

Hazards_____

Area affected_____

Surrounding population_____

Topography_____

Weather conditions_____

Additional information_____

B. ENTRY OBJECTIVES - The objective of the initial entry to the contaminated area is to (describes actions, tasks to be accomplished; i.e., identify contaminated soil; monitor conditions, etc.)

C. ONSITE ORGANIZATION AND COORDINATION - The following personnel are designated to carry out the stated job functions on site. (Note: One person may carry out more than one job function.)

PROJECT TEAM LEADER_____

SCIENTIFIC ADVISOR_____

SITE SAFETY OFFICER_____

PUBLIC INFORMATION OFFICER_____

SECURITY OFFICER_____

RECORDKEEPER_____

FINANCIAL OFFICER_____

FIELD TEAM LEADER_____

FIELD TEAM MEMBERS_____

[1] U.S. Coast Guard. Policy Guidance for Response to Hazardous Chemical Releases. USCG Pollution Response COMDTINST-M16465.30.

FEDERAL AGENCY REPS (i.e., EPA, NIOSH) _____

STATE AGENCY REPS _____

LOCAL AGENCY REPS _____

CONTRACTOR(S) _____

All personnel arriving or departing the site should log in and out with the Recordkeeper. All activities on site must be cleared through the Project Team Leader.

D. ONSITE CONTROL

(Name of individual or agency _____ has been designated to coordinate access control and security on site. A safe perimeter has been established at (distance or description of controlled area) _____

No unauthorized person should be within this area.

The onsite Command Post and staging area have been established at _____

The prevailing wind conditions are _____. This location is upwind from the Exclusion Zone.

Control boundaries have been established, and the Exclusion Zone (the contaminated area), hotline, Contamination Reduction Zone, and Support Zone (clean area) have been identified and designated as follows: (describe boundaries and/or attach map of controlled area) _____

These boundaries are identified by: (marking of zones, i.e., red boundary tape - hotline; traffic cones - Support Zone; etc.) _____

E. HAZARD EVALUATION

The following substance(s) are known or suspected to be on site. The primary hazards of each are identified.

Substances Involved	Concentrations (If Known)	Primary Hazards
(chemical name)		(e.g., toxic on inhalation)

The following additional hazards are expected on site: (i.e., slippery ground, uneven terrain, etc.)

Hazardous substance information form(s) for the involved substance(s) have been completed and are attached.

F. PERSONAL PROTECTIVE EQUIPMENT

Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks:

Location	Job Function	Level of Protection
Exclusion Zone		A B C D Other
		A B C D Other
		A B C D Other
		A B C D Other
Contamination Reduction Zone		A B C D Other
		A B C D Other
		A B C D Other
		A B C D Other

Specific protective equipment for each level of protection is as follows:

Level A Fully-encapsulating suit
SCBA
(disposable coveralls)

Level B Splash gear (type)
SCBA

Level C Splash gear (type)
Full-face canister resp.

Level D

Other

The following protective clothing materials are required for the involved substances:

Substance	Material
(chemical name)	(material name, e.g., Viton)

If air-purifying respirators are authorized, (filtering medium) is the appropriate canister for use with the involved substances and concentrations. A competent individual has determined that all criteria for using this type of respiratory protection have been met.

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SITE SAFETY OFFICER AND THE PROJECT TEAM LEADER.

G. ONSITE WORK PLANS

Work party(s) consisting of ____ persons will perform the following tasks:

Project Team Leader	(name)	(function)
Work Party #1		
Work Party #2		
Rescue Team (required for entries to IDLH environments)		
Decontamination Team		

The work party(s) were briefed on the contents of this plan at _____.

H. COMMUNICATION PROCEDURES

Channel ____ has been designated as the radio frequency for personnel in the Exclusion Zone. All other onsite communications will use channel ____.

Personnel in the Exclusion Zone should remain in constant radio communication or within sight of the Project Team Leader. Any failure of radio communication requires an evaluation of whether personnel should leave the Exclusion Zone.

(Horn blast, siren, etc.) is the emergency signal to indicate that all personnel should leave the Exclusion Zone. In addition, a loud hailer is available if required.

The following standard hand signals will be used in case of failure of radio communications:

Hand gripping throat ---------- Out of air, can't breathe
Grip partner's wrist or ---------- Leave area immediately
both hands around waist
Hands on top of head ---------- Need assistance
Thumbs up ---------- OK, I am all right, I understand
Thumbs down ---------- No, negative

Telephone communication to the Command Post should be established as soon as practicable. The phone number is _____.

I. DECONTAMINATION PROCEDURES

Personnel and equipment leaving the Exclusion Zone shall be thoroughly decontaminated. The standard level _____ decontamination protocol shall be used with the following decontamination stations: (1) _____
(2) _____ (3) _____ (4) _____ (5) _____
(6) _____ (7) _____ (8) _____ (9) _____
(10) _____ Other _____

Emergency decontamination will include the following stations: _____
_____
_____
_____

The following decontamination equipment is required: _____
_____
_____
_____

(Normally detergent and water) will be used as the decontamination solution.

J. SITE SAFETY AND HEALTH PLAN

1. _____(name)_____ is the designated Site Safety Officer and is directly responsible to the Project Team Leader for safety recommendations on site.

2. Emergency Medical Care

(names of qualified personnel) are the qualified EMTs on site. (medical facility names), at (address), phone _____ is located _____ minutes from this location. (name of person) was contacted at (time) and briefed on the situation, the potential hazards, and the substances involved. A map of alternative routes to this facility is available at (normally Command Post).

Local ambulance service is available from _____ at phone _____. Their response time is _____ minutes. Whenever possible, arrangements should be made for onsite standby.

First-aid equipment is available on site at the following locations:

First-aid kit _____
Emergency eye wash _____
Emergency shower _____
(other) _____

Emergency medical information for substances present:

Substance	Exposure Symptoms	First-Aid Instructions

List of emergency phone numbers:

Agency/Facility	Phone #	Contact
Police		
Fire		
Hospital		
Airport		
Public Health Advisor		

3. Environmental Monitoring

The following environmental monitoring instruments shall be used on site (cross out if not applicable) at the specified intervals.

Combustible Gas Indicator - continuous/hourly/daily/other _____
O_2 Monitor - continuous/hourly/daily/other _____
Colorimetric Tubes - continuous/hourly/daily/other _____
(type) _____
_____
_____

HNU/OVA - continuous/hourly/daily/other _____
Other _____ - continuous/hourly/daily/other _____
_____ - continuous/hourly/daily/other _____

4. Emergency Procedures (should be modified as required for incident)

The following standard emergency procedures will be used by onsite personnel. The Site Safety Officer shall be notified of any onsite emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personnel Injury in the Exclusion Zone: Upon notification of an injury in the Exclusion Zone, the designated emergency signal _____ shall be sounded. All site personnel shall assemble at the decontamination line. The rescue team will enter the Exclusion Zone (if required) to remove the injured person to the hotline. The Site Safety Officer and Project Team Leader should evaluate the nature of the injury, and the affected person should be decontaminated to the extent possible prior to movement to the Support Zone. The onsite EMT shall initiate the appropriate first aid, and contact should be made for an ambulance and with the designated medical facility (if required). No persons shall reenter the Exclusion Zone until the cause of the injury or symptoms is determined.

Personnel Injury in the Support Zone: Upon notification of an injury in the Support Zone, the Project Team Leader and Site Safety Officer will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of site personnel, operations may continue, with the onsite EMT initiating the appropriate first aid and necessary follow-up as stated above. If the injury increases the risk to others, the designated emergency signal _____ shall be sounded and all site personnel shall move to the decontamination line for further instructions. Activities on site will stop until the added risk is removed or minimized.

Fire/Explosion: Upon notification of a fire or explosion on site, the designated emergency signal _____ shall be sounded and all site personnel assembled at the decontamination line. The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

Personal Protective Equipment Failure: If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and his/her buddy shall immediately leave the Exclusion Zone. Reentry shall not be permitted until the equipment has been repaired or replaced.

Other Equipment Failure: If any other equipment on site fails to operate properly, the Project Team Leader and Site Safety Officer shall be notified and then determine the effect of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the Work Plan tasks, all personnel shall leave the Exclusion Zone until the situation is evaluated and appropriate actions taken.

The following emergency escape routes are designated for use in those situations where egress from the Exclusion Zone cannot occur through the decontamination line: (describe alternate routes to leave area in emergencies)

In all situations, when an onsite emergency results in evacuation of the Exclusion Zone, personnel shall not reenter until:

1. The conditions resulting in the emergency have been corrected.
2. The hazards have been reassessed.
3. The Site Safety Plan has been reviewed.
4. Site personnel have been briefed on any changes in the Site Safety Plan.

5. Personal Monitoring

The following personal monitoring will be in effect on site:

Personal exposure sampling: (describe any personal sampling programs being carried out on site personnel. This would include use of sampling pumps, air monitors, etc.)

Medical monitoring: The expected air temperature will be (°F) . If it is determined that heat stress monitoring is required (mandatory if over 70°F) the following procedures shall be followed:
(describe procedures in effect, i.e., monitoring body temperature, body weight, pulse rate)

All site personnel have read the above plan and are familiar with its provisions.

	(name)	(signature)
Site Safety Oficer		
Project Team Leader		
Other Site Personnel		

United States Environmental Protection Agency | Office of Research and Development | Office of Solid Waste and Emergency Response | EPA/540/S-95/504 April 1996

EPA Ground Water Issue

LOW-FLOW (MINIMAL DRAWDOWN) GROUND-WATER SAMPLING PROCEDURES

by Robert W. Puls[1] and Michael J. Barcelona[2]

Background

The Regional Superfund Ground Water Forum is a group of ground-water scientists, representing EPA's Regional Superfund Offices, organized to exchange information related to ground-water remediation at Superfund sites. One of the major concerns of the Forum is the sampling of ground water to support site assessment and remedial performance monitoring objectives. This paper is intended to provide background information on the development of low-flow sampling procedures and its application under a variety of hydrogeologic settings. It is hoped that the paper will support the production of standard operating procedures for use by EPA Regional personnel and other environmental professionals engaged in ground-water sampling.

For further information contact: Robert Puls, 405-436-8543, Subsurface Remediation and Protection Division, NRMRL, Ada, Oklahoma.

I. Introduction

The methods and objectives of ground-water sampling to assess water quality have evolved over time. Initially the emphasis was on the assessment of water quality of aquifers as sources of drinking water. Large water-bearing units were identified and sampled in keeping with that objective. These were highly productive aquifers that supplied drinking water via private wells or through public water supply systems. Gradually, with the increasing awareness of subsurface pollution of these water resources, the understanding of complex hydrogeochemical processes which govern the fate and transport of contaminants in the subsurface increased. This increase in understanding was also due to advances in a number of scientific disciplines and improvements in tools used for site characterization and ground-water sampling. Ground-water quality investigations where pollution was detected initially borrowed ideas, methods, and materials for site characterization from the water supply field and water analysis from public health practices. This included the materials and manner in which monitoring wells were installed and the way in which water was brought to the surface, treated, preserved and analyzed. The prevailing conceptual ideas included convenient generalizations of ground-water resources in terms of large and relatively homogeneous hydrologic *units*. With time it became apparent that conventional water supply generalizations of *homogeneity* did not adequately represent field data regarding pollution of these subsurface resources. The important role of *heterogeneity* became increasingly clear not only in geologic terms, but also in terms of complex physical,

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[2]*University of Michigan*

Superfund Technology Support Center for Ground Water

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Technology Innovation Office
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Director

chemical and biological subsurface processes. With greater appreciation of the role of heterogeneity, it became evident that subsurface pollution was ubiquitous and encompassed the unsaturated zone to the deep subsurface and included unconsolidated sediments, fractured rock, and *aquitards* or low-yielding or impermeable formations. Small-scale processes and heterogeneities were shown to be important in identifying contaminant distributions and in controlling water and contaminant flow paths.

It is beyond the scope of this paper to summarize all the advances in the field of ground-water quality investigations and remediation, but two particular issues have bearing on ground-water sampling today: aquifer heterogeneity and colloidal transport. Aquifer heterogeneities affect contaminant flow paths and include variations in geology, geochemistry, hydrology and microbiology. As methods and the tools available for subsurface investigations have become increasingly sophisticated and understanding of the subsurface environment has advanced, there is an awareness that in most cases a primary concern for site investigations is characterization of contaminant flow paths rather than entire aquifers. In fact, in many cases, plume thickness can be less than well screen lengths (e.g., 3-6 m) typically installed at hazardous waste sites to detect and monitor plume movement over time. Small-scale differences have increasingly been shown to be important and there is a general trend toward smaller diameter wells and shorter screens.

The hydrogeochemical significance of colloidal-size particles in subsurface systems has been realized during the past several years (Gschwend and Reynolds, 1987; McCarthy and Zachara, 1989; Puls, 1990; Ryan and Gschwend, 1990). This realization resulted from both field and laboratory studies that showed faster contaminant migration over greater distances and at higher concentrations than flow and transport model predictions would suggest (Buddemeier and Hunt, 1988; Enfield and Bengtsson, 1988; Penrose et al., 1990). Such models typically account for interaction between the mobile aqueous and immobile solid phases, but do not allow for a mobile, reactive solid phase. It is recognition of this third *phase* as a possible means of contaminant transport that has brought increasing attention to the manner in which samples are collected and processed for analysis (Puls et al., 1990; McCarthy and Degueldre, 1993; Backhus et al., 1993; U. S. EPA, 1995). If such a phase is present in sufficient mass, possesses high sorption reactivity, large surface area, and remains stable in suspension, it can serve as an important mechanism to facilitate contaminant transport in many types of subsurface systems.

Colloids are particles that are sufficiently small so that the surface free energy of the particle dominates the bulk free energy. Typically, in ground water, this includes particles with diameters between 1 and 1000 nm. The most commonly observed mobile particles include: secondary clay minerals; hydrous iron, aluminum, and manganese oxides; dissolved and particulate organic materials, and viruses and bacteria. These reactive particles have been shown to be mobile under a variety of conditions in both field studies and laboratory column experiments, and as such need to be included in monitoring programs where identification of the *total* mobile contaminant loading (dissolved + naturally suspended particles) at a site is an objective. To that end, sampling methodologies must be used which do not artificially bias *naturally* suspended particle concentrations.

Currently the most common ground-water purging and sampling methodology is to purge a well using bailers or high speed pumps to remove 3 to 5 casing volumes followed by sample collection. This method can cause adverse impacts on sample quality through collection of samples with high levels of turbidity. This results in the inclusion of otherwise immobile artifactual particles which produce an overestimation of certain analytes of interest (e.g., metals or hydrophobic organic compounds). Numerous documented problems associated with filtration (Danielsson, 1982; Laxen and Chandler, 1982; Horowitz et al., 1992) make this an undesirable method of rectifying the turbidity problem, and include the removal of potentially mobile (contaminant-associated) particles during filtration, thus artificially biasing contaminant concentrations low. Sampling-induced turbidity problems can often be mitigated by using low-flow purging and sampling techniques.

Current subsurface conceptual models have undergone considerable refinement due to the recent development and increased use of field screening tools. So-called hydraulic *push* technologies (e.g., cone penetrometer, Geoprobe®, QED HydroPunch®) enable relatively fast screening site characterization which can then be used to design and install a monitoring well network. Indeed, alternatives to conventional monitoring wells are now being considered for some hydrogeologic settings. The ultimate design of any monitoring system should however be based upon adequate site characterization and be consistent with established monitoring objectives.

If the sampling program objectives include accurate assessment of the magnitude and extent of subsurface contamination over time and/or accurate assessment of subsequent remedial performance, then some information regarding plume delineation in three-dimensional space is necessary prior to monitoring well network design and installation. This can be accomplished with a variety of different tools and equipment ranging from hand-operated augers to screening tools mentioned above and large drilling rigs. Detailed information on ground-water flow velocity, direction, and horizontal and vertical variability are essential baseline data requirements. Detailed soil and geologic data are required prior to and during the installation of sampling points. This includes historical as well as detailed soil and geologic logs which accumulate during the site investigation. The use of borehole geophysical techniques is also recommended. With this information (together with other site characterization data) and a clear understanding of sampling

objectives, then appropriate location, screen length, well diameter, slot size, etc. for the monitoring well network can be decided. This is especially critical for new in situ remedial approaches or natural attenuation assessments at hazardous waste sites.

In general, the overall goal of any ground-water sampling program is to collect water samples with no alteration in water chemistry; analytical data thus obtained may be used for a variety of specific monitoring programs depending on the regulatory requirements. The sampling methodology described in this paper assumes that the monitoring goal is to sample monitoring wells for the presence of contaminants and it is applicable whether mobile colloids are a concern or not and whether the analytes of concern are metals (and metalloids) or organic compounds.

II. Monitoring Objectives and Design Considerations

The following issues are important to consider prior to the design and implementation of any ground-water monitoring program, including those which anticipate using low-flow purging and sampling procedures.

A. Data Quality Objectives (DQOs)

Monitoring objectives include four main types: detection, assessment, corrective-action evaluation and resource evaluation, along with *hybrid* variations such as site-assessments for property transfers and water availability investigations. Monitoring objectives may change as contamination or water quality problems are discovered. However, there are a number of common components of monitoring programs which should be recognized as important regardless of initial objectives. These components include:

1) Development of a conceptual model that incorporates elements of the regional geology to the local geologic framework. The conceptual model development also includes initial site characterization efforts to identify hydrostratigraphic units and likely flow-paths using a minimum number of borings and well completions;

2) Cost-effective and well documented collection of high quality data utilizing simple, accurate, and reproducible techniques; and

3) Refinement of the conceptual model based on supplementary data collection and analysis.

These fundamental components serve many types of monitoring programs and provide a basis for future efforts that evolve in complexity and level of spatial detail as purposes and objectives expand. High quality, reproducible data collection is a common goal regardless of program objectives.

High quality data collection implies data of sufficient accuracy, precision, and completeness (i.e., ratio of valid analytical results to the minimum sample number called for by the program design) to meet the program objectives. Accuracy depends on the correct choice of monitoring tools and procedures to minimize sample and subsurface disturbance from collection to analysis. Precision depends on the repeatability of sampling and analytical protocols. It can be assured or improved by replication of sample analyses including blanks, field/lab standards and reference standards.

B. Sample Representativeness

An important goal of any monitoring program is collection of data that is truly representative of conditions at the site. The term *representativeness* applies to chemical and hydrogeologic data collected via wells, borings, piezometers, geophysical and soil gas measurements, lysimeters, and temporary sampling points. It involves a recognition of the statistical variability of individual subsurface physical properties, and contaminant or major ion concentration levels, while explaining extreme values. Subsurface temporal and spatial variability are facts. Good professional practice seeks to maximize representativeness by using proven accurate and reproducible techniques to define limits on the distribution of measurements collected at a site. However, measures of representativeness are dynamic and are controlled by evolving site characterization and monitoring objectives. An evolutionary site characterization model, as shown in Figure 1, provides a systematic approach to the goal of consistent data collection.

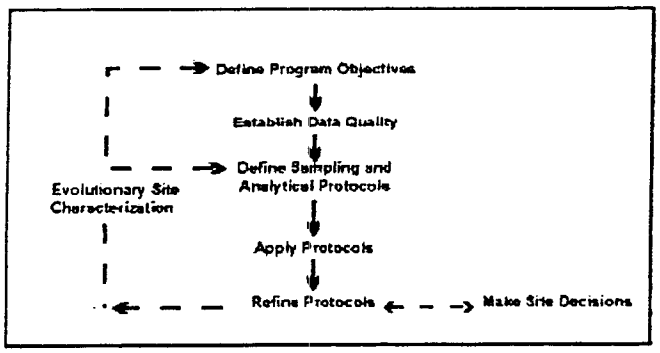

Figure 1. Evolutionary Site Characterization Model

The model emphasizes a recognition of the causes of the variability (e.g., use of inappropriate technology such as using bailers to purge wells; imprecise or operator-dependent methods) and the need to control avoidable errors.

1) Questions of Scale

A sampling plan designed to collect representative samples must take into account the potential scale of changes in site conditions through space and time as well as the chemical associations and behavior of the parameters that are targeted for investigation. In subsurface systems, physical (i.e., aquifer) and chemical properties over time or space are not statistically independent. In fact, samples taken in close proximity (i.e., within distances of a few meters) or within short time periods (i.e., more frequently than monthly) are highly auto-correlated. This means that designs employing high-sampling frequency (e.g., monthly) or dense spatial monitoring designs run the risk of redundant data collection and misleading inferences regarding trends in values that aren't statistically valid. In practice, contaminant detection and assessment monitoring programs rarely suffer these *over-sampling* concerns. In corrective-action evaluation programs, it is also possible that too little data may be collected over space or time. In these cases, false interpretation of the spatial extent of contamination or underestimation of temporal concentration variability may result.

2) Target Parameters

Parameter selection in monitoring program design is most often dictated by the regulatory status of the site. However, background water quality constituents, purging indicator parameters, and contaminants, all represent targets for data collection programs. The tools and procedures used in these programs should be equally rigorous and applicable to all categories of data, since all may be needed to determine or support regulatory action.

C. Sampling Point Design and Construction

Detailed site characterization is central to all decision-making purposes and the basis for this characterization resides in identification of the geologic framework and major hydro-stratigraphic units. Fundamental data for sample point location include: subsurface lithology, head-differences and background geochemical conditions. Each sampling point has a proper use or uses which should be documented at a level which is appropriate for the program's data quality objectives. Individual sampling points may not always be able to fulfill multiple monitoring objectives (e.g., detection, assessment, corrective action).

1) Compatibility with Monitoring Program and Data Quality Objectives

Specifics of sampling point location and design will be dictated by the complexity of subsurface lithology and variability in contaminant and/or geochemical conditions. It should be noted that, regardless of the ground-water sampling approach, few sampling points (e.g., wells, drive-points, screened augers) have zones of influence in excess of a few feet. Therefore, the spatial frequency of sampling points should be carefully selected and designed.

2) Flexibility of Sampling Point Design

In most cases *well-point* diameters in excess of 1 7/8 inches will permit the use of most types of submersible pumping devices for low-flow (minimal drawdown) sampling. It is suggested that *short* (e.g., less than 1.6 m) screens be incorporated into the monitoring design where possible so that comparable results from one device to another might be expected. *Short*, of course, is relative to the degree of vertical water quality variability expected at a site.

3) Equilibration of Sampling Point

Time should be allowed for equilibration of the well or sampling point with the formation after installation. Placement of well or sampling points in the subsurface produces some disturbance of ambient conditions. Drilling techniques (e.g., auger, rotary, etc.) are generally considered to cause more disturbance than *direct-push* technologies. In either case, there may be a period (i.e., days to months) during which water quality near the point may be distinctly different from that in the formation. Proper development of the sampling point and adjacent formation to remove fines created during emplacement will shorten this water quality *recovery* period.

III. Definition of Low-Flow Purging and Sampling

It is generally accepted that water in the well casing is non-representative of the formation water and needs to be purged prior to collection of ground-water samples. However, the water in the screened interval may indeed be representative of the formation, depending upon well construction and site hydrogeology. Wells are purged to some extent for the following reasons: the presence of the air interface at the top of the water column resulting in an oxygen concentration gradient with depth, loss of volatiles up the water column, leaching from or sorption to the casing or filter pack, chemical changes due to clay seals or backfill, and surface infiltration.

Low-flow purging, whether using portable or dedicated systems, should be done using pump-intake located in the middle or slightly above the middle of the screened interval. Placement of the pump too close to the bottom of the well will cause increased entrainment of solids which have collected in the well over time. These particles are present as a result of well development, prior purging and sampling events, and natural colloidal transport and deposition. Therefore, placement of the pump in the middle or toward the top of the screened interval is suggested. Placement of the pump at the top of the water column for sampling is only recommended in unconfined aquifers, screened across the water table, where this is the desired sampling point. Low-

flow purging has the advantage of minimizing mixing between the overlying stagnant casing water and water within the screened interval.

A. Low-Flow Purging and Sampling

Low-flow refers to the velocity with which water enters the pump intake and that is imparted to the formation pore water in the immediate vicinity of the well screen. It does not necessarily refer to the flow rate of water discharged at the surface which can be affected by flow regulators or restrictions. Water level drawdown provides the best indication of the stress imparted by a given flow-rate for a given hydrological situation. The objective is to pump in a manner that minimizes stress (drawdown) to the system to the extent practical taking into account established site sampling objectives. Typically, flow rates on the order of 0.1 - 0.5 L/min are used, however this is dependent on site-specific hydrogeology. Some extremely coarse-textured formations have been successfully sampled in this manner at flow rates to 1 L/min. The effectiveness of using low-flow purging is intimately linked with proper screen location, screen length, and well construction and development techniques. The reestablishment of natural flow paths in both the vertical and horizontal directions is important for correct interpretation of the data. For high resolution sampling needs, screens less than 1 m should be used. Most of the need for purging has been found to be due to passing the sampling device through the overlying casing water which causes mixing of these stagnant waters and the dynamic waters within the screened interval. Additionally, there is disturbance to suspended sediment collected in the bottom of the casing and the displacement of water out into the formation immediately adjacent to the well screen. These disturbances and impacts can be avoided using dedicated sampling equipment, which precludes the need to insert the sampling device prior to purging and sampling.

Isolation of the screened interval water from the overlying stagnant casing water may be accomplished using low-flow minimal drawdown techniques. If the pump intake is located within the screened interval, most of the water pumped will be drawn in directly from the formation with little mixing of casing water or disturbance to the sampling zone. However, if the wells are not constructed and developed properly, zones other than those intended may be sampled. At some sites where geologic heterogeneities are sufficiently different within the screened interval, higher conductivity zones may be preferentially sampled. This is another reason to use shorter screened intervals, especially where high spatial resolution is a sampling objective.

B. Water Quality Indicator Parameters

It is recommended that water quality indicator parameters be used to determine purging needs prior to sample collection in each well. Stabilization of parameters such as pH, specific conductance, dissolved oxygen, oxidation-reduction potential, temperature and turbidity should be used to determine when formation water is accessed during purging. In general, the order of stabilization is pH, temperature, and specific conductance, followed by oxidation-reduction potential, dissolved oxygen and turbidity. Temperature and pH, while commonly used as purging indicators, are actually quite insensitive in distinguishing between formation water and stagnant casing water; nevertheless, these are important parameters for data interpretation purposes and should also be measured. Performance criteria for determination of stabilization should be based on water-level drawdown, pumping rate and equipment specifications for measuring indicator parameters. Instruments are available which utilize in-line flow cells to continuously measure the above parameters.

It is important to establish specific well stabilization criteria and then consistently follow the same methods thereafter, particularly with respect to drawdown, flow rate and sampling device. Generally, the time or purge volume required for parameter stabilization is independent of well depth or well volumes. Dependent variables are well diameter, sampling device, hydrogeochemistry, pump flow rate, and whether the devices are used in a portable or dedicated manner. If the sampling device is already in place (i.e., dedicated sampling systems), then the time and purge volume needed for stabilization is much shorter. Other advantages of dedicated equipment include less purge water for waste disposal, much less decontamination of equipment, less time spent in preparation of sampling as well as time in the field, and more consistency in the sampling approach which probably will translate into less variability in sampling results. The use of dedicated equipment is strongly recommended at wells which will undergo routine sampling over time.

If parameter stabilization criteria are too stringent, then minor oscillations in indicator parameters may cause purging operations to become unnecessarily protracted. It should also be noted that turbidity is a very conservative parameter in terms of stabilization. Turbidity is always the last parameter to stabilize. Excessive purge times are invariably related to the establishment of too stringent turbidity stabilization criteria. It should be noted that natural turbidity levels in ground water may exceed 10 nephelometric turbidity units (NTU).

C. Advantages and Disadvantages of Low-Flow (Minimum Drawdown) Purging

In general, the advantages of low-flow purging include:

- samples which are representative of the *mobile* load of contaminants present (dissolved and colloid-associated);
- minimal disturbance of the sampling point thereby minimizing sampling artifacts;
- less operator variability, greater operator control;

- reduced stress on the formation (minimal drawdown);
- less mixing of stagnant casing water with formation water;
- reduced need for filtration and, therefore, less time required for sampling;
- smaller purging volume which decreases waste disposal costs and sampling time;
- better sample consistency; reduced artificial sample variability.

Some disadvantages of low-flow purging are:

- higher initial capital costs,
- greater set-up time in the field,
- need to transport additional equipment to and from the site,
- increased training needs,
- resistance to change on the part of sampling practitioners,
- concern that new data will indicate a *change in conditions* and trigger an *action*.

IV. Low-Flow (Minimal Drawdown) Sampling Protocols

The following ground-water sampling procedure has evolved over many years of experience in ground-water sampling for organic and inorganic compound determinations and as such summarizes the authors' (and others) experiences to date (Barcelona et al., 1984, 1994; Barcelona and Helfrich, 1986; Puls and Barcelona, 1989; Puls et. al. 1990, 1992; Puls and Powell, 1992; Puls and Paul, 1995). High-quality chemical data collection is essential in ground-water monitoring and site characterization. The primary limitations to the collection of *representative* ground-water samples include: mixing of the stagnant casing and *fresh* screen waters during insertion of the sampling device or ground-water level measurement device; disturbance and resuspension of settled solids at the bottom of the well when using high pumping rates or raising and lowering a pump or bailer; introduction of atmospheric gases or degassing from the water during sample handling and transfer, or inappropriate use of vacuum sampling device, etc.

A. Sampling Recommendations

Water samples should not be taken immediately following well development. Sufficient time should be allowed for the ground-water flow regime in the vicinity of the monitoring well to stabilize and to approach chemical equilibrium with the well construction materials. This lag time will depend on site conditions and methods of installation but often exceeds one week.

Well purging is nearly always necessary to obtain samples of water flowing through the geologic formations in the screened interval. Rather than using a general but arbitrary guideline of purging three casing volumes prior to sampling, it is recommended that an in-line water quality measurement device (e.g., flow-through cell) be used to establish the stabilization time for several parameters (e.g. , pH, specific conductance, redox, dissolved oxygen, turbidity) on a well-specific basis. Data on pumping rate, drawdown, and volume required for parameter stabilization can be used as a guide for conducting subsequent sampling activities.

The following are recommendations to be considered before, during and after sampling:

- use low-flow rates (<0.5 L/min), during both purging and sampling to maintain minimal drawdown in the well;
- maximize tubing wall thickness, minimize tubing length;
- place the sampling device intake at the desired sampling point;
- minimize disturbances of the stagnant water column above the screened interval during water level measurement and sampling device insertion;
- make proper adjustments to stabilize the flow rate as soon as possible;
- monitor water quality indicators during purging;
- collect unfiltered samples to estimate contaminant loading and transport potential in the subsurface system.

B. Equipment Calibration

Prior to sampling, all sampling device and monitoring equipment should be calibrated according to manufacturer's recommendations and the site Quality Assurance Project Plan (QAPP) and Field Sampling Plan (FSP). Calibration of pH should be performed with at least two buffers which bracket the expected range. Dissolved oxygen calibration must be corrected for local barometric pressure readings and elevation.

C. Water Level Measurement and Monitoring

It is recommended that a device be used which will least disturb the water surface in the casing. Well depth should be obtained from the well logs. Measuring to the bottom of the well casing will only cause resuspension of settled solids from the formation and require longer purging times for turbidity equilibration. Measure well depth after sampling is completed. The water level measurement should be taken from a permanent reference point which is surveyed relative to ground elevation.

D. Pump Type

The use of low-flow (e.g., 0.1-0.5 L/min) pumps is suggested for purging and sampling all types of analytes. All pumps have some limitation and these should be investigated with respect to application at a particular site. Bailers are inappropriate devices for low-flow sampling.

1) General Considerations

There are no unusual requirements for ground-water sampling devices when using low-flow, minimal drawdown techniques. The major concern is that the device give consistent results and minimal disturbance of the sample across a range of *low* flow rates (i.e., < 0.5 L/min). Clearly, pumping rates that cause minimal to no drawdown in one well could easily cause *significant* drawdown in another well finished in a less transmissive formation. In this sense, the pump should not cause undue pressure or temperature changes or physical disturbance on the water sample over a reasonable sampling range. Consistency in operation is critical to meet accuracy and precision goals.

2) Advantages and Disadvantages of Sampling Devices

A variety of sampling devices are available for low-flow (minimal drawdown) purging and sampling and include peristaltic pumps, bladder pumps, electrical submersible pumps, and gas-driven pumps. Devices which lend themselves to both dedication and consistent operation at definable low-flow rates are preferred. It is desirable that the pump be easily adjustable and operate reliably at these lower flow rates. The peristaltic pump is limited to shallow applications and can cause degassing resulting in alteration of pH, alkalinity, and some volatiles loss. Gas-driven pumps should be of a type that does not allow the gas to be in direct contact with the sampled fluid.

Clearly, bailers and other *grab* type samplers are ill-suited for low-flow sampling since they will cause repeated disturbance and mixing of *stagnant* water in the casing and the *dynamic* water in the screened interval. Similarly, the use of inertial lift foot-valve type samplers may cause too much disturbance at the point of sampling. Use of these devices also tends to introduce uncontrolled and unacceptable operator variability.

Summaries of advantages and disadvantages of various sampling devices are listed in Herzog et al. (1991), U. S. EPA (1992), Parker (1994) and Thurnblad (1994).

E. Pump Installation

Dedicated sampling devices (left in the well) capable of pumping and sampling are preferred over <u>any</u> other type of device. Any portable sampling device should be slowly and carefully lowered to the middle of the screened interval or slightly above the middle (e.g., 1-1.5 m below the top of a 3 m screen). This is to minimize excessive mixing of the stagnant water in the casing above the screen with the screened interval zone water, and to minimize resuspension of solids which will have collected at the bottom of the well. These two disturbance effects have been shown to directly affect the time required for purging. There also appears to be a direct correlation between size of portable sampling devices relative to the well bore and resulting purge volumes and times. The key is to minimize disturbance of water and solids in the well casing.

F. Filtration

Decisions to filter samples should be dictated by sampling objectives rather than as a *fix* for poor sampling practices, and field-filtering of certain constituents should not be the default. Consideration should be given as to what the application of field-filtration is trying to accomplish. For assessment of truly dissolved (as opposed to operationally *dissolved* [i.e., samples filtered with 0.45 µm filters]) concentrations of major ions and trace metals, 0.1 µm filters are recommended although 0.45 µm filters are normally used for most regulatory programs. Alkalinity samples must also be filtered if significant particulate calcium carbonate is suspected, since this material is likely to impact alkalinity titration results (although filtration itself may alter the CO_2 composition of the sample and, therefore, affect the results).

Although filtration may be appropriate, filtration of a sample may cause a number of unintended changes to occur (e.g. oxidation, aeration) possibly leading to filtration-induced artifacts during sample analysis and uncertainty in the results. Some of these unintended changes may be unavoidable but the factors leading to them must be recognized. Deleterious effects can be minimized by consistent application of certain filtration guidelines. Guidelines should address selection of filter type, media, pore size, etc. in order to identify and minimize potential sources of uncertainty when filtering samples.

In-line filtration is recommended because it provides better consistency through less sample handling, and minimizes sample exposure to the atmosphere. In-line filters are available in both disposable (barrel filters) and non-disposable (in-line filter holder, flat membrane filters) formats and various filter pore sizes (0.1-5.0 µm). Disposable filter cartridges have the advantage of greater sediment handling capacity when compared to traditional membrane filters. Filters must be pre-rinsed following manufacturer's recommendations. If there are no recommendations for rinsing, pass through a minimum of 1 L of ground water following purging and prior to sampling. Once filtration has begun, a filter cake may develop as particles larger than the pore size accumulate on the filter membrane. The result is that the effective pore diameter of the membrane is reduced and particles smaller than the stated pore size are excluded from the filtrate. Possible corrective measures include prefiltering (with larger pore size filters), minimizing particle loads to begin with, and reducing sample volume.

G. Monitoring of Water Level and Water Quality Indicator Parameters

Check water level periodically to monitor drawdown in the well as a guide to flow rate adjustment. The goal is minimal drawdown (<0.1 m) during purging. This goal may be difficult to achieve under some circumstances due to geologic heterogeneities within the screened interval, and may require adjustment based on site-specific conditions and personal experience. In-line water quality indicator parameters should be continuously monitored during purging. The water quality

indicator parameters monitored can include pH, redox potential, conductivity, dissolved oxygen (DO) and turbidity. The last three parameters are often most sensitive. Pumping rate, drawdown, and the time or volume required to obtain stabilization of parameter readings can be used as a future guide to purge the well. Measurements should be taken every three to five minutes if the above suggested rates are used. Stabilization is achieved after all parameters have stabilized for three successive readings. In lieu of measuring all five parameters, a minimum subset would include pH, conductivity, and turbidity or DO. Three successive readings should be within ± 0.1 for pH, ± 3% for conductivity, ± 10 mv for redox potential, and ± 10% for turbidity and DO. Stabilized purge indicator parameter trends are generally obvious and follow either an exponential or asymptotic change to stable values during purging. Dissolved oxygen and turbidity usually require the longest time for stabilization. The above stabilization guidelines are provided for rough estimates based on experience.

H. Sampling, Sample Containers, Preservation and Decontamination

Upon parameter stabilization, sampling can be initiated. If an in-line device is used to monitor water quality parameters, it should be disconnected or bypassed during sample collection. Sampling flow rate may remain at established purge rate or may be adjusted slightly to minimize aeration, bubble formation, turbulent filling of sample bottles, or loss of volatiles due to extended residence time in tubing. Typically, flow rates less than 0.5 L/min are appropriate. The same device should be used for sampling as was used for purging. Sampling should occur in a progression from least to most contaminated well, if this is known. Generally, volatile (e.g., solvents and fuel constituents) and gas sensitive (e.g., Fe^{2+}, CH_4, H_2S/HS^-, alkalinity) parameters should be sampled first. The sequence in which samples for most inorganic parameters are collected is immaterial unless filtered (dissolved) samples are desired. Filtering should be done last and in-line filters should be used as discussed above. During both well purging and sampling, proper protective clothing and equipment must be used based upon the type and level of contaminants present.

The appropriate sample container will be prepared in advance of actual sample collection for the analytes of interest and include sample preservative where necessary. Water samples should be collected directly into this container from the pump tubing.

Immediately after a sample bottle has been filled, it must be preserved as specified in the site (QAPP). Sample preservation requirements are based on the analyses being performed (use site QAPP, FSP, RCRA guidance document [U. S. EPA, 1992] or EPA SW-846 [U. S. EPA, 1982]). It may be advisable to add preservatives to sample bottles in a controlled setting prior to entering the field in order to reduce the chances of improperly preserving sample bottles or introducing field contaminants into a sample bottle while adding the preservatives.

The preservatives should be transferred from the chemical bottle to the sample container using a disposable polyethylene pipet and the disposable pipet should be used only once and then discarded.

After a sample container has been filled with ground water, a Teflon™ (or tin)-lined cap is screwed on tightly to prevent the container from leaking. A sample label is filled out as specified in the FSP. The samples should be stored inverted at 4°C.

Specific decontamination protocols for sampling devices are dependent to some extent on the type of device used and the type of contaminants encountered. Refer to the site QAPP and FSP for specific requirements.

I. Blanks

The following blanks should be collected:

(1) field blank: one field blank should be collected from each source water (distilled/deionized water) used for sampling equipment decontamination or for assisting well development procedures.

(2) equipment blank: one equipment blank should be taken prior to the commencement of field work, from each set of sampling equipment to be used for that day. Refer to site QAPP or FSP for specific requirements.

(3) trip blank: a trip blank is required to accompany each volatile sample shipment. These blanks are prepared in the laboratory by filling a 40-mL volatile organic analysis (VOA) bottle with distilled/deionized water.

V. Low-Permeability Formations and Fractured Rock

The overall sampling program goals or sampling objectives will drive how the sampling points are located, installed, and choice of sampling device. Likewise, site-specific hydrogeologic factors will affect these decisions. Sites with very low permeability formations or fractures causing discrete flow channels may require a unique monitoring approach. Unlike water supply wells, wells installed for ground-water quality assessment and restoration programs are often installed in low water-yielding settings (e.g., clays, silts). Alternative types of sampling points and sampling methods are often needed in these types of environments, because low-permeability settings may require extremely low-flow purging (<0.1 L/min) and may be technology-limited. Where devices are not readily available to pump at such low flow rates, the primary consideration is to avoid dewatering of

the well screen. This may require repeated recovery of the water during purging while leaving the pump in place within the well screen.

Use of low-flow techniques may be impractical in these settings, depending upon the water recharge rates. The sampler and the end-user of data collected from such wells need to understand the limitations of the data collected; i.e., a strong potential for underestimation of actual contaminant concentrations for volatile organics, potential false negatives for filtered metals and potential false positives for unfiltered metals. It is suggested that comparisons be made between samples recovered using low-flow purging techniques and samples recovered using passive sampling techniques (i.e., two sets of samples). Passive sample collection would essentially entail acquisition of the sample with no or very little purging using a dedicated sampling system installed within the screened interval or a passive sample collection device.

A. Low-Permeability Formations (<0.1 L/min recharge)

1. Low-Flow Purging and Sampling with Pumps

   a. "portable or non-dedicated mode" - Lower the pump (one capable of pumping at <0.1 L/min) to mid-screen or slightly above and set in place for minimum of 48 hours (to lessen purge volume requirements). After 48 hours, use procedures listed in Part IV above regarding monitoring water quality parameters for stabilization, etc., but do not dewater the screen. If excessive drawdown and slow recovery is a problem, then alternate approaches such as those listed below may be better.

   b. "dedicated mode" - Set the pump as above at least a week prior to sampling; that is, operate in a dedicated pump mode. With this approach significant reductions in purge volume should be realized. Water quality parameters should stabilize quite rapidly due to less disturbance of the sampling zone.

2. Passive Sample Collection

Passive sampling collection requires insertion of the device into the screened interval for a sufficient time period to allow flow and sample equilibration before extraction for analysis. Conceptually, the extraction of water from low yielding formations seems more akin to the collection of water from the unsaturated zone and passive sampling techniques may be more appropriate in terms of obtaining "representative" samples. Satisfying usual sample volume requirements is typically a problem with this approach and some latitude will be needed on the part of regulatory entities to achieve sampling objectives.

B. Fractured Rock

In fractured rock formations, a low-flow to zero purging approach using pumps in conjunction with packers to isolate the sampling zone in the borehole is suggested. Passive multi-layer sampling devices may also provide the most "representative" samples. It is imperative in these settings to identify flow paths or water-producing fractures prior to sampling using tools such as borehole flowmeters and/or other geophysical tools.

After identification of water-bearing fractures, install packer(s) and pump assembly for sample collection using low-flow sampling in "dedicated mode" or use a passive sampling device which can isolate the identified water-bearing fractures.

VI. Documentation

The usual practices for documenting the sampling event should be used for low-flow purging and sampling techniques. This should include, at a minimum: information on the conduct of purging operations (flow-rate, drawdown, water-quality parameter values, volumes extracted and times for measurements), field instrument calibration data, water sampling forms and chain of custody forms. See Figures 2 and 3 and "Ground Water Sampling Workshop -- A Workshop Summary" (U. S. EPA, 1995) for example forms and other documentation suggestions and information. This information coupled with laboratory analytical data and validation data are needed to judge the "useability" of the sampling data.

VII. Notice

The U.S. Environmental Protection Agency through its Office of Research and Development funded and managed the research described herein as part of its in-house research program and under Contract No. 68-C4-0031 to Dynamac Corporation. It has been subjected to the Agency's peer and administrative review and has been approved for publication as an EPA document. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

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Figure 2. **Ground Water Sampling Log**

Project _____ **Site** _____ **Well No.** _____ **Date** _____

Well Depth _____ **Screen Length** _____ **Well Diameter** _____ **Casing Type** _____

Sampling Device _____ **Tubing type** _____ **Water Level** _____

Measuring Point _____ **Other Infor** _____

_____

Sampling Personnel _____

Time	pH	Temp	Cond.	Dis.O_2	Turb.	[ ]Conc			Notes

Type of Samples Collected

_____

Information: 2 in = 617 ml/ft, 4 in = 2470 ml/ft: $Vol_{cyl} = \pi r^2 h$, $Vol_{sphere} = 4/3\pi r^3$

Figure 3. **Ground Water Sampling Log** (with automatic data logging for most water quality parameters)

Project _____ **Site** _____ **Well No.** _____ **Date** _____

Well Depth _____ **Screen Length** _____ **Well Diameter** _____ **Casing Type** _____

Sampling Device _____ **Tubing type** _____ **Water Level** _____

Measuring Point _____ **Other Infor** _____

_____

Sampling Personnel _____

Time	Pump Rate	Turbidity	Alkalinity	[ ] Conc	Notes

Type of Samples Collected

_____

Information: 2 in = 617 ml/ft, 4 in = 2470 ml/ft: $Vol_{cyl} = \pi r^2 h$, $Vol_{sphere} = 4/3\pi r^3$

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I

LOW STRESS (low flow) PURGING AND SAMPLING PROCEDURE FOR THE COLLECTION OF GROUND WATER SAMPLES FROM MONITORING WELLS

July 30, 1996
Revision 2

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I

LOW STRESS (low flow) PURGING AND SAMPLING PROCEDURE FOR THE COLLECTION OF GROUND WATER SAMPLES FROM MONITORING WELLS

I. SCOPE & APPLICATION

This standard operating procedure (SOP) provides a general framework for collecting ground water samples that are indicative of mobile organic and inorganic loads at ambient flow conditions (both the dissolved fraction and the fraction associated with mobile particulates). The SOP emphasizes the need to minimize stress by low water-level drawdowns, and low pumping rates (usually less than 1 liter/min) in order to collect samples with minimal alterations to water chemistry. This SOP is aimed primarily at sampling monitoring wells that can accept a submersible pump and have a screen, or open interval length of 10 feet or less (this is the most common situation). However, this procedure is flexible and can be used in a variety of well construction and ground-water yield situations. Samples thus obtained are suitable for analyses of ground water contaminants (volatile and semi-volatile organic analytes, pesticides, PCBs, metals and other inorganics), or other naturally occurring analytes.

This procedure does not address the collection of samples from wells containing light or dense non-aqueous phase liquids (LNAPLs and DNAPLs). For this the reader may wish to check: Cohen, R.M. and J.W. Mercer, 1993, DNAPL Site Evaluation; C.K. Smoley (CRC Press), Boca Raton, Florida and U.S. Environmental Protection Agency, 1992, RCRA Ground-Water Monitoring: Draft Technical Guidance; Washington, DC (EPA/530-R-93-001).

The screen, or open interval of the monitoring well should be optimally located (both laterally and vertically) to intercept existing contaminant plume(s) or along flowpaths of potential contaminant releases. It is presumed that the analytes of interest move (or potentially move) primarily through the more permeable zones within the screen, or open interval.

Use of trademark names does not imply endorsement by U.S.EPA but is intended only to assist in identification of a specific type of device.

Proper well construction and development cannot be overemphasized, since the use of installation techniques that are appropriate to the hydrogeologic setting often prevents "problem well" situations from occurring. It is also recommended that as part of development or redevelopment the well should be tested to determine the appropriate pumping rate to obtain stabilization of field indicator parameters with minimal drawdown in shortest amount of time. With this information field crews can then conduct purging and sampling in a more expeditious manner.

The mid-point of the saturated screen length (which should not exceed 10 feet) is used by convention as the location of the pump intake. However, significant chemical or permeability contrast(s) within the screen may require additional field work to determine the optimum vertical location(s) for the intake, and appropriate pumping rate(s) for purging and sampling more localized target zone(s). Primary flow zones (high(er) permealability and/or high(er) chemical concentrations) should be identified in wells with screen lengths longer than 10 feet, or in wells with open boreholes in bedrock. Targeting these zones for water sampling will help insure that the low stress procedure will not underestimate contaminant concentrations. The Sampling and Analysis Plan must provide clear instructions on how the pump intake depth(s) will be selected, and reason(s) for the depth(s) selected.

Stabilization of indicator field parameters is used to indicate that conditions are suitable for sampling to begin. Achievement of turbidity levels of less than 5 NTU and stable drawdowns of less than 0.3 feet, while desirable, are not mandatory. Sample collection may still take place provided the remaining criteria in this procedure are met. If after 4 hours of purging indicator field parameters have not stabilized, one of 3 optional courses of action may be taken: a) continue purging until stabilization is achieved, b) discontinue purging, do not collect any samples, and record in log book that stabilization could not be achieved (documentation must describe attempts to achieve stabilization) c) discontinue purging, collect samples and provide full explanation of attempts to achieve stabilization (note: there is a risk that the analytical data obtained, especially metals and strongly hydrophobic organic analytes, may not meet the sampling objectives).

Changes to this SOP should be proposed and discussed when the site Sampling and Analysis Plan is submitted for approval. Subsequent requests for modifications of an approved plan must include adequate technical justification for proposed changes. All changes and modifications must be approved before implementation in field.

II. EQUIPMENT

A. Extraction device

Adjustable rate, submersible pumps are preferred (for example, centrifugal or bladder pump constructed of stainless steel or

Teflon).

Adjustable rate, peristaltic pumps (suction) may be used with caution. Note that EPA guidance states: "Suction pumps are not recommended because they may cause degassing, pH modification, and loss of volatile compounds" (EPA/540/P-87/001, 1987, page 8.5-11).

The use of inertial pumps is discouraged. These devices frequently cause greater disturbance during purging and sampling and are less easily controlled than the pumps listed above. This can lead to sampling results that are adversely affected by purging and sampling operations, and a higher degree of data variability.

B. Tubing

Teflon or Teflon lined polyethylene tubing are preferred when sampling is to include VOCs, SVOCs, pesticides, PCBs and inorganics.

PVC, polypropylene or polyethylene tubing may be used when collecting samples for inorganics analyses. However, these materials should be used with caution when sampling for organics. If these materials are used, the equipment blank (which includes the tubing) data must show that these materials do not add contaminants to the sample.

Stainless steel tubing may be used when sampling for VOCs, SVOCs, pesticides, and PCBs. However, it should be used with caution when sampling for metals.

The use of 1/4 inch or 3/8 inch (inner diameter) tubing is preferred. This will help ensure the tubing remains liquid filled when operating at very low pumping rates.

Pharmaceutical grade (Pharmed) tubing should be used for the section around the rotor head of a peristaltic pump, to minimize gaseous diffusion.

C. Water level measuring device(s), capable of measuring to 0.01 foot accuracy (electronic "tape", pressure transducer). Recording pressure transducers, mounted above the pump, are especially helpful in tracking water levels during pumping operations, but their use must include check measurements with a water level "tape" at the start and end of each record.

D. Flow measurement supplies (e.g., graduated cylinder and stop watch).

E. Interface probe, if needed.

F. Power source (generator, nitrogen tank, etc.). If a gasoline generator is used, it must be located downwind and at least 30 feet from the well so that the exhaust fumes do not contaminate the samples.

G. Indicator field parameter monitoring instruments - pH, Eh, dissolved oxygen (DO), turbidity, specific conductance, and temperature. Use of a flow-through-cell is required when measuring all listed parameters, except turbidity. Standards to perform field calibration of instruments. Analytical methods are listed in 40 CFR 136, 40 CFR 141, and SW-846. For Eh measurements, follow manufacturer's instructions.

H. Decontamination supplies (for example, non-phosphate detergent, distilled/deionized water, isopropyl alcohol, etc.).

I. Logbook(s), and other forms (for example, well purging forms).

J. Sample Bottles.

K. Sample preservation supplies (as required by the analytical methods).

L. Sample tags or labels.

M. Well construction data, location map, field data from last sampling event.

N. Well keys.

O. Site specific Sample and Analysis Plan/Quality Assurance Project Plan.

P. PID or FID instrument (if appropriate) to detect VOCs for health and safety purposes, and provide qualitative field evaluations.

III. PRELIMINARY SITE ACTIVITIES

Check well for security damage or evidence of tampering, record pertinent observations.

Lay out sheet of clean polyethylene for monitoring and sampling equipment.

Remove well cap and immediately measure VOCs at the rim of the well with a PID or FID instrument and record the reading in the field logbook.

If the well casing does not have a reference point (usually a V-cut or indelible mark in the well casing), make one. Describe its location and record the date of the mark in the logbook.

A synoptic water level measurement round should be performed (in the shortest possible time) before any purging and sampling activities begin. It is recommended that water level depth (to 0.01 ft.) and

total well depth (to 0.1 ft.) be measured the day before, in order to allow for re-settlement of any particulates in the water column. If measurement of total well depth is not made the day before, it should not be measured until after sampling of the well is complete. All measurements must be taken from the established referenced point. Care should be taken to minimize water column disturbance.

Check newly constructed wells for the presence of LNAPLs or DNAPLs before the initial sampling round. If none are encountered, subsequent check measurements with an interface probe are usually not needed unless analytical data or field head space information signal a worsening situation. Note: procedures for collection of LNAPL and DNAPL samples are not addressed in this SOP.

IV. PURGING AND SAMPLING PROCEDURE

Sampling wells in order of increasing chemical concentrations (known or anticipated) is preferred.

1. Install Pump

Lower pump, safety cable, tubing and electrical lines slowly (to minimize disturbance) into the well to the midpoint of the zone to be sampled. The Sampling and Analysis Plan should specify the sampling depth, or provide criteria for selection of intake depth for each well (see Section I). If possible keep the pump intake at least two feet above the bottom of the well, to minimize mobilization of particulates present in the bottom of the well. Collection of turbid free water samples may be especially difficult if there is two feet or less of standing water in the well.

2. Measure Water Level

Before starting pump, measure water level. If recording pressure transducer is used-initialize starting condition.

3. Purge Well

3a. Initial Low Stress Sampling Event

Start the pump at its lowest speed setting and slowly increase the speed until discharge occurs. Check water level. Adjust pump speed until there is little or no water level drawdown (less than 0.3 feet). If the minimal drawdown that can be achieved exceeds 0.3 feet but remains stable, continue purging until indicator field parameters stabilize.

Monitor and record water level and pumping rate every three to five minutes (or as appropriate) during purging. Record any pumping rate adjustments (both time and flow rate). Pumping rates should, as needed, be reduced to the minimum capabilities of the pump (for example, 0.1 - 0.4 l/min) to ensure stabilization of indicator

parameters. Adjustments are best made in the first fifteen minutes of pumping in order to help minimize purging time. During pump start-up, drawdown may exceed the 0.3 feet target and then "recover" as pump flow adjustments are made. Purge volume calculations should utilize stabilized drawdown value, not the initial drawdown. Do not allow the water level to fall to the intake level (if the static water level is above the well screen, avoid lowering the water level into the screen). The final purge volume must be greater than the stabilized drawdown volume plus the extraction tubing volume.

Wells with low recharge rates may require the use of special pumps capable of attaining very low pumping rates (bladder, peristaltic), and/or the use of dedicated equipment. If the recharge rate of the well is lower than extraction rate capabilities of currently manufactured pumps and the well is essentially dewatered during purging, then the well should be sampled as soon as the water level has recovered sufficiently to collect the appropriate volume needed for all anticipated samples (ideally the intake should not be moved during this recovery period). Samples may then be collected even though the indicator field parameters have not stabilized.

3b. Subsequent Low Stress Sampling Events

After synoptic water level measurement round, check intake depth and drawdown information from previous sampling event(s) for each well. Duplicate, to the extent practicable, the intake depth and extraction rate (use final pump dial setting information) from previous event(s). Perform purging operations as above.

4. Monitor Indicator Field Parameters

During well purging, monitor indicator field parameters (turbidity, temperature, specific conductance, pH, Eh, DO) every three to five minutes (or less frequently, if appropriate). Note: during the early phase of purging emphasis should be put on minimizing and stabilizing pumping stress, and recording those adjustments. Purging is considered complete and sampling may begin when all the above indicator field parameters have stabilized. Stabilization is considered to be achieved when three consecutive readings, taken at three (3) to five (5) minute intervals, are within the following limits:

turbidity (10% for values greater than 1 NTU),
DO (10%),
specific conductance (3%),
temperature (3%),
pH (± 0.1 unit),
ORP/Eh (± 10 millivolts).

All measurements, except turbidity, must be obtained using a flow-through-cell. Transparent flow-through-cells are preferred, because they allow field personnel to watch for particulate build-up within the cell. This build-up may affect indicator field parameter values

measured within the cell and may also cause an underestimation of turbidity values measured after the cell. If the cell needs to be cleaned during purging operations, continue pumping and disconnect cell for cleaning, then reconnect after cleaning and continue monitoring activities.

The flow-through-cell must be designed in a way that prevents air bubble entrapment in the cell. When the pump is turned off or cycling on/off (when using a bladder pump), water in the cell must not drain out. Monitoring probes must be submerged in water at all times. If two flow-through-cells are used in series, the one containing the dissolved oxygen probe should come first (this parameter is most susceptible to error if air leaks into the system).

5. Collect Water Samples

Water samples for laboratory analyses must be collected before water has passed through the flow-through-cell (use a by-pass assembly or disconnect cell to obtain sample).

VOC samples should be collected first and directly into pre-preserved sample containers. Fill all sample containers by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence.

During purging and sampling, the tubing should remain filled with water so as to minimize possible changes in water chemistry upon contact with the atmosphere. It is recommended that 1/4 inch or 3/8 inch (inside diameter) tubing be used to help insure that the sample tubing remains water filled. If the pump tubing is not completely filled to the sampling point, use one of the following procedures to collect samples: (1) add clamp, connector (Teflon or stainless steel) or valve to constrict sampling end of tubing; (2) insert small diameter Teflon tubing into water filled portion of pump tubing allowing the end to protrude beyond the end of the pump tubing, collect sample from small diameter tubing; (3) collect non-VOC samples first, then increase flow rate slightly until the water completely fills the tubing, collect sample and record new drawdown, flow rate and new indicator field parameter values.

Add preservative, as required by analytical methods, to samples immediately after they are collected if the sample containers are not pre-preserved. Check analytical methods (e.g. EPA SW-846, water supply, etc.) for additional information on preservation. Check pH for all samples requiring pH adjustment to assure proper pH value. For VOC samples, this will require that a test sample be collected during purging to determine the amount of preservative that needs to be added to the sample containers prior to sampling.

If determination of filtered metal concentrations is a sampling objective, collect filtered water samples using the same low flow procedures. The use of an in-line filter is required, and the filter

size (0.45 um is commonly used) should be based on the sampling objective. Pre-rinse the filter with approximately 25 - 50 ml of ground water prior to sample collection. Preserve filtered water sample immediately. Note: filtered water samples are not an acceptable substitute for unfiltered samples when the monitoring objective is to obtain chemical concentrations of total mobile contaminants in ground water for human health risk calculations.

Label each sample as collected. Samples requiring cooling (volatile organics, cyanide, etc.) will be placed into a cooler with ice or refrigerant for delivery to the laboratory. Metal samples after acidification to a pH less than 2 do not need to be cooled.

6. Post Sampling Activities

If recording pressure transducer is used, remeasure water level with tape.

After collection of the samples, the pump tubing may either be dedicated to the well for resampling (by hanging the tubing inside the well), decontaminated, or properly discarded.

Before securing the well, measure and record the well depth (to 0.1 ft.), if not measured the day before purging began. Note: measurement of total well depth is optional after the initial low stress sampling event. However, it is recommended if the well has a "silting" problem or if confirmation of well identity is needed.

Secure the well.

V. DECONTAMINATION

Decontaminate sampling equipment prior to use in the first well and following sampling of each subsequent well. Pumps will not be removed between purging and sampling operations. The pump and tubing (including support cable and electrical wires which are in contact with the well) will be decontaminated by one of the procedures listed below.

Procedure 1

The decontaminating solutions can be pumped from either buckets or short PVC casing sections through the pump or the pump can be disassembled and flushed with the decontaminating solutions. It is recommended that detergent and isopropyl alcohol be used sparingly in the decontamination process and water flushing steps be extended to ensure that any sediment trapped in the pump is removed. The pump exterior and electrical wires must be rinsed with the decontaminating solutions, as well. The procedure is as follows:

Flush the equipment/pump with potable water.

Flush with non-phosphate detergent solution. If the solution is recycled, the solution must be changed periodically.

Flush with potable or distilled/deionized water to remove all of the detergent solution. If the water is recycled, the water must be changed periodically.

Flush with isopropyl alcohol (pesticide grade). If equipment blank data from the previous sampling event show that the level of contaminants is insignificant, then this step may be skipped.

Flush with distilled/deionized water. The final water rinse must not be recycled.

Procedure 2

Steam clean the outside of the submersible pump.

Pump hot potable water from the steam cleaner through the inside of the pump. This can be accomplished by placing the pump inside a three or four inch diameter PVC pipe with end cap. Hot water from the steam cleaner jet will be directed inside the PVC pipe and the pump exterior will be cleaned. The hot water from the steam cleaner will then be pumped from the PVC pipe through the pump and collected into another container. Note: additives or solutions should not be added to the steam cleaner.

Pump non-phosphate detergent solution through the inside of the pump. If the solution is recycled, the solution must be changed periodically.

Pump potable water through the inside of the pump to remove all of the detergent solution. If the solution is recycled, the solution must be changed periodically.

Pump distilled/deionized water through the pump. The final water rinse must not be recycled.

VI. FIELD QUALITY CONTROL

Quality control samples are required to verify that the sample collection and handling process has not compromised the quality of the ground water samples. All field quality control samples must be prepared the same as regular investigation samples with regard to sample volume, containers, and preservation. The following quality control samples shall be collected for each batch of samples (a batch may not exceed 20 samples). Trip blanks are required for the VOC samples at a frequency of one set per VOC sample cooler.

Field duplicate.

Matrix spike.

Matrix spike duplicate.

Equipment blank.

Trip blank (VOCs).

Temperature blank (one per sample cooler).

Equipment blank shall include the pump and the pump's tubing. If tubing is dedicated to the well, the equipment blank will only include the pump in subsequent sampling rounds.

Collect samples in order from wells with lowest contaminant concentration to highest concentration. Collect equipment blanks after sampling from contaminated wells and not after background wells.

Field duplicates are collected to determine precision of sampling procedure. For this procedure, collect duplicate for each analyte group in consecutive order (VOC original, VOC duplicate, SVOC original, SVOC duplicate, etc.).

If split samples are to be collected, collect split for each analyte group in consecutive order (VOC original, VOC split, etc.). Split sample should be as identical as possible to original sample.

All monitoring instrumentation shall be operated in accordance with EPA analytical methods and manufacturer's operating instructions. EPA analytical methods are listed in 40 CFR 136, 40 CFR 141, and SW-846 with exception of Eh, for which the manufacturer's instructions are to be followed. Instruments shall be calibrated at the beginning of each day. If a measurement falls outside the calibration range, the instrument should be re-calibrated so that all measurements fall within the calibration range. At the end of each day, check calibration to verify that instruments remained in calibration. Temperature measuring equipment, thermometers and thermistors, need not be calibrated to the above frequency. They should be checked for accuracy prior to field use according to EPA Methods and the manufacturer's instructions.

VII. FIELD LOGBOOK

A field log shall be kept to document all ground water field monitoring activities (see attached example matrix), and record all of the following:

Well identification.

Well depth, and measurement technique.

Static water level depth, date, time and measurement technique.

Presence and thickness of immiscible liquid (NAPL) layers and

detection method.

Pumping rate, drawdown, indicator parameters values, and clock time, at the appropriate time intervals; calculated or measured total volume pumped.

Well sampling sequence and time of each sample collection.

Types of sample bottles used and sample identification numbers.

Preservatives used.

Parameters requested for analysis.

Field observations during sampling event.

Name of sample collector(s).

Weather conditions.

QA/QC data for field instruments.

Any problems encountered should be highlighted.

Description of all sampling equipment used, including trade names, model number, diameters, material composition, etc.

VIII. DATA REPORT

Data reports are to include laboratory analytical results, QA/QC information, and whatever field logbook information is needed to allow for a full evaluation of data useability.

EXAMPLE (Minimum Requirements) Page____of____

Well PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name)_____ Depth to _____/_____ of screen
Well Number_____ Date_____ (below MP) top bottom
Field Personnel_____ Pump Intake at (ft. below MP)_____
Sampling Organization_____ Purging Device; (pump type)_____
Identify MP_____

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP/ Eh[3] mv	DO mg/L	Turb-idity NTU	Comments

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

ATTACHMENT 8

STATE OF CALIFORNIA - CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

PETE WILSON, Governor

STATE WATER RESOURCES CONTROL BOARD
PAUL R. BONDERSON BUILDING
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OCT 15 1992

TO: INTERESTED PARTIES

AMENDED GENERAL INDUSTRIAL ACTIVITIES STORM WATER PERMIT

Enclosed is an updated copy of the General Industrial Activities Storm Water Permit (General Permit) adopted by the State Water Resources Control Board (State Water Board) on November 19, 1991 and amended on September 17, 1992. Dischargers who have not already filed their Notice of Intent (NOI) to comply with the terms of the General Permit and the first annual fee must submit a NOI accompanied by the first annual fee to the State Water Board in order to be covered by this General Permit. The NOI and fee must be sent to the following address:

State Water Resources Control Board
Division of Water Quality
Attention: Storm Water Permit Unit
P.O. Box 1977
Sacramento, CA 95812-1977

The NOI will only be processed if accompanied by the appropriate fee. The fee will be either $250.00 or $500.00. Enclosure 1 describes those areas in which the $250.00 annual fee applies. Dischargers in all other areas of the State must pay the $500.00 annual fee.

Attachment 2 to the Permit lists the nine California Regional Water Quality Control Boards' (Regional Water Boards) addresses and telephone numbers. You should discuss any questions or issues which relate to the implementation of the General Permit with Regional Water Board staff.

The updated General Permit contains amended monitoring and reporting requirements (Section B of the General Permit) that replace the original monitoring and reporting requirements. The new monitoring and reporting requirements have been simplified and now offer several sampling and analysis exemption options. Existing dischargers must develop and implement a monitoring program by January 1, 1993. New dischargers (those beginning industrial activity after January 1, 1993) must develop and implement a monitoring program prior to the commencement of industrial activity.

The amended monitoring and reporting provisions require that group monitoring proposals be submitted to the appropriate Regional Water Board(s) by December 1, 1992 and in subsequent years by August 1. Groups with participants within the boundaries of more than one Regional Water Board must send their group monitoring proposal to the State Water Board's Executive Director for approval to the above address.

Also, we would appreciate it if you would inform other industries similar to your own of the need to obtain a storm water permit. If you know of industries that need to obtain a permit but may be unaware of the State's program, please ask them to call Division of Water Quality staff at the telephone number shown below.

If you have any questions regarding this General Permit, please telephone the industrial activities storm water permit information line at (916) 657-0919.

Sincerely,

ORIGINAL SIGNED BY:

Walt Pettit
Executive Director

Enclosures (2)

Enclosure 1

AREAS OF THE STATE IN WHICH THE $250.00 ANNUAL FEE APPLIES

Municipality	Permitted Area
1. Alameda County	The permitted area of the county is the westerly side of the county which drains to San Francisco Bay.
2. Los Angeles County	The permitted area consists of the five hydrologic subbasins which drain into the Pacific Ocean as follows: Santa Monica Bay, Upper Los Angeles River, including Sycamore Channel, Upper San Gabriel River, Lower Los Angeles River, and Lower San Gabriel River, including Santa Clarita Valley. The permit does not cover the cities of Avalon, Lancaster, and Palmdale.
3. Orange County	The permitted area is delineated by the Los Angeles County line on the northwest, the San Bernardino County line on the north and northeast, the Riverside County line on the east, the San Diego County line on the south, and the Pacific Ocean on the southwest.
4. Riverside County	The permitted area is delineated by the San Bernardino County line on the north and northwest, the Orange County line on the west, the San Diego County line on the south, and the Santa Ana/Colorado River Basin Regional Boards' boundary line on the east (mountain crest).
5. Sacramento County	The entire county except for the incorporated City of Isleton.
6. San Bernardino County	The permitted area is delineated by the Santa Ana-Lahontan Regional Board boundary line on the north and northeast, the Santa Ana-Colorado River Basin Regional Board boundary line on the east, the San Bernardino-Riverside

Municipality	Permitted Area
	County boundary line on the south and southeast, the San-Bernardino-Orange County boundary line on the southwest, and the San Bernardino-Los Angeles County boundary line on the west.
7. San Diego County	The permitted area is delineated by the San Diego County lines on the north and south, the Pacific Ocean on the west, and the San Diego/Colorado River Basin Regional Board boundary on the east (mountain crest).
8. Santa Clara County	The Santa Clara Valley Basin portion of the county containing eleven hydrologic subbasins which discharge into watercourses which in turn flow into South San Francisco Bay.

STATE WATER RESOURCES CONTROL BOARD (STATE WATER BOARD)
901 P STREET
SACRAMENTO, CA 95814

FACT SHEET
FOR
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT (NPDES)
GENERAL PERMIT (AS AMENDED SEPTEMBER 17, 1992) FOR
STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES
EXCLUDING CONSTRUCTION ACTIVITIES

BACKGROUND

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act (CWA)) was amended to provide that the discharge of pollutants to waters of the United States from any point source is effectively prohibited, unless the discharge is in compliance with a NPDES permit. The 1987 amendments to the CWA added Section 402(p) which establishes a framework for regulating municipal and industrial storm water discharges under the NPDES program. On November 16, 1990, the U.S. Environmental Protection Agency (USEPA) published final regulations that establish application requirements for storm water permits. The regulations require that storm water associated with industrial activity (industrial storm water) that discharges either directly to surface waters or indirectly, through municipal separate storm sewers, must be regulated by a NPDES permit. This includes the discharge of "sheet flow" through a drainage system or other conveyance.

The federal regulations allow authorized states to issue general permits or individual permits to regulate industrial storm water discharges. The State Water Board has elected to issue a statewide general permit that will apply to all industrial storm water discharges requiring a permit except construction activity. A separate statewide general permit has been issued for construction activity. To obtain authorization for continued and future industrial storm water discharge, owners, or operators when the owners do not operate the facility (dischargers), must submit a Notice of Intent (NOI) to be covered by this general permit. This approach is consistent with the four-tier permitting strategy described in federal regulations, i.e., Tier 1, Baseline Permitting. Tier 1, Baseline Permitting, enables the State to begin reducing pollutants in industrial storm water in the most efficient manner possible. Thus, as soon as possible, all dischargers will be required by this general permit to begin implementing practices to prevent storm water pollution. Time will not be lost preparing detailed individual and general permit applications before implementing practices to prevent storm water pollution.

The State Water Board has elected not to accept USEPA's group application approach or to adopt general permits for specific industrial groups at this time. All dischargers participating in group applications must either obtain coverage under this general permit or apply for an individual permit by October 1, 1992. The State Water Board bases this decision on the following factors:

1. USEPA does not allow the states to review and approve the group applications.

2. Review of hundreds of USEPA model permits and preparation of hundreds of group-specific general permits is administratively burdensome and is inconsistent with the State Water Board's long-term permitting strategy.

3. Allowing the group application action in California would result in an inequitable and ineffective storm water permitting program. While group applicants would not be required to implement best management practices (BMPs) to reduce pollutants in storm water discharge until they receive a permit (probably several years), dischargers under the State Water Board's general permit will be required to implement BMPs on October 1, 1992.

4. The State Water Board is providing a group monitoring alternative, somewhat similar to the group application monitoring requirements, that should provide reduced monitoring costs to the dischargers.

When USEPA issues model permits for any groups, the Regional Water Boards may consider, as appropriate, adopting group permits based upon the USEPA model permits.

The general permit accompanying this fact sheet is intended to regulate industrial storm water discharges. The consolidation of many discharges under one general permit will greatly reduce the otherwise overwhelming administrative burden associated with start up of a new program to regulate industrial storm water discharges. It is also the least costly way for a discharger to obtain a permit and comply with USEPA's regulations. It is expected that as the storm water program develops, the Regional Water Boards will issue individual and general permits which regulate discharges specific either to industrial categories or to watersheds. As new permits are adopted, dischargers subject to those permits will no longer be regulated by this general permit. As permits are reissued for discharges of treated wastewater that are currently regulated by a NPDES permit, Regional Water Boards may include storm water provisions in the revised permit.

This general permit generally requires dischargers to:

1. Eliminate most non-storm water discharges (including illicit connections) to storm water sewer systems;
2. Develop and implement a storm water pollution prevention plan; and
3. Perform monitoring of discharges to storm water sewer systems.

TYPES OF STORM WATER DISCHARGES COVERED BY THIS GENERAL PERMIT

This general permit is intended to cover all new or existing discharges composed entirely of industrial storm water from facilities required by federal regulations to obtain a permit. This includes all facilities that are participating in a group application. The State Water Board notes that officials from USEPA have stated that the regulations include only those facilities which are operated by industries whose primary function is described in the categories listed below. The State Water Board does not agree with this interpretation of the regulations, as the regulations are based on the primary activity at each industrial facility, and not the primary business of the owner or operator of the facility. The State Water Board concludes that, based on its interpretation of the federal regulations, and its duty and authority to protect water quality within California, the general permit must extend to all facilities which are described in the categories below, whether the activity is primary or is auxiliary to the owner or operator of the facility. For example, even though a school district's primary function is education, a facility which it operates for vehicle maintenance of school buses is a transportation facility which is covered by this general permit.

Discharges from facilities and commercial enterprises which are not required by federal regulations to obtain a permit will not be covered by this general permit unless designated by the Regional Water Board.

Discharges requiring a permit are listed by category in 40 Code of Federal Regulations (CFR) Section 122.26(b)(14) (Federal Register, Volume 55 at Pages 48065-66). The facilities can be publicly or privately owned. A general description of these categories are:

1. Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards (40 CFR Subchapter N);
2. Manufacturing facilities;
3. Mining and Oil and Gas facilities;
4. Hazardous waste treatment, storage, or disposal facilities;
5. Landfills, land application sites, and open dumps that receive industrial waste;
6. Recycling facilities such as metal scrap yards, battery reclaimers, salvage yards, automobile yards;
7. Steam electric generating facilities;
8. Transportation facilities;
9. Sewage treatment plants;
10. Construction activity (covered by a separate general permit); and
11. Certain facilities if materials are exposed to storm water.

For the most part, these facilities are identified in the federal regulations by Standard Industrial Classification (SIC). Attachment 1 to the general permit contains a more detailed description including SIC codes of industries to be regulated.

Category 1 Dischargers

The following categories of facilities currently have storm water effluent limitations guidelines for at least one of their subcategories. They are cement manufacturing (40 CFR Part 411); feedlots (40 CFR Part 412); fertilizer manufacturing (40 CFR Part 418); petroleum refining (40 CFR Part 419); phosphate manufacturing (40 CFR Part 422); steam electric power generation (40 CFR Part 423); coal mining (40 CFR Part 434); mineral mining and processing (40 CFR Part 436); ore mining and dressing (40 CFR Part 440); and asphalt emulsion (40 CFR Part 443). A facility that falls into one of these general categories should examine the effluent guidelines to determine if it is categorized in one of the subcategories that have storm water effluent guidelines. If a facility is classified as one of those subcategories, that facility is subject to the standards listed in the CFR for that category, and is subject to this general permit. This general permit contains additional requirements (see Section B.7) for facilities with storm water effluent limitations guidelines.

Category 5 Dischargers

Inactive or closed landfills, land application sites, and open dumps that have received industrial wastes (Category 5) may be subject to this general permit unless (1) the storm water discharges from the sites are already regulated by a NPDES permit issued by the appropriate Regional Water Board, (2) the site has closed pursuant to the provisions of Chapter 15, Title 23, California Code of Regulations, or (3) the site has been converted to a new land use and is no longer discharging storm water in contact with the site's waste. Owners or operators of closed landfills that are regulated by waste discharge requirements (WDRs) may be required to comply with this general permit. In some cases, it may be appropriate for closed landfills to be covered by the State Water Board's General Construction Activity Storm Water Permit during closure activities. The appropriate Regional Water Board should be contacted for this determination.

Category 11 Dischargers

Dischargers in Category 11 that believe they are not subject to this general permit because of no exposure should conduct a facility inspection and document that the following minimum conditions have been met:

1. All illicit connections to the storm drainage system have been eliminated;

2. All materials are completely contained at all times;

3. All unhoused equipment associated with industrial activity is not exposed to storm water; and

4. All emissions from stacks or exhaust systems and emissions of dust or particulates do not contribute significant quantities of pollutants to storm water discharge.

Dischargers should evaluate all direct and indirect pathways of exposure. Dischargers are not required to submit this documentation but are advised to keep the above documentation on site.

In a recent ruling, the Ninth Circuit Court of Appeals invalidated the exemption granted by USEPA for storm water discharges from facilities in Category 11 that do not have exposure and remanded the regulation to USEPA for further action. The State Water Board, at this time, is not requiring storm water discharges from facilities in Category 11 that do not have exposure to be covered by this general permit. Instead, the State

Water Board will await future USEPA or court action clarifying the types of storm water discharges that must be permitted. If necessary, the State Water Board will reopen the general permit to accommodate such a clarification.

TYPES OF DISCHARGES NOT COVERED BY THIS GENERAL PERMIT

- CONSTRUCTION ACTIVITY: Discharges from construction activity of five acres or more, including clearing, grading and excavation. A separate general permit was adopted on August 20, 1992 for this industrial category.

- FACILITIES LOCATED IN SANTA CLARA COUNTY WHICH DRAIN TO SAN FRANCISCO BAY: The San Francisco Bay Regional Water Board has adopted a general permit for discharges from facilities located in Santa Clara County which drain to San Francisco Bay.

- FACILITIES COVERED BY INDIVIDUAL PERMITS: While it is the intent of the State Water Board, in order to reduce administrative burden, to regulate most discharges of industrial storm water by this general permit, dischargers may choose to apply for an individual NPDES Permit. Permit application requirements are set forth in the USEPA regulations at 40 CFR Section 122.21.

- FACILITIES WHICH HAVE NPDES PERMITS CONTAINING STORM WATER PROVISIONS: The NPDES permits for some industrial waste water discharges already contain requirements regulating storm water. These discharges are in compliance with storm water regulations and will not be regulated by this general permit. When the existing permit for such discharges expires, a Regional Water Board may authorize coverage under this permit, or another general permit, or issue a new permit consistent with the new federal and State storm water requirements.

- FACILITIES DETERMINED INELIGIBLE BY REGIONAL WATER BOARDS: Regional Water Boards may determine that discharges from a facility or groups of facilities, otherwise eligible for coverage under this general permit, have potential water quality impacts that may not be addressed by this general permit. In such cases, a Regional Water Board may require such dischargers to apply for and obtain an individual permit or a different general permit. Interested persons may petition the appropriate Regional Water Board to issue individual permits. The applicability of this general permit to such discharges will be terminated upon adoption of an individual permit or a different general permit.

- FACILITIES WHICH DO NOT DISCHARGE STORM WATER TO WATERS OF THE UNITED STATES: The discharges from the following facilities are not required to obtain a permit:

  1. FACILITIES THAT DISCHARGE STORM WATER TO MUNICIPAL SANITARY SEWER SYSTEMS: Facilities that discharge storm water to municipal sanitary sewer systems or combined sewer systems are not required by federal regulations to obtain a storm water permit or to submit a NOI to comply with this general permit. (It should be noted that many municipalities have sewer use ordinances that prohibit storm drain connections to their sanitary sewers.)

  2. FACILITIES THAT DO NOT DISCHARGE STORM WATER TO SURFACE WATERS OR SEPARATE STORM SEWERS: Dischargers that capture all industrial storm water runoff from their facilities and treat and/or dispose of it with their process waste water, and dischargers that dispose of their industrial storm water to evaporation ponds, percolation ponds, or combined sewer systems, are not required to obtain a storm water permit. To avoid liability, the discharger should be certain that a discharge of industrial storm water to surface waters will not occur under any circumstances.

- LOGGING ACTIVITIES: Logging activities described under SIC 2411.

- MINING AND OIL AND GAS FACILITIES: Oil and gas facilities that have not released storm water resulting in a discharge of a reportable quantity (RQ) for which notification is or was required pursuant to 40 CFR Parts 110, 117, and 302 at any time after November 19, 1988 are not required to be permitted unless the industrial storm water discharge contributed to a violation of a water quality standard. Mining facilities that discharge storm water that does not come into contact with any overburden, raw materials, intermediate product, finished product, by-product, or waste product located at the facility are not required to be permitted. These facilities must obtain a storm water permit if they have a new release of storm water resulting in a discharge of a RQ.

- FACILITIES ON INDIAN LANDS: Discharges from facilities on Indian lands will be regulated by the USEPA.

NOTIFICATION REQUIREMENTS

Dischargers of facilities described in the section entitled "Types of Storm Water Discharges Covered by This General Permit", must obtain a permit to discharge storm water. A NOI must be submitted for each individual facility to obtain coverage. Certification of the NOI signifies that the discharger intends to comply with the provisions of the general permit.

Dischargers that do not submit a NOI for facilities must submit an application for an individual permit. USEPA's regulations (40 CFR 122.21 [a]) exclude dischargers covered by a general permit from requirements to submit permit applications. The NOI requirements of this general permit are intended to establish a mechanism which can be used to establish a clear accounting of the number of dischargers complying with the general permit, their identities, the nature of operations at the facilities, and location.

Dischargers of existing facilities in California were required to obtain coverage by submitting a completed NOI no later than March 30, 1992. Dischargers of new facilities (those beginning operations after March 30, 1992) must submit a NOI 30 days prior to the beginning of operations. The NOI must be sent to the following address:

California State Water Resources Control Board
Division of Water Quality
P. O. Box 1977
Sacramento, CA 95812-1977
Attention: Storm Water Permitting Unit

Facilities that do not obtain coverage under this general permit or by an individual NPDES permit for a discharge of industrial storm water, by the appropriate deadlines, will be in violation of the Clean Water Act and the California Water Code. There are substantial penalties which can be pursued by the State or Regional Water Boards, USEPA, or by private citizens for violation of these laws. Facilities that miss the appropriate deadlines for filing their NOIs may file their NOIs late but will be in violation for the period they were late. In general, late filers should develop and implement their SWPPP and Monitoring Plan no more than 30 days following submittal of their late NOI. Dischargers that cannot develop and implement these plans within 30 days should notify the appropriate Regional Water Board.

DESCRIPTION OF GENERAL PERMIT CONDITIONS

Prohibitions

This general permit authorizes the discharge of industrial storm water from industrial facilities that are required to obtain industrial storm water permits. This general permit prohibits most non-storm water discharges (including illicit connections) and discharges containing hazardous substances in storm water in excess of reportable quantities established at 40 CFR 117.3 and 40 CFR 302.4. Allowable non-storm water discharges are discussed below under the heading Storm Water Pollution Prevention Plan (SWPPP).

Effluent Limitations

Permits for discharges of industrial storm water must meet all applicable provisions of Sections 301 and 402 of the CWA. These provisions require control of pollutant discharges that use best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to reduce pollutants, and any more stringent controls necessary to meet water quality standards.

USEPA regulations (40 CFR Subchapter N) establish numeric effluent limitations for storm water discharges from facilities in ten industrial categories. For these facilities, the numeric effluent limitations constitute BAT and BCT for the specified pollutants, and must be met to comply with this general permit.

For storm water discharges from facilities not among the ten industrial categories listed in 40 CFR Subchapter N, it is not feasible at this time to establish numeric effluent limitations. The reasons why establishment of numeric effluent limitations is not feasible are discussed in detail in State Water Board Orders No. WQ 91-03 and WQ 91-04. Therefore, the effluent limitations contained in this general permit are narrative and include best management practices (BMPs).

These effluent limitations constitute compliance with the requirements of the Clean Water Act.

The narrative effluent limitations in this general permit include prohibitions against most discharges of non-storm water. They require dischargers to control and eliminate the sources of pollutants in storm water through the development and implementation of storm water pollution prevention plans. The plans must include best management practices, which may include treatment of storm water discharges along with source reduction, which will constitute BAT and BCT and will achieve compliance with water quality standards. If water quality standards are not met, the appropriate Regional Water Board may specify any additional effluent limitations necessary to meet the specific standards.

Storm Water Pollution Prevention Plans (SWPPP)

This general permit requires development and implementation of SWPPP emphasizing storm water BMPs. This approach provides the flexibility necessary to establish controls which can appropriately address different sources of pollutants at different facilities. Existing dischargers must develop and implement a SWPPP by October 1, 1992. New dischargers must submit a NOI, and develop and implement a SWPPP prior to commencement of operations.

All dischargers must prepare, retain on site, and implement a SWPPP. The SWPPP has two major objectives: (1) to help identify the sources of pollution that affect the quality of industrial storm water discharges; and (2) to describe and ensure the implementation of practices to reduce pollutants in industrial storm water discharges.

The SWPPPs are considered reports available to the public under Section 308(b) of the Clean Water Act. Required elements of a SWPPP are: (1) source identification, (2) practices to reduce pollutants, (3) an assessment of potential pollution sources, (4) a materials inventory, (5) a preventive maintenance program, (6) spill prevention and response procedures, (7) general storm water management practices, (8) employee training, (9) recordkeeping, and (10) elimination of unpermitted non-storm water discharges to the industrial storm water system. Elimination of non-storm water discharges is a major element of the SWPPP. Non-storm water discharges include a wide variety of sources including illicit connections (i.e., floor drains), improper dumping, spills, or leakage from storage tanks or transfer areas. Non-storm water discharges can contribute a significant pollutant load to receiving waters. Measures to control spills, leakage, and dumping can often be addressed through BMPs. Non-storm water discharges and industrial storm water mixed with non-storm water prior to discharge should be covered by a separate NPDES Permit.

There are many discharges that may occur at a facility that are not related to industrial activity (i.e., air conditioning condensate, fire control water line testing, landscaping overflow, etc.). It is not the intent of this Permit to prohibit all non-industrial-related discharges. Non-industrial-related discharges may be appropriate if they:

1. Are not subject to local Regional Water Board permitting requirements.
2. Do not contain significant quantities of industrial-related pollutants.
3. Are infeasible to eliminate.
4. Are identified and addressed in the SWPPP and monitoring program.
5. Are in compliance with local municipal storm water permittee requirements.

Monitoring Program

The general permit requires development and implementation of a monitoring program. Existing dischargers must develop and implement a monitoring program by January 1, 1993. New dischargers must develop and implement a monitoring program prior to commencement of operations, but no earlier than January 1, 1993. The objectives of the monitoring program are to (1) demonstrate compliance with the permit, (2) aid in the implementation of the SWPPP, and (3) measure the effectiveness of the BMPs in removing pollutants in industrial storm water discharge.

All dischargers (with the exception of inactive mining operations) are required to:

1. Perform visual observations during the dry and wet seasons. Dry season observations are required to verify that non-storm water discharges have been eliminated. Wet season observations are required to aid dischargers in evaluating the effectiveness of the SWPPP.

2. Conduct an annual inspection to determine compliance with this general permit.

3. Perform or participate in a sampling and analysis program. Analysis must include pH, total suspended solids (TSS), total organic carbon (TCC), specific conductance, toxic substances, and other pollutants which are likely to be present in storm water discharges in significant quantities. Dischargers subject to federal storm water effluent limitations guidelines in 40 CFR Subchapter N must also sample and analyze for any pollutant specified in the appropriate category of 40 CFR Subchapter N.

Dischargers are not required to collect samples or perform visual observations during adverse climatic conditions. Sample collection and visual observations are required only during scheduled facility operating hours or within two hours after scheduled facility operating hours. Visual observations are required only during daylight hours. Dischargers that are unable to collect any of the required samples or visual observations because of the above circumstances must provide documentation to the Regional Water Board in their annual report.

Dischargers may be exempt from performing sampling and analysis if they: (1) do not have areas of industrial activity exposed to storm water, (2) receive certification from a local agency which has jurisdiction over the storm sewer system that the discharger has developed and implemented an effective SWPPP and should not be required to sample, or (3) receive an exemption from the appropriate Regional Water Board. Dischargers must always perform sampling and analysis for any pollutant specified in storm water effluent limitations guidelines.

Local agencies that wish to provide certifications to dischargers within their jurisdiction should develop a certification program that clearly indicates the certification procedures and criteria used by the local agency. At a minimum, these programs should include site inspections, a review of the dischargers' SWPPP, and a review of other records such as monitoring data, receiving water data, etc. It is recommended that the certification program be sent to the local Regional Water Board for review and comment prior to implementation.

Group Monitoring

Each discharger may either perform sampling and analysis individually or participate in a group sampling program. A group monitoring program may be developed either by an entity representing a group of similar facilities or by a local agency which holds a storm water permit for a municipal separate storm sewer system, for industrial facilities within its jurisdiction. The entity or local agency responsible for the group monitoring program must perform sampling at a minimum of 20 percent of the facilities within the group (and at least four dischargers in a group of less than 20 dischargers). The facilities selected for sampling must be representative of all the facilities in the group. Dischargers subject to federal effluent limitations guidelines in 40 CFR Subchapter N must individually sample and analyze for pollutants listed in the appropriate federal regulations.

Facilities within a group may be located within the jurisdiction of more than one Regional Water Board. Multi-Regional Water Board groups must receive the approval of the State Water Board Executive Director (with the concurrence of the appropriate Regional Water Boards). Groups may request variance from the minimum 20 percent (and a minimum of four facilities for groups of less than 20 dischargers) with adequate justification. As a minimum, the justification should: (1) explain the need for the variance, and (2) show that the variance, if approved, will result in representative monitoring data.

Each entity or local agency responsible for group sampling must: (1) ensure that the monitoring is done correctly, (2) recommend appropriate BMPs to reduce pollutants in storm water discharges from group participants, and (3) evaluate and report the monitoring data to the appropriate Regional Water Board(s).

All group monitoring plans are subject to Regional Water Board(s) review. Consistent with the four-tier permitting strategy described in the federal regulations, the Regional Water Board(s) will evaluate the data and results from group monitoring to establish future permitting decisions. As appropriate, Regional Water Board(s) may terminate or require substantial amendment to the group monitoring plans, dependent, in part, on the group's overall success in meeting the objectives of the Permit.

The State Water Board recognizes that the group monitoring option will result in fewer facilities monitored. The State Water Board believes that this is a desirable trade-off for the following reasons:

1. Review of monitoring data from all individual facilities is administratively burdensome.

2. Monitoring of fewer facilities, but with more parameters and better quality control, will result in more accurate and meaningful monitoring data.

3. Group monitoring is consistent with USEPA's four-tier permitting strategy.

4. As no numeric limits are specified in the Permit (with the exception of 40 CFR Subchapter N facilities), implementation of a SWPPP, performance of visual monitoring, and performance of an annual inspection are consistent with the minimum monitoring requirements of the CWA.

5. Data from group monitoring programs will be indicative of the effectiveness of BMPs to control pollution in storm water discharge. Additional BMPs, useful to the entire group, may be developed from the monitoring data.

6. A large percentage of dischargers are small businesses which do not have the regulatory sophistication, organizational structure, or resources to conduct an adequate individual monitoring program.

Retention of Records

The discharger is required to retain records of all monitoring information, copies of all reports required by this permit, and records of all data used to complete the NOI, for a period of five years from the date of measurement, report, or application. This period may be extended by the State and/or Regional Water Boards. All records are public documents.

STATE WATER RESOURCES CONTROL BOARD (STATE WATER BOARD)
WATER QUALITY ORDER NO. 91-13-DWQ (AS AMENDED BY WATER QUALITY ORDER NO. 92-12-DWQ)
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT NO. CAS000001

WASTE DISCHARGE REQUIREMENTS (WDRS)
FOR
DISCHARGES OF STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITIES
EXCLUDING CONSTRUCTION ACTIVITIES

The State Water Board finds that:

1. Federal regulations for storm water discharges were issued by the U.S. Environmental Protection Agency on November 16, 1990 (40 Code of Federal Regulations (CFR) Parts 122, 123, and 124). The regulations require specific categories of facilities, which discharge storm water associated with industrial activity (storm water), to obtain a NPDES permit and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or eliminate industrial storm water pollution.

2. This general permit shall regulate discharges of storm water from specific categories of industrial facilities identified in Attachment 1, excluding discharges covered by existing NPDES permits which already include provisions regulating discharges of storm water, discharges from construction activities, or discharges determined ineligible for coverage by this general permit by the California Regional Water Quality Control Boards (Regional Water Boards). Attachment 2 contains the addresses and telephone numbers of each Regional Water Board office.

3. All dischargers participating in group applications must either obtain coverage under this general permit or apply for an individual general permit by October 1, 1992. The State Water Board has elected not to accept USEPA's group application approach or to adopt general permits for industrial groups at this time.

4. This general permit does not preempt or supersede the authority of local agencies to prohibit, restrict, or control discharges of storm water to storm drain systems or other watercourses within their jurisdictions, as allowed by State and federal law.

5. To obtain authorization for continued and future storm water discharge pursuant to this general permit, owners, or operators when the owners does not operate the facility (dischargers), must submit a Notice of Intent (NOI) and appropriate fee to the State Water Board. Dischargers who submit a NOI and appropriate fee are authorized to discharge storm water under the terms and conditions of this general permit.

6. If an individual NPDES general permit is issued to a discharger otherwise subject to this general permit, or an alternative general permit is subsequently adopted which covers storm water discharges regulated by this general permit, the applicability of this general permit to such discharges is automatically terminated on the effective date of the individual general permit or the date of approval for coverage under the subsequent general permit.

7. Effluent limitations, and toxic and effluent standards established in Sections 208(b), 301, 302, 303(d), 304, 306, 307, and 403 of the Federal Clean Water Act (CWA), as amended, are applicable to storm water discharges regulated by this general permit.

8. This action to adopt a NPDES general permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.), in accordance with Section 13389 of the California Water Code.

9. The State Water Board adopted the California Ocean Plan on March 22, 1990, and the California Inland Surface Waters Plan and Enclosed Bays and Estuaries Plan on April 11, 1991. In addition, the Regional Water Boards have adopted and the State Water Board has approved Water Quality Control Plans (Basin Plans).

   Discharges regulated by this general permit must be in compliance with the water quality standards in these Plans, and subsequent amendments thereto. The State Water Board shall, by April 1996, determine what further actions are appropriate to ensure that discharges subject to this general permit are in compliance with the numerical objectives in the Inland Surface Waters Plan and the Enclosed Bays and Estuaries Plan.

10. Federal regulations (40 CFR Subchapter N) establish numeric effluent limitations for storm water discharges from facilities in ten industrial categories.

11. For facilities which do not have established numeric effluent limitations for storm water discharges in 40 CFR Subchapter N, it is not feasible at this time to establish numeric effluent limitations. This is due to the large number of discharges and the complex nature of storm water discharges.

12. Implementation of the provisions of this general permit constitutes compliance with BAT/BCT requirements, and with requirements to achieve water quality standards.

13. Best Management Practices (BMPs) to control and abate the discharge of pollutants in storm water discharges are authorized where numeric effluent limits are infeasible and the BMPs are reasonably necessary to achieve compliance with effluent limitations or water quality standards.

14. Following adoption of this general permit, the Regional Water Boards shall enforce the provisions of this general permit including the monitoring and reporting requirements.

15. Following public notice in accordance with State and Federal law and regulations, the State Water Board, in a public hearing held September 3, 1991, heard, considered, and responded to all comments pertaining to this general permit.

16. This Order is a NPDES general permit in compliance with Section 402 of the Clean Water Act and shall take effect upon adoption by the State Water Board.

IT IS HEREBY ORDERED that all dischargers that file a NOI indicating their intention to be regulated under the provisions of this general permit shall comply with the following:

A. DISCHARGE PROHIBITIONS:

1. Discharges of material other than storm water, which are not otherwise regulated by a NPDES permit, to a storm sewer system or waters of the nation are prohibited.

2. Storm water discharges for those facilities listed in Category I of Attachment 1 of this general permit shall not exceed the numeric effluent limitations as specified in Federal Regulations (40 CFR Subchapter N). Dischargers subject to those regulations who do not have or are unable to obtain copies of the pertinent regulations from other sources (e.g., Government Printing Office) should contact the:

State Water Resources Control Board
Division of Water Quality
P.O. Box 1977
Sacramento, CA 95812-1977
Attn: Storm Water Permitting Unit

3. Storm water discharges shall not cause or threaten to cause pollution, contamination, or nuisance.

4. Storm water discharges regulated by this general permit shall not contain a hazardous substance equal to or in excess of a reportable quantity listed in 40 CFR Part 117 and/or 40 CFR Part 302.

B. RECEIVING WATER LIMITATIONS:

1. Storm water discharges to any surface or ground water shall not adversely impact human health or the environment.

2. Storm water discharges shall not cause or contribute to a violation of any applicable water quality standards contained in the California Ocean Plan, Inland Surface Waters Plan, Enclosed Bays and Estuaries Plan, or the applicable Regional Water Boards' Basin Plan.

C. PROVISIONS

1. All dischargers must submit an NOI and appropriate fee for each facility covered by this general permit in accordance with Attachment 3: Notice of Intent--General Instructions.

2. All dischargers must develop and implement a Storm Water Pollution Prevention Plan for each facility covered by this general permit in accordance with Section A: Storm Water Pollution Prevention Plan.

3. All dischargers must develop and implement a Monitoring and Reporting Program Plan for each facility covered by this general permit in accordance with Section B: Monitoring Program and Reporting Requirements.

4. Feedlots as defined in 40 CFR Part 412 that are in full compliance with Section 2560 to Section 2563, Title 23, California Code of Regulations (Chapter 15) will be in compliance with all effluent limitations and prohibitions contained in this general permit. Feedlots must comply with any Regional Water Board WDRs or NPDES general permit regulating their storm water discharge. Feedlots that comply with Chapter 15, however, must perform monitoring in compliance with the requirements of Provisions 5(c) and 16 of Section B: Monitoring Program and Reporting Requirements.

5. All dischargers must comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding discharges of storm water to storm drain systems or other water courses under their jurisdiction, including applicable requirements in municipal storm water management programs developed to comply with NPDES general permits issued by the Regional Water Boards to local agencies.

6. All dischargers must comply with the standard provisions and reporting requirements for each facility covered by this general permit contained in Section C: Standard Provisions.

7. This general permit will expire on November 19, 1996. Upon reissuance of the NPDES general permit by the State Water Board, the facilities subject to this reissued general permit are required to file a revised NOI.

D. REGIONAL WATER BOARD AUTHORITIES

1. Following adoption of this general permit, Regional Water Boards shall:

   (a) Implement the provisions of this general permit, including, but not limited to, reviewing storm water pollution prevention plans, reviewing group monitoring plans, reviewing monitoring reports, conducting compliance inspections, and taking enforcement actions.

   (b) Issue general permits as they deem appropriate to individual dischargers, categories of dischargers, or dischargers in a geographic area. Upon issuance of such general permits by a Regional Water Board, the affected dischargers shall no longer be regulated by this general permit. The new general permits may address additional storm water pollution prevention plan requirements, more stringent effluent limitations, or additional monitoring and reporting program requirements.

2. Regional Water Boards may provide guidance to dischargers on Storm Water Pollution Prevention Plan and Monitoring Program implementation.

CERTIFICATION

The undersigned, Administrative Assistant to the State Water Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on November 19, 1991 (as amended by Water Quality Order No. 92-12-DWQ).

AYE: W. Don Maughan
Edwin H. Finster
Eliseo M. Samaniego
John P. Caffrey

NO: None

ABSENT: None

ABSTAIN: None

Maureen Marché
Administrative Assistant to the Board

Section A: STORM WATER POLLUTION PREVENTION PLAN

1. A storm water pollution prevention plan (SWPPP) shall be developed and implemented for each facility covered by this general permit. The SWPPP shall be designed to comply with BAT/BCT and be certified in accordance with the signatory requirements of Standard Provision C.9. For existing facilities (and new facilities beginning operations before October 1, 1992), a SWPPP shall be developed and implemented no later than October 1, 1992. For facilities beginning operations after October 1, 1992, a SWPPP shall be developed prior to submitting a NOI and implemented when the facility begins operations. The SWPPP shall be retained onsite and made available upon request of a representative of the Regional Water Board and/or local storm water management agency (local agency) which receives the storm water discharge.

2. The Regional Water Board and/or local agency may notify the discharger when the SWPPP does not meet one or more of the minimum requirements of this Section. Within 30 days of notice, the discharger shall submit a time schedule that meets the minimum requirements of this section to the Regional Water Board and/or local agency that requested the changes. After making the required changes, the discharger shall provide written certification that the changes have been made.

3. The discharger shall amend the SWPPP whenever there is a change in construction, operation, or maintenance which may effect the discharge of significant quantities of pollutants to surface water, ground waters, or the local agency's storm drain system. The SWPPP should also be amended if it is in violation of any conditions of this general permit, or has not achieved the general objectives of controlling pollutants in storm water discharges.

4. The SWPPP shall provide a description of potential sources which may be expected to add significant quantities of pollutants to storm water discharges, or which may result in non-storm water discharges from the facility. The SWPPP shall include, at a minimum, the following items:

   a. A map extending approximately one-quarter mile beyond the property boundaries of the facility, showing: the facility, general topography surface water bodies (including known springs and wells), and the discharge point where the facility's storm water discharges to a municipal storm drain system or other water body. The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.

   b. A site map showing:

      i. The storm water conveyance and discharge structures;

      ii. An outline of the storm water drainage areas for each storm water discharge point;

      iii. Paved areas and buildings;

      iv. Areas of pollutant contact, actual or potential;

      v. Location of existing storm water structural control measures (i.e., berms, coverings, etc.);

      vi. Surface water locations;

      vii. Areas of existing and potential soil erosion; and

      viii. Vehicle service areas.

c. A narrative description of the following:

i. Significant materials that have been treated, stored, disposed, spilled, or leaked in significant quantities in storm water discharge after November 19, 1988;

ii. Materials, equipment, and vehicle management practices employed to minimize contact of significant materials with storm water discharge;

iii. Material loading, unloading, and access areas;

iv. Existing structural and non-structural control measures (if any) to reduce pollutants in storm water discharge;

v. Industrial storm water discharge treatment facilities (if any);

vi. Methods of on-site storage and disposal of significant materials; and

vii. Outdoor storage, manufacturing, and processing activities including activities that generate significant quantities of dust or particulates.

d. A list of pollutants that are likely to be present in storm water discharge in significant quantities, and an estimate of the annual quantities of these pollutants in storm water discharge.

e. An estimate of the size of the facility (in acres or square feet), and the percent of the facility that has impervious areas (i.e., pavement, buildings, etc.).

f. A list of significant spills or leaks of toxic or hazardous pollutants to storm water that have occurred after November 19, 1988. This shall include:

i. Toxic chemicals (listed in 40 CFR Part 372) that have been discharged to storm water as reported on USEPA Form R.

ii. Oil or hazardous substances in excess of reportable quantities (see 40 CFR Part 110, 117 or 302).

g. A summary of existing sampling data (if any) describing pollutants in storm water discharge.

5. The SWPPP shall describe the storm water management controls appropriate for the facility. The appropriate controls shall reflect identified potential sources of pollutants at the facility. The description of the storm water management controls shall include:

a. Storm Water Pollution Prevention Personnel. Identify specific individuals (and job titles) who are responsible for developing, implementing, and revising the SWPPP.

b. Preventive Maintenance. Preventive maintenance involves inspection and maintenance of storm water conveyance system devices (i.e., oil/water separators, catch basins, etc.) and inspection and testing of plant equipment and systems that could fail and result in discharges of pollutants to storm water.

c. Good Housekeeping. Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm water conveyance system.

d. Spill Prevention and Response. Identification of areas where significant materials can spill into or otherwise enter the storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, and clean-up equipment and procedures should be identified, as appropriate. Internal reporting procedures for spills of significant materials shall be established.

e. Storm Water Management Practices. Storm water management practices are practices other than those which control the source of pollutants. They include measures such as installing oil and grit separators, diverting storm water into retention basins, etc. Based on assessment of the potential various sources to contribute pollutants to storm water discharges in significant quantities, additional storm water management practices to remove pollutants from storm water discharge shall be implemented.

f. Erosion and Sediment Controls. The SWPPP shall identify measures to reduce sediment in storm water discharges.

g. Employee Training. Employee training programs shall inform all personnel responsible for implementing the SWPPP. Training should address spill response, good housekeeping, and material management practices. Periodic dates for training should be identified.

h. Inspections. All inspections, visual observations and sampling as required by Section B, shall be done by trained personnel. A tracking or follow-up procedure shall be used to ensure appropriate response has been taken in response to these activities.

6. Non-storm water discharges to storm water conveyance systems shall be eliminated prior to implementation of this SWPPP. The SWPPP shall include a certification that non-storm water discharges have been eliminated and a description of any tests for the presence of non-storm water discharges, the methods used, the dates of the testing, and any onsite drainage points that were observed during the testing. Such certification may not always be feasible if the discharger (a) must make significant structural changes to eliminate the discharge of non-storm water discharges to the industrial storm water conveyance system, or (b) has applied for, but not yet received, an NPDES general permit for the non-storm water discharges. In such cases, the discharger must notify the appropriate Regional Water Board prior to implementation of the SWPPP that non-storm water discharges cannot be eliminated. The notification shall include justification for a time extension and a schedule, subject to modification by the Regional Water Board, indicating when non-storm water discharges will be eliminated. In no case shall the elimination of non-storm water discharges exceed three years from the NOI submittal date.

7. The SWPPP may incorporate, by reference, the appropriate elements of other program requirements (i.e., Spill Prevention Control and Countermeasures (SPCC) plans under Section 311 of the CWA, Best Management Programs under 40 CFR 125.100, etc.).

8. The SWPPP is considered a report that shall be available to the public under Section 308(b) of the CWA.

9. The SWPPP shall include the signature and title of the person responsible for preparation of the SWPPP and include the date of initial preparation and each amendment, thereto.

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Section B: MONITORING PROGRAM AND REPORTING REQUIREMENTS

[Note: This Section was modified by Order No. 92-12-DWQ adopted by the State Water Board on September 17, 1992.]

1. Implementation

A monitoring program shall be developed and implemented for each facility covered by this general per It shall be certified in accordance with the signatory requirements contained in Standard Provision C. A description of the monitoring program shall be retained on site and made available upon request of a representative of the Regional Water Board and/or local agency which receives the storm water discharge.

2. Schedule

For existing facilities (and new facilities beginning operations before January 1, 1993), a monitoring program must be developed and implemented no later than January 1, 1993. For facilities beginning operations after January 1, 1993, a monitoring program shall be developed and implemented concurrent with commencement of industrial activities.

3. Objectives

The monitoring program shall be developed and amended, when necessary, to meet the following objectives:

a. Ensure that storm water discharges are in compliance with the Discharge Prohibitions, Effluent Limitations, and Receiving Water Limitations specified in this general permit.

b. Ensure practices at the facility to control pollutants in storm water discharges are evaluated and revised to meet changing conditions.

c. Aid in the implementation of the Storm Water Pollution Prevention Plan required by Section A of this general permit.

d. Measure the effectiveness of best management practices (BMPs) in removing pollutants in storm water discharge.

4. General Requirements for Monitoring Programs

The monitoring program shall contain:

a. Rationale for selection of monitoring methods.

b. Identification of the analytical methods to detect pollutants in storm water discharge.

c. Description of the sampling methods, sampling locations, and frequency of monitoring.

d. A quality assurance/quality control program to assure that:

i. All elements of the monitoring program are conducted; and

ii. All monitoring is conducted by trained personnel.

e. Procedures and schedules by which the effectiveness of the monitoring program in achieving the objectives above can be evaluated.

5. Specific Requirements for Monitoring Programs

The monitoring program shall document the elimination or reduction of specific pollutants, resulting from the implementation of the SWPPP required by Section A of this general permit.

a. Annual Site Inspection

Except for certain inactive mining operations (See Section B.8), all dischargers shall:

i. Conduct a minimum annual inspection of the facility site to identify areas contributing to a storm water discharge associated with industrial activity and to evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate and properly implemented in accordance with the terms of the general permit or whether additional control measures are needed. A record of the annual inspection must include the date of the inspection, the individual(s) who performed the inspection, and the observations.

ii. Certify, based on the annual site inspection, that the facility is in compliance with the requirements of this general permit and its SWPPP. The certification and inspection records must be signed and certified in accordance with Standard Provisions 9 and 10 of Section C of this general permit. Any noncompliance shall be reported in accordance with Section B.17.

b. Dry Season Observations

No less than twice during the dry season (May through September), all dischargers shall observe and/or test for the presence of non-storm water discharges at all storm water discharge locations. At minimum, all dischargers shall conduct visual observations of flows to determine the presence of stains, sludges, odors, and other abnormal conditions. Dye tests, TV line surveys, and/or analysis and validation of accurate piping schematics may be conducted if appropriate. Records shall be maintained of the description of the method used, date of testing, locations observed, and test results.

c. Wet Season Visual Observations

During the wet season (October through April), all dischargers shall conduct visual observations of all storm water discharge locations during the first hour of one storm event per month that produces significant storm water discharge[1/] to observe the presence of floating and suspended materials, oil and grease, discolorations, turbidity, and odor, etc. Feedlots (subject to federal effluent limitations guidelines in 40 CFR Part 412) that are in compliance with Sections 2560 to 2565, Article 6, Chapter 15, Title 23, California Code of Regulations, shall, instead, conduct monthly inspections of their containment facilities to detect leaks and ensure maintenance of adequate freeboard.

d. Sampling and Analysis

During the wet season (October through April), dischargers (unless exempted per Section B.9 below) shall collect and analyze samples of storm water discharge from at least one storm event during the 1992/93 wet season and two storm events during each subsequent wet season which produce significant storm water discharge. The samples should be analyzed for:

1/ "Significant storm water discharge" is a continuous discharge of storm water for approximately one hour or more.

i. pH, total suspended solids (TSS), specific conductance, and total organic carbon (TOC). Oil and grease (O&G) may be substituted for TOC; and

ii. Toxic chemicals and other pollutants that are likely to be present in storm water discharge in significant quantities.

6. Toxic Pollutant Analysis Reduction

Samples shall be analyzed for toxic chemicals and other pollutants as identified in Sections B.5.d.ii for at least two consecutive sampling events. If toxic chemicals or other pollutants are not detected in significant quantities after two consecutive sampling events, the facility may eliminate that toxic chemical or pollutant from future sampling events. A discharger may analyze for alternative representative parameters (e.g., whole effluent toxicity) as a substitute for the toxic chemicals and other pollutants identified in Section B.5.d.ii as long as the discharger submits the alternative monitoring procedures and justification to the appropriate Regional Water Board prior to use. Unless otherwise instructed by the Regional Water Board, dischargers may use the alternative monitoring procedures submitted.

7. Facilities Subject to Federal Storm Water Effluent Limitations Guidelines

Facilities subject to federal storm water effluent limitations guidelines are defined in Attachment 1 of the general permit. In addition to the requirements in Section B.5 above, these facilities must collect and analyze samples of storm water discharge from at least one storm event during the 1992/93 wet season and two storm events during each subsequent wet season which produce significant storm water discharge.

a. Analyze for any pollutant specified in the appropriate category of 40 CFR Subchapter N;

b. Estimate or calculate the volume of effluent discharged from each outfall;

c. Estimate or calculate the mass of each regulated pollutant as defined in the appropriate category of 40 CFR Subchapter N; and

d. Identify the individual(s) performing the estimates or calculations in accordance with Subsections b and c above.

8. Inactive Mining Operations

Inactive mining operations are defined in Attachment 1 of this general permit. Where annual facility inspections, wet season visual observations, dry season observations, and sampling as required by Section B.5 are impracticable, inactive mining operations may instead obtain certification once every three years by a Registered Professional Engineer that a SWPPP has been prepared for the facility and is being implemented in accordance with the requirements of this general permit. By means of these certifications, the engineer, having examined the facility and being familiar with the provisions of this general permit, shall attest to the SWPPP which has been prepared in accordance with good engineering practices. Dischargers which cannot obtain a certification because of noncompliance must notify the appropriate Regional Water Board and, upon request, the local agency which receives the storm water discharge in accordance with Section B.17.

9. Sampling and Analysis Exemptions

A discharger is not required to collect and analyze samples in accordance with Section B.5.d if the discharger certifies that the facility meets all of the conditions set forth below in Section B.9.a, if the discharger obtains the local agency certification described in Section B.9.b, or if the discharger obtains a Regional Water Board exemption as described in Section B.9.d. A discharger who is not required to comply with Section B.5.d monitoring requirements is still required to comply with all other monitoring program and reporting requirements. If exempted from Section B.5.d monitoring requirements, dischargers subject to federal storm water effluent guidelines in 40 CFR Subchapter N must still comply with the provisions of Section B.7 above.

a. Self-Certification

The certification must state that areas of industrial activity are not exposed to storm water, including manufacturing, processing, and material handling areas and areas where material handling equipment, raw materials, intermediate products, final products, waste materials, byproducts, and industrial machinery are stored. (See definition of "storm water associated with industrial activity" in Attachment 4 to this general permit.) Exposure includes both direct contact with storm water and the possible release of industrial pollutants into storm water (e.g., spills or leaks). In order to demonstrate that these areas are not exposed to storm water, the following minimum conditions must be met:

i. All illicit (unpermitted) connections to the storm drainage system are eliminated;

ii. All materials must be completely contained at all times;

iii. All unhoused equipment associated with industrial activity is not exposed to storm water; and

iv. All emissions from stacks or air exhaust systems and emission of dust or particulates do not contribute significant quantities of pollutants to storm water discharge.

b. Certification by Local Agency

A local agency which has jurisdiction over the storm sewer system or other water course which receives storm water discharge from the discharger's facility has certified in writing that the discharger has developed and implemented an effective Storm Water Pollution Prevention Plan and should not be required to collect and analyze storm water samples for pollutants.

c. Submittal of Sampling Exemption Certifications

Dischargers must submit sampling exemption certifications to the appropriate Regional Water Board by December 1, 1992 for the 1992-93 wet season and by August 1 for subsequent years. Unless otherwise instructed by the Regional Water Boards, dischargers who file a sampling exemption certification are exempt from Section B.5.d.

d. Exemptions by Regional Water Board

A Regional Water Board may grant an exemption to Section B.5.d monitoring requirements if it determines that a discharger has developed and implemented an effective Storm Water Pollution Prevention Plan and should not be required to collect and analyze storm water samples for pollutants.

10. Group Monitoring

Group monitoring may be done in accordance with the following requirements:

a. A group monitoring plan may be designed and implemented by an entity representing a similar group of dischargers (entity) regulated by this general permit or by a local agency which holds a NPDES general permit (local agency permittee) for a municipal separate storm sewer system. Participants in a group monitoring plan may discharge storm water within the boundaries of a single Regional Water Board within the boundaries of multiple Regional Water Boards (with State Water Board approval).

b. At least 20 percent of the dischargers who are members of a group (and at least 4 dischargers in a group of less than 20 dischargers) must collect and analyze samples in accordance with Section B.5.a. The entity or local agency permittee may request that fewer member dischargers be allowed to collect and analyze, but reasons for this exception must be stated in the group monitoring plan (Section B.10.e.v.). The entity or the local agency permittee shall select facilities from which samples are collected and analyzed which best represent the overall quality of the group members' storm water discharges.

c. The entity or the local agency permittee must have the authority to levy fees against the participating dischargers in the group or be able to otherwise pay for the implementation of the group monitoring plan.

d. The entity or the local agency permittee is responsible for:

   i. Developing and implementing the group monitoring plan;

   ii. Evaluating and reporting group monitoring data;

   iii. Recommending appropriate BMPs to reduce pollutants in storm water discharges;

   iv. Submitting a group monitoring plan to the appropriate Regional Water Board(s) and State Water Board, no later than December 1, 1992 and August 1 in subsequent years; and

   v. Revising the group monitoring plan as instructed by the Regional Water Board or the State Water Board Executive Director.

e. The group monitoring plan shall:

   i. Identify the participants of the group by name and location;

   ii. Include a narrative description summarizing the industrial activities of participants of the group and explain why the participants, as a whole, are sufficiently similar to be covered by a group monitoring plan;

   iii. Include a list of significant materials stored or exposed to storm water and material management practices currently employed to diminish contact of these materials with storm water discharge;

   iv. Identify and describe why the facilities selected to perform sampling and analysis are representative of the group as a whole in terms of processes used or materials managed. To the extent possible, representative facilities with the most extended scheduled facility operating hours should be selected;

v. If an exception to the requirement that at least 20 percent of the dischargers in a group (and at least 4 dischargers in a group of less than 20 dischargers) is requested, explain why such an exception is necessary, and how the proposed monitoring will be representative of the entire group; and

vi. Contain all items specified in Section B.4 above.

f. Sampling and analysis must comply with the applicable requirements, including Sections B.5.d, B.6, B.7, and B.11 through 17.

h. Unless otherwise instructed by the Regional Water Board or the State Water Board Executive Director, the group monitoring plan shall be implemented by January 1, 1993 and, in subsequent years, at the beginning of the wet season.

i. Upon approval of the State Water Board Executive Director, a group may perform representative monitoring which includes dischargers within the boundaries of more than one Regional Water Board area.

j. Upon approval by the appropriate Regional Water Board, a group within a single Regional Water Board area may perform representative monitoring.

k. All dischargers participating in an approved group monitoring plan that have not been selected to perform sampling are required to comply with all other monitoring program and reporting requirements in Sections B.5.a, b, and c.

l. If any group includes members which are subject to federal storm water effluent limitations guidelines, each of those members must perform the monitoring described in Section B.7, and submit the results of the monitoring to the appropriate Regional Water Board in the discharger's annual monitoring report.

11. Sample Locations

Samples shall be collected from all locations where storm water is discharged. Samples must represent the quality and quantity of storm water discharged from the facility. If a facility discharges storm water at multiple locations, the discharger may sample a reduced number of locations if it is established and documented in the monitoring program that storm water discharges from different locations are substantially identical.

12. Sampling Procedure

Sampling shall consist of a grab sample from a storm event that produces significant storm water discharge that is preceded by at least three (3) working days of dry weather. The grab sample should be taken during the first thirty minutes of the discharge. If collection of the grab sample during the first 30 minutes is impracticable, the grab sample can be taken as soon as practicable thereafter, and the discharger shall explain in the annual monitoring report why the grab sample could not be taken in the first 30 minutes. A discharger may select alternative monitoring procedures (e.g., composite sampling) as long as the discharger has submitted the proposed procedures and justification to the appropriate Regional Water Board prior to use. Unless otherwise instructed by the Regional Water Board, dischargers may use the alternative monitoring procedures submitted.

13. Visual Observation and Sample Collection Exceptions

a. When a discharger is unable to collect any of the required samples or perform visual observations due to adverse climatic conditions (drought, extended freeze, dangerous weather conditions, etc.), a description of why the sampling or visual observations could not be conducted, including documentation of all significant storm water discharge events, must be submitted along with the annual monitoring report.

b. Dischargers are required to collect samples and perform visual observations only if significant storm water discharges commence during scheduled facility operating hours[2/], or within two hours following scheduled facility operating hours. Dischargers are required to perform visual observations only within daylight hours. If dischargers do not collect samples or perform visual observations during a significant storm water discharge due to these exceptions, the discharger shall include documentation in the annual monitoring report.

14. Standard Methods

All sampling and sample preservation shall be in accordance with the current edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association). All monitoring instruments and equipment shall be calibrated and maintained in accordance with manufacturers' specifications to ensure accurate measurements. All analyses must be conducted according to test procedures under 40 CFR Part 136, unless other test procedures have been specified in this general permit or by the Regional Water Board. All metals shall be reported as total metals. All analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. Dischargers may conduct their own laboratory analyses only if the discharger has sufficient capability (qualified employees, laboratory equipment, etc.) to adequately perform the test procedures.

15. Records

Records of all storm water monitoring information and copies of all reports required by this general permit shall be retained for a period of at least five years from the date of the sample, observation, measurement, or report.

These records shall include:

a. The date, place, and time of site inspections, sampling, visual observations, and/or measurements;

b. The individual(s) who performed the site inspections, sampling, visual observations, and/or measurements;

c. Flow measurements or estimates (if required);

d. The date and time of analyses;

e. The individual(s) who performed the analyses;

2/ "Scheduled facility operating hours" are the time periods when the facility is staffed to conduct any function related to industrial activity, including routine maintenance, but excluding time periods where only emergency response, security, and/or janitorial services are performed.

f. The analytical techniques or methods used and the results of such analyses;

g. Quality assurance/quality control results;

h. Dry season observations and wet season visual observation records (see Sections B.5.b & c);

i. Visual observation and sample collection exception records (see Section B.13);

j. All calibration and maintenance records of on-site instruments used; and

k. All original strip chart recordings for continuous monitoring instrumentation.

16. Annual Report

All dischargers shall submit an annual report by July 1 of each year to the Executive Officer of the Regional Water Board responsible for the area in which the facility is located and to the local agency (if requested).

The report shall include a summary of visual observations and sampling results, the certification required in Section B.5.a.ii, and information as required in Section B.13. The report shall be signed and certified in accordance with Standard Provisions 9 and 10 of Section C of this general permit. The first report will be due July 1, 1993.

17. Noncompliance Reporting

Dischargers who cannot certify compliance in accordance with Section B.16 above and/or who have had other instances of noncompliance must notify the appropriate Regional Water Board and/or, upon request, the local agency that receives the storm water drainage. The notifications shall identify the type(s) of noncompliance, describe the actions necessary to achieve compliance, and include a time schedule, subject to the modifications by the Regional Water Board, indicating when compliance will be achieved. Noncompliance notifications must be submitted within 30 days of identification of noncompliance.

Section C: STANDARD PROVISIONS

1. Duty to Comply

The discharger must comply with all of the conditions of this general permit. Any general permit noncompliance constitutes a violation of the Clean Water Act and the Porter-Cologne Water Quality Control Act and is grounds for enforcement action; for general permit termination, revocation and reissuance, or modification; or denial of a general permit renewal application.

The discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this general permit has not yet been modified to incorporate the requirement.

2. General Permit Actions

This general permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the discharger for a general permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any general permit condition.

If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this general permit, this general permit shall be modified, or revoked and reissued to conform to the toxic effluent standard or prohibition, and the discharger so notified.

3. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the general permitted activity in order to maintain compliance with the conditions of this general permit.

4. Duty to Mitigate

The discharger shall take all responsible steps to minimize or prevent any discharge in violation of this general permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. Proper Operation and Maintenance

The discharger shall at all times properly operate and maintain any facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with the conditions of this general permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems, installed by a discharger when necessary to achieve compliance with the conditions of this general permit.

6. Property Rights

This general permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

7. Duty to Provide Information

The discharger shall furnish the Regional Water Board, State Water Board, USEPA, or local storm water management agency within a reasonable time specified by the agencies, any requested information to determine compliance with this general permit. The discharger shall also furnish, upon request, copies of records required to be kept by this general permit.

8. Inspection and Entry

The discharger shall allow the Regional Water Board, State Water Board, USEPA, and local storm water management agency upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the discharger's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this general permit;

b. Have access to and copy at reasonable times, any records that must be kept under the conditions of this general permit;

c. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment) that are related to or may impact storm water discharge; and

d. Sample or monitor at reasonable times for the purpose of ensuring general permit compliance.

9. Signatory Requirements

a. All Notices of Intent submitted to the State Water Board shall be signed as follows:

(1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (1) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or (2) the manager of the facility if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. The principal executive officer of a Federal agency includes the chief executive officer of the agency, or the senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. Regional Administrators of USEPA).

b. All reports, certification, or other information required by the general permit or requested by the Regional Water Board, State Water Board, USEPA, or local storm water management agency shall be signed by a person described above or by a duly authorized representative. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described above and retained as part of the Storm Water Pollution Prevention Plan.

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

(3) If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization must be attached to the Storm Water Pollution Prevention Plan prior to submittal of any reports, certifications, or information signed by the authorized representative.

10. Certification

Any person signing documents under Provision 9 shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

11. Reporting Requirements

a. Planned changes: The discharger shall give notice to the Regional Water Board and local storm water management agency as soon as possible of any planned physical alteration or additions to the general permitted facility. Notice is required under this provision only when the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged.

b. Anticipated noncompliance: The discharger will give advance notice to the Regional Water Board and local storm water management agency of any planned changes in the permitted facility or activity which may result in noncompliance with general permit requirements.

c. Compliance schedules: Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this general permit shall be submitted no later than 14 days following each schedule date.

d. Noncompliance reporting: The discharger shall report any noncompliance at the time monitoring reports are submitted. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

12. Oil and Hazardous Substance Liability

Nothing in this general permit shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties to which the discharger is or may be subject under Section 311 of the CWA.

13. Severability

The provisions of this general permit are severable, and if any provision of this general permit, or the application of any provision of this general permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this general permit shall not be affected thereby.

14. Reopener Clause [modified by Order No. 92-12-DWQ, September 1992]

This general permit may be modified, revoked, and reissued, or terminated for cause due to promulgation of amended regulations, receipt of USEPA guidance concerning regulated activities, judicial decision, or in accordance with 40 CFR 122.62, 122.63, 122.64, and 124.5.

15. Penalties for Violations of General Permit Conditions.

a. Section 309 of the CWA provides significant penalties for any person who violates a general permit condition implementing Sections 301, 302, 306, 307 308, 318, or 405 of the CWA, or any general permit condition or limitation implementing any such section in a general permit issued under Section 402. Any person who violates any general permit condition of this general permit is subject to a civil penalty not to exceed $25,000 per day of such violation, as well as any other appropriate sanction provided by Section 309 of the CWA.

b. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties, in some cases greater than those under the CWA.

16. Availability

A copy of this general permit shall be maintained at the discharge facility and be available at all times to operating personnel.

17. Transfers

This general permit is not transferable to any person. A new owner or operator of an existing facility must submit a NOI in accordance with the requirements of this general permit to be authorized to discharge under this general permit.

18. Continuation of Expired General Permit

This general permit continues in force and effect until a new general permit is issued or the State Water Board rescinds the general permit. Only those dischargers authorized to discharge under the expiring general permit are covered by the continued general permit.

19. Penalties for Falsification of Reports

Section 309(c)(4) of the CWA provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this general permit, including reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years, or by both.

Attachments

ATTACHMENT 1

FACILITIES COVERED BY THIS GENERAL PERMIT

Industrial facilities include Federal, State, municipally owned, and private facilities from the following categories:

1. FACILITIES SUBJECT TO STORM WATER EFFLUENT LIMITATIONS GUIDELINES, NEW SOURCE PERFORMANCE STANDARDS, OR TOXIC POLLUTANT EFFLUENT STANDARDS (40 CFR SUBCHAPTER N). Currently, categories of facilities subject to storm water effluent limitations guidelines are Cement Manufacturing (40 CFR Part 411), Feedlots (40 CFR Part 412), Fertilizer Manufacturing (40 CFR Part 418), Petroleum Refining (40 CFR Part 419), Phosph[illegible] Manufacturing (40 CFR Part 422), Steam Electric (40 CFR Part 423), Coal Mining (40 CFR Part 434), Mi[illegible] Mining and Processing (40 CFR Part 436), Ore Mining and Dressing (40 CFR Part 440), and Asphalt Emulsion (40 CFR Part 443).

2. MANUFACTURING FACILITIES: Standard Industrial Classifications (SICs) 24 (except 2411 and 2434), 26 (except 265 and 267), 28 (except 283 and 285) 29, 311, 32 (except 323), 33, 3441, and 373.

3. OIL AND GAS/MINING FACILITIES: SICs 10 through 14 including active or inactive mining operations (except for areas of coal mining operations meeting the definition of a reclamation area under 40 CFR 434.11(1) because of performance bond issued to the facility by the appropriate Surface Mining Control and Reclamation Act (SMCRA) authority has been released, or except for area of non-coal mining operations which have been released from applicable State or Federal reclamation requirements after December 17, 1990) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge stormwater contaminated by contact with or that has come into contact with any overburden, raw material, intermediate products, finished products, by-products, or waste products located on the site of such operations. Inactive mining operations are mined sites that are not being actively mined, but which have an identifiable owner/operator. Inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined material, or sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim.

4. HAZARDOUS WASTE TREATMENT, STORAGE, OR DISPOSAL FACILITIES: Includes those operating under interim status or a general permit under Subtitle C of the federal Resource Conservation and Recovery Act (RCRA).

5. LANDFILLS, LAND APPLICATION SITES, AND OPEN DUMPS: Sites that receive or have received industrial waste from any of the facilities covered by this general permit, sites subject to regulation under Subtitle D of RCRA, and sites that have accepted wastes from construction activities (construction activities include any clearing, grading, or excavation that results in disturbance of five acres or more).

6. RECYCLING FACILITIES: SICs 5015 and 5093. These codes include metal scrapyards, battery reclaimers, salvage yards, motor vehicle dismantlers and wreckers, and recycling facilities that are engaged in assembling, breaking up, sorting, and wholesale distribution of scrap and waste material such as bottles, wastepaper, textile wastes, oil waste, etc.

7. STEAM ELECTRIC POWER GENERATING FACILITIES: Includes any facility that generates steam for electric power through the combustion of coal, oil, wood, etc.

8. TRANSPORTATION FACILITIES: SICs 40, 41, 42 (except 4221-25), 43, 44, 45, and 5171 which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication) or other operations identified herein that are associated with industrial activity.

9. SEWAGE OR WASTEWATER TREATMENT WORKS: Facilities used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of one million gallons per day or more, or required to have an approved pretreatment program under 40 CFR Part 403. Not included are farm lands, domestic gardens, or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with Section 405 of the CWA.

11. MANUFACTURING FACILITIES WHERE MATERIALS ARE EXPOSED TO STORM WATER: SICs 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, and 4221-4225.

Note: Category 10, Construction activity, is covered by a separate general permit.

ATTACHMENT 2

STATE WATER RESOURCES CONTROL BOARD

P. O. Box 100, Sacramento, CA 95812-0100

Legislative and Public Affairs: (916) 657-2390
Water Quality Information: (916) 657-0687

Clean Water Programs Information: (916) 739-4400
Water Rights Information: (916) 657-2170

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARDS

NORTH COAST REGION (1)

5550 Skylane Blvd. Suite A
Santa Rosa, CA 95403
(707) 576-2220

SAN FRANCISCO BAY REGION (2)

2101 Webster Street, Ste. 500
Oakland, CA 94612
(510) 286-1255

CENTRAL COAST REGION (3)

81 Higuera St., Suite 200
San Luis Obispo, CA 93401-5414
(805) 549-3147

LOS ANGELES REGION (4)

101 Centre Plaza Drive
Monterey Park, CA 91754-2156
(213) 266-7500

CENTRAL VALLEY REGION (5)

3443 Routier Road
Sacramento, CA 95827-3098
(916) 255-3000

Fresno Branch Office

3614 East Ashlan Ave.
Fresno, CA 93726
(209) 445-5116

Redding Branch Office

415 Knollcrest Drive
Redding, CA 96002
(916) 224-4845

LAHONTAN REGION (6)

2092 Lake Tahoe Boulevard, Suite 2
South Lake Tahoe, CA 96150
(916) 544-3481

Victorville Branch Office

Civic Plaza,
15428 Civic Drive, Suite 100
Victorville, CA 92392-2359
(619) 241-6583

COLORADO RIVER BASIN REGION (7)

73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260
(619) 346-7491

SANTA ANA REGION (8)

2010 Iowa Avenue, Ste. 100
Riverside, CA 92507-2409
(714) 782-4130

SAN DIEGO REGION (9)

9771 Clairemont Mesa Blvd. Ste. B
San Diego, CA 92124
(619) 467-2952

STATE OF CALIFORNIA
Pete Wilson, Governor

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
James M. Strock, Secretary

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

NOTICE OF INTENT (NOI) TO COMPLY WITH THE TERMS OF THE GENERAL PERMIT TO DISCHARGE STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITIES EXCLUDING CONSTRUCTION ACTIVITIES

GENERAL INSTRUCTIONS

Updated October 15, 1992

Who Must Submit

Facilities which have been defined by the USEPA regulations as having "storm water discharges associated with industrial activity" must obtain coverage under an NPDES permit for their storm water discharges. Facilities requiring coverage are defined in 40 CFR Section 122.26(b)(14). All facilities in California except those listed below, may seek coverage under the State Water Board's NPDES general permit.

Facilities Not Covered By This General Permit

Storm water discharges from the following facilities may not obtain coverage by this general permit:

a. Facilities in Santa Clara County which drain to San Francisco Bay must seek coverage under a separate general permit issued by the San Francisco Bay Regional Water Board.

b. Facilities with an existing NPDES permit that specifically limits and regulates storm water discharges.

c. Construction activities greater than five acres must obtain coverage under the NPDES construction activity storm water general permit.

d. Facilities on Indian lands will be regulated by the USEPA.

e. Logging Activities.

Where to Apply

The NOI should be mailed to the State Water Resources Control Board at the following address:

State Water Resources Control Board
Division of Water Quality
P.O. Box 1977
Sacramento, CA 95812-1977
Attn: Storm Water Permitting Unit

When to Apply

Owners/operators of existing facilities must file a NOI, along with the appropriate annual fee, prior to March 30, 1992. Owners/operators of new facilities (those beginning operations after March 30, 1992) must file a NOI at least 30 days prior to the beginning of operations. Facilities that miss the appropriate deadlines for filing their NOIs may file their NOIs late but will be in violation for the period they were late.

Fees

The annual fee is $250.00 for each facility which discharges into a municipal separate storm sewer system regulated by an areawide urban storm water general permit and $500.00 for all other facilities.

Facilities that have either a NPDES permit or waste discharge requirements (WDRs) and already pay an annual fee are not subject to an additional fee for the storm water general permit. Feedlots subject to this general permit will pay a one-time only fee of $2,000. Feedlots that already have a NPDES general permit or WDRs and have paid the $2,000 fee do not have to pay an additional fee for the storm water general permit.

Completing the NOI

Completion and submittal of the attached NOI (Form NOI-1) is required to gain coverage under the general permit. It must be completely and accurately filled out. A facility will be considered to be covered by the general permit upon filing a complete and accurate NOI and submitting the appropriate annual fee. Each discharger will be given a distinct identification number. Upon receipt of the NOI and fee, each discharger will be sent a letter containing the discharger's identification number.

Questions?

If you have any questions completing the NOI after reading the following line-by-line instructions, please call the appropriate Regional Water Board or the State Water Board at (916) 657-0919.

NOI--LINE-BY LINE INSTRUCTIONS

The NOI consists of two parts--a NOI Form (Form NOI-1) and a site map. Please type or letter when completing the NOI Form and site map.

Mark one of the three boxes at the top portion of the NOI. Check box 1 if the NOI is being completed for an existing facility, box 2 if the facility is new (has not started operations), and box 3 if the NOI is being submitted to report changes to a facility already covered by the general permit. An example of a change that warrants a resubmittal of the NOI would be a change of owner/operator of a facility. Complete only those portions of the NOI that apply to the changes (the NOI must always be signed). If box 3 is checked, the WDID number must be included.

SECTION I--OWNER/OPERATOR

Enter the name of the person, company, firm, public organization, or any other entity which owns the facility (or operates the facility when the owner does not operate the facility) and check the box corresponding to the appropriate ownership status of the facility. The owner/operator information may or may not be the same as the facility information requested in Section II.

SECTION II--FACILITY/SITE INFORMATION

Enter the facility's official or legal name and provide the address, county, and contact person information for the facility. Facilities that do not have a street address must attach to the NOI a legal description of the facility site. The contact person should be the plant or site manager completely familiar with the facility and charged with compliance and oversight of the general permit.

SECTION III--BILLING ADDRESS

To continue coverage under the general permit, the annual fee must be paid. Use this section to indicate whether the annual fee invoices should be sent to the owner/operator, facility, or other party (include address).

SECTION IV--RECEIVING WATER INFORMATION

In Part A of this section, the owner/operator is required to indicate whether the facility's storm water runoff discharges to a separate storm sewer system, directly to waters of the United States, or indirectly to waters of the United States.

Discharges to separate storm sewer systems are those that discharge to a collection system operated by municipalities, flood control districts, utilities, or similar entities. Storm water discharges directly to waters of the United States will typically have an outfall structure directly from the facility to a river, creek, lake, ocean, etc. Indirect discharges are those that may flow over adjacent properties or right-of-ways prior to discharging to waters of the United States.

Regardless of point of discharge, the applicant must determine the closest receiving water for its storm water discharge. If discharge is to a separate storm sewer system, the owner of that system should know the receiving water. The name of the receiving water of a direct discharge should be easily available while the receiving water of an indirect discharge may require some effort to identify.

SECTION V--INDUSTRIAL INFORMATION

Part A of this section requests the owner/operator to provide the standard industrial classification (SIC) codes(s) which best describes the industrial activity taking place at your facility. Briefly describe the nature of business in Part B. In Part C, check the general industrial activities that take place at the facility.

SECTION VI--MATERIAL HANDLING/MANAGEMENT PRACTICES

Part A of this section requires identification of the type(s) of materials stored and handled outdoors. If other types of materials other than those listed are maintained on site, please check "other" and describe the type of material.

Part B of this section requests information on any existing management practices employed at the facility. Check the appropriate categories or list other control measures you use at your facility. If none are used, leave this part blank.

SECTION VII--FACILITY INFORMATION

List the size, in acres or square feet, of the facility and the percentage of the site that is impervious.

SECTION VIII--REGULATORY STATUS

Check the appropriate box(es) and indicate the identification number of any permits currently in effect at the facility.

SECTION IX--CERTIFICATION

This section should be read by the owner/operator. The certification provides for assurances that the NOI and site map were completed in an accurate and complete fashion and with the knowledge that penalties exist for providing false information. It also requires the owner/operator to certify that the provisions in the general permit will be complied with.

The NOI must be signed by:

For a Corporation: a responsible corporate officer (or authorized individual).
For a Partnership or Sole Proprietorship: a general partner or the proprietor, respectively.
For a Municipality, State, or other non-federal Public Agency: either a principal executive officer or ranking elected official.
For a Federal Agency: either the chief or senior executive officer of the agency.

SITE MAP

Provide a "to scale" drawing of the site and its immediate surroundings. Include as much detail about the site as possible. At a minimum, show buildings, material handling areas, roadways, storm water collection and discharge points, a north arrow, and the names of adjacent streets. The attached form may be used, if convenient. Thomas Guide maps, local street maps, or USGS quadrangle maps may be used to indicate the location of the facility if appropriate (e.g., very large facilities). The source of map and map number, or other identifiers should be shown in the lower left hand corner of the site map.

State of California
State Water Resources Control Board

NOTICE OF INTENT

TO COMPLY WITH THE TERMS OF THE
GENERAL PERMIT TO DISCHARGE STORM WATER
ASSOCIATED WITH INDUSTRIAL ACTIVITY (WQ Order Nos. (91-13-DWQ & 92-12-DWQ)
(Excluding Construction Activities)

MARK ONLY ONE ITEM	1. ☐ Existing Facility 2. ☐ New Facility	3. ☐ Change of Information WDID #

I. OWNER/OPERATOR

Name			A. Owner/Operator Type (Check one) 1. ☐ City 2. ☐ County 3. ☐ State 4. ☐ Federal 5. ☐ Special District 6. ☐ Gov. Combo 7. ☐ Private
Mailing Address			
City	State	Zip	Phone
Contact Person			B. 1. ☐ Owner 2. ☐ Operator 3. ☐ Owner/Operator

II. FACILITY/SITE INFORMATION

Facility Name			County
Street Address			Contact Person
City	State C A	Zip	Phone

III. BILLING ADDRESS

Send to: ☐ OWNER/OPERATOR ☐ FACILITY ☐ OTHER *(Enter information at right)*	Name		
	Mailing Address		
	City	State	Zip

IV. RECEIVING WATER INFORMATION

A. Does your site's storm water discharge to (Check one)

1. ☐ Storm drain system - Enter system owners name
2. ☐ Directly to waters of U.S. (e.g., river, lake, creek, ocean)
3. ☐ Indirectly to waters of U.S.

B. Name of closest receiving water

STATE USE ONLY

WDID:	Regional Board Office:	Date Permit Issued:	
NPDES Permit Number: CA	Order Number:	Fee Amount Received: $	Date NOI Received:

V. INDUSTRIAL INFORMATION

A. SIC Code(s) 1. ☐☐☐☐ 2. ☐☐☐☐ 3. ☐☐☐☐ 4. ☐☐☐☐

B. Type of Business

C. Industrial activities at facility (Check all that apply)

1. ☐ Manufacturing
2. ☐ Vehicle Maintenance
3. ☐ Hazardous Waste Treatment, Storage, or Disposal Facility (RCRA Subtitle C)
4. ☐ Material Storage
5. ☐ Vehicle Storage
6. ☐ Material Handling
7. ☐ Wastewater Treatment
8. ☐ Power Generation
9. ☐ Recycling
10. ☐ Landfill
99. ☐ Other: _____

VI. MATERIAL HANDLING/MANAGEMENT PRACTICES

A. Types of materials handled and/or stored outdoors (Check all that apply)

1. ☐ Solvents
2. ☐ Scrap Metal
3. ☐ Petroleum Products
4. ☐ Plating Products
5. ☐ Pesticides
6. ☐ Hazardous Wastes
7. ☐ Paints
8. ☐ Wood Treating Products
99. ☐ Other (Please list)

B. Identify existing management practices employed to reduce pollutants in industrial storm water discharges (Check all that apply)

1. ☐ Oil/Water Separator
2. ☐ Containment
3. ☐ Berms
4. ☐ Leachate Collection
5. ☐ Overhead Coverage
6. ☐ Recycling
7. ☐ Retention Facilities
8. ☐ Chemical Treatment
99. ☐ Other (Please list)

VII. FACILITY INFORMATION

A. Total size of site (Check one) ☐ Acres ☐ Sq. Ft.

B. Percent of site impervious (Including rooftops) ☐☐☐ %

VIII. REGULATORY STATUS (Check all that apply)

A. ☐ Regulated by Storm water Effluent Guidelines (40 CFR Subchapter N)

B. ☐ Waste Discharge Requirements (Order Number)

C. ☐ NPDES Permit CA

D. ☐ RCRA Permit Number

E. ☐ Regulated by California Code of Regulations Article 6, Chapter 15 (Feedlots).

IX. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment." In addition, I certify that the provisions of the permit, including the development and implementation of a Storm Water Pollution Prevention Plan and a Monitoring Program Plan, will be complied with.

Printed Name: _____

Signature: _____ Date: _____

Title: _____

DEFINITIONS

1. "Best Management Practices" ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

2. Clean Water Act (CWA) means the Federal Water Pollution Control Act enacted by Public Law 92-500 as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; 33 USC. 1251 et seq.

3. "Facility" is a collection of industrial processes discharging storm water associated with industrial activity within the property boundary of operational unit.

4. "Non-Storm Water Discharge" means any discharge to storm sewer systems that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities. (See fact sheet, page 8, for clarification on non-storm water dischargers unrelated to industrial activity).

5. "Significant Materials" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERLCA); any chemical the facility is required to report pursuant to Section 313 of Title III of Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

6. "Significant Quantities" is the volume, concentrations, or mass of a pollutant in storm water discharge that can cause or threaten to cause pollution, contamination, or nuisance; adversely impact human health or the environment; and cause or contribute to a violation of any applicable water quality standards for the receiving water.

7. "Storm water" means storm water runoff, snow melt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

8. "Storm Water Associated with Industrial Activity" means "the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program. The term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at 40 CFR Part 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. The term also includes storm water discharges from all areas listed in the previous sentence (except access roads) where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery <u>are exposed to storm water</u>. Material handling activities include the: storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, state, or municipally owned or operated that meet the description of the facilities listed in this paragraph) include those facilities designated under 40 CFR 122.26(a)(1)(v).

Attachment B

AGREEMENT

This Agreement (the "Agreement") is entered into by and between Entech Recovery Inc. a.k.a. Southern California Chemical ("SCC") and the City of Santa Fe Springs (the "City").

Whereas, the City, through the Planning Commission and Redevelopment Agency (the "PC/RA"), granted a Conditional Use Permit ("CUP") on or about May 27, 1988, to SCC to continue the operation and maintenance of an existing precious metal recovery and chemical recycling facility (the "Facility") in the M-2, Heavy Manufacturing zone at 8851 Dice Road, Santa Fe Springs, California, within the Consolidated Redevelopment Project, and to replace existing obsolete equipment at the Facility.

Whereas, on or about October 26, 1990, the City received draft state and RCRA hazardous waste facility permits issued by the California Department of Health Services ("DHS") and the United States Environmental Protection Agency ("EPA"), respectively, Permit No. 90-3-ST and EPA ID Number CAD008488025, dated October 25, 1990, for the SCC facility (the "Draft Permits"), arising out of the Part B Permit Application submitted on or about November 8, 1988, as modified by subsequent amendmentS dated May 4, 1990 and June 21, 1990 (the "Application").

Whereas, the City sent to SCC, DHS and EPA letters dated November 9, 1990, concerning the Draft Permits which set forth concerns of the City with respect to the Draft Permits and SCC's operations generally.

Whereas, the City and SCC enter into this Agreement so that the Permit process may continue without interruption or challenge by the City, while at the same time preserving, and not in any way preempting, all rights and approval authority of the City with respect to the proposed facility expansion and modifications and the SCC facility in general.

NOW, THEREFORE, for good and sufficient consideration, the parties hereto agree as follows:

1. Non-Interference with Draft Permit Process. The City shall submit no further comments on the Draft Permits, other than those comments which are prepared, approved, and submitted jointly by SCC and the City, such as this Agreement, and the City shall take no action to oppose, interrupt, or interfere with the approval of the Draft Permits by DHS and EPA, ~~provided, however, that the Draft Permits shall remain in substantially the same form unless changes to the Draft Permits are expressly approved by the City~~. The letter submitting this Agreement to DHS and EPA shall state that the City's comments have been appropriately addressed through the terms of this Agreement and that DHS and EPA shall consider such comments

satisfactorily resolved. If the types and quantities of hazardous waste, treatment processes, treatment capacity, or storage capacity applied for in the Application, as may be modified on or before the Permit comment deadline of January 14, 1991, are materially changed after said date without the prior express written approval of the City, this Agreement shall be voidable by the City.

2. Facility Expansion or Modifications. As provided by the CUP and City Ordinance No. 781, ¶ 25-26, SCC shall not make any change in or alteration of the existing operations of, nor make any modifications of the types and quantities of hazardous waste to be managed at the SCC facility, including but not limited to those contemplated by the EPA Draft Permit, Secs. III.B.(1) and IV.(A), the DHS Draft Permit, Secs. III.C.(3). and III.D., or the application, without the express prior approval of the City, including but not limited to approval of amendments to SCC's CUP, preparation of the appropriate documents required under the California Environmental Quality Act ("CEQA"), and its implementing regulations, and approval under any other applicable law.

3. Waiver of Rights. SCC hereby waives any right to challenge, through litigation or otherwise, any final action or decision by the City concerning the appropriate actions and documents required under CEQA or other applicable law with respect to expansions or modifications provided for in the

satisfactorily resolved. If the types and quantities of hazardous waste, treatment processes, treatment capacity, or storage capacity applied for in the Application, as may be modified on or before the Permit comment deadline of January 14, 1991, are materially changed after said date without the prior express written approval of the City, this Agreement shall be voidable by the City.

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3. Waiver of Rights. SCC hereby waives any right to challenge, through litigation or otherwise, any final action or decision by the City concerning the appropriate actions and documents required under CEQA or other applicable law with respect to expansions or modifications provided for in the

Application. This does not waive or limit SCC's rights to pursue any appeals provided for by City ordinance or practice.

4. Effect of Approval of Final Permits. Approval of Final Permits ("Final Permits") by DHS and EPA shall not preempt, nor have any effect whatsoever, on the City's rights and approval authority over any expansion or modifications of the SCC facility or SCC's operations generally. No such DHS or EPA approval, nor any decision reached by DHS or EPA during the course of the Permit approval process, including but not limited to, the DHS' Initial Study and Negative Declaration contained therein, shall be binding on, or in any way obligate, the City in actions taken or decisions reached by the City under CEQA or other applicable law with respect to the expansion or modifications provided for by the Final Permits, nor binding on, or in any way obligate, any other governmental agency under the Tanner Act, Health and Safety Code Sections 25135 et seq. with respect to such expansion or modifications; further, SCC shall not assert that any such DHS or EPA approval, or any decision reached by DHS or EPA during the course of the Permit approval process, including but not limited to, the DHS' Initial Study and Negative Declaration contained therein, binds or in any way obligates the City in actions taken or decisions reached by the City under CEQA or other applicable law with respect to any expansion or modifications provided for by the Final Permits, or binds or in any way obligates any other governmental agency under the Tanner Act, Health and Safety Code Sections 25135 et seq. with respect to such expansion or

modifications. Notwithstanding Public Resources Code § 21080.1, DHS' Negative Declaration shall not be conclusive on the City with respect to actions taken or decisions reached by it.

5. Inclusion in Draft Permits. The parties shall submit this Agreement to DHS as a written comment on the Draft Permits. SCC shall use its best efforts to ensure that the provision attached hereto as Exhibit A be added as a General Condition to the final permits granted to SCC by DHS and EPA.

6. Warranties. All persons and entities signing this Agreement represent and warrant that (a) they have the authority and capacity to make the arrangements set forth in this Agreement, and (b) they are they owners of and have not transferred, assigned or hypothecated any of the claims, rights, demands, and causes of action they have asserted or released herein.

8. Advice of Counsel. All persons and entities signing this Agreement represent and warrant to each other that they have had advice of counsel of their own choosing in negotiations for and the preparation of this Agreement and that they have read this Agreement or have had the same read to them by their counsel, and that they have had this Agreement fully explained by such counsel and that they are fully aware of its content and legal effect.

9. Assumption of Risk. All parties to this Agreement understand and agree that in entering into this Agreement, they have not relied on any statement of any other party or its attorney.

10. Attorney's Fees and Costs. The parties to this Agreement shall bear their own costs and attorneys' fees in connection with the preparation of this Agreement.

11. Execution of Counterparts. This Agreement shall be binding upon and for the benefit of the parties hereto, their respective successors, devisees, executors, affiliates, representatives, assigns, officers, directors, attorneys, agents and employees.

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement on the following days and year.

Dated: 1/14/91

Southern California Chemical Co.

Original document contains signature

By

Its Vice President

Dated: 1/14/91

The City of Santa Fe Springs

Original document contains signature

By

Its City Manager

EXHIBIT A

[Provision to be added to final state and RCRA hazardous waste facility permits issued by the California Department of Health Services ("DHS") and United States Environmental Protection Agency ("EPA"), respectively, Permit No. 90-3-ST and EPA ID Number CAD008488025, for the existing precious metal recovery and chemical recycling facility (the "Facility") in the M-2, Heavy Manufacturing zone at 8851 Dice Road, Santa Fe Springs, California, operated by Entech Recovery Inc. a.k.a. Southern California Chemical ("SCC").]

Compliance with City Requirements

SCC may not undertake the expansions or modifications of the SCC facility, including but not limited to those contemplated herein by this Permit, without the express prior approval of the City of Santa Fe Springs (the "City"). Approval of this Permit by DHS and EPA shall not preempt, nor have any other effect on, the City's rights and approval authority over any expansion or modifications of the SCC facility or SCC's operations generally.